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STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARDS PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED

ROAD

- SIDEWALK RAMP DETAILS
- DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS
- CONCRETE CURB AND CONCRETE CURB & GUTTERS
- LONGITUDINAL PAVEMENT JOINTS
- TYPICAL JOINT LAYOUT FOR CONCRETE PAVEMENT
- LOCATION OF TRANSVERSE JOINTS IN PLAIN CONCRETE PAVEMENT
- CONCRETE PAVEMENT REPAIR
- GUARDRAIL TYPES A, B, BD, T AND TD
- GUARDRAIL ANCHORAGE, BRIDGE, DETAILS
- GRANULAR BLANKET, UNDERDRAINS AND OUTLET ENDINGS FOR UNDERDRAINS
- SOIL EROSION & SEDIMENTATION CONTROLS MEASURES
- SCODING, SEEDING AND TREE PLANTING
- SUPERELEVATION AND PAVEMENT CROWNS
- TEMPORARY TRAFFIC CONTROL DEVICES
- GUARDRAIL AT INTERSECTIONS

- R-28-J*
- R-29-I
- R-30-G
- R-39-K*
- R-42-F
- R-43-T
- R-44-F
- R-60-J*
- R-67-G*
- R-80-E
- R-96-E
- R-100-H
- R-107-E
- R-125-D*
- 21*

BRIDGE

- 1) BRIDGE RAILING, AESTHTIC PARAPET TUBE
- 2) MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS
- 3) SEE ROAD PLANS FOR ADDITIONAL STANDARD PLANS & SPECIAL DETAILS.

- B-25-K
- B-103-E

PUBLIC UTILITIES

<p>AT&T METRO EAST 100 S MAIN ST, SUITE 314 MT CLEMENS, MI 487043-2374 JOE SIKOKI</p> <p>RIGHT OF WAY- METRO WEST 17651 MICHIGAN AVE., RM 301 DEARBORN, MI 48126 KEVIN LOGAN CELL FAX K129152att.com MARK BRANAM Mark.branam@att.com BRADLEY HALL Bradley.hall@att.com DEREK BULKLEY Derek.m.bulkley@att.com</p> <p>NOTE: AT&T WILL REQUIRE FIVE TO SEVEN BUSINESS DAYS ADVANCE NOTICE PRIOR TO ADJUSTING FRAMES AND COVERS. CONTACT AT&T AT (734) 523-6883.</p> <p>CITY OF DETROIT PUBLIC LIGHTING AUTHORITY OF DETROIT 65 CADILLAC SQUARE, SUITE 3100 DETROIT, MI 48226 PHONE WEBSITE: www.pladetroit.org</p> <p>CITY OF DETROIT DETROIT WATER & SEWERAGE DEPARTMENT 6425 HUBER (CSF) A-219 DETROIT, MI 48211 DEBRA SINGLETON dsingleton@dwsd.org EMERGENCY 24 HOUR SERVICE</p>	<p>TELEPHONE</p> <p>(586) 466-6310</p> <p>(313) 240-5482 (734) 223-5645 (313) 982-1029</p> <p>(313) 240-5390</p> <p>(313) 466-1049</p> <p>(313) 240-5480</p> <p>(313) 324-8290</p> <p>(313) 267-8309</p> <p>(313) 267-7401</p>	<p>CITY OF DETROIT DETROIT FIRE DEPARTMENT FIRE MARSHAL'S DIVISION 1301 THIRD STREET DETROIT, MI 48226 PHONE CHIEF OTIS B. HOLT FAX</p> <p>CITY OF DETROIT, DETROIT POLICE DEPARTMENT DETROIT PUBLIC SAFETY HEADQUARTERS 1301 THIRD STREET DETROIT, MI 48226 PHONE FAX</p> <p>CITY OF DETROIT TRAFFIC ENGINEERING, D.P.W. 2633 MICHIGAN AVENUE DETROIT, MI 48207 ASHOK PATEL FAX AshPat@detroitmi.gov JUBI CHACKUNKAL JubCha@detroitmi.gov KIRIT PATEL Patelki@detroitmi.gov</p> <p>SIGN SHOP 2425 FENKELL DETROIT, MI 48238 SIGN SHOP MANAGE FAX</p> <p>COMCAST CABLEVISION 12775 LYNDON DETROIT, MI 48227 BENE CUMMINGS FAX</p>	<p>FIRE CALL BOXES AND FIRE HYDRANTS</p> <p>(313) 596-2900 (313) 224-1311 (313) 596-2978</p> <p>POLICE CALL BOXES</p> <p>(313) 596-2200 (313) 596-1450</p> <p>PAVEMENT MARKINGS, SIGNS & TRAFFIC SIGNALS</p> <p>(313) 224-1610 (313) 224-1304</p> <p>(313) 224-1315 (313) 407-4124 (313) 628-5641</p> <p>SIGNS REMOVALS & INSTALLATIONS</p> <p>(313) 628-2923 (313) 628-4966</p> <p>TV CABLES</p> <p>(313) 934-2600 (313) 934-4824</p>	<p>DTE, GAS COMPANY ONE ENERGY PLAZA-WCB1722 DETROIT, MI 48226 DAVE ORZEL orzeld2@teenergy.com</p> <p>DTE, ELECTRIC COMPANY ONE ENERGY PLAZA IGS GROUP, 5185B DETROIT, MI 48226 ROBIN O'CONNELL FAX EXPOSED OR DAMAGED FACILITIES</p> <p>DTE, ENERGY/MICHIGAN GAS DATA INTEGRITY GAS ONE ENERGY PLAZA-WCB1836 DETROIT, MI 48226 BARBARA SAUNDERS CELL EXPOSED OR DAMAGED FACILITIES</p> <p>HIGH PRESSURE GAS TRANSMISSION</p> <p>(313) 235-1135</p> <p>ELECTRIC POWER</p> <p>(313) 235-5632 (313) 235-9366 (313) 237-9564</p> <p>GAS MAINS</p> <p>(313) 235-5111 (313) 920-4488 (800) 477-4747</p>	<p>NOTE: CONTACT DTE TEN (10) WORKING DAYS PRIOR TO THE CONSTRUCTION START DATE TO COORDINATE ADJUSTMENTS FOR DETROIT EDISON MANHOLES.</p> <p>DETROIT THERMAL LLC 541 MADISON DETROIT, MI 48226 TOM MONRO FAX</p> <p>STEAM LINES</p> <p>(313) 921-1922 (313) 921-1972</p> <p>ELECTRICITY TRANSMISSION COMPANY</p> <p>(248) 946-3322</p> <p>ALL UNDERGROUND UTILITIES</p> <p>MISS DIG CALL THREE (3) WORKING DAYS BEFORE YOU DIG (800) 482-7171 OR 811</p> <p>WAYNE COUNTY TRAFFIC OFFICE 29900 GODDARD RD. DETROIT, MI 48242 PHONE</p> <p>(734) 955-2154</p>
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CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS



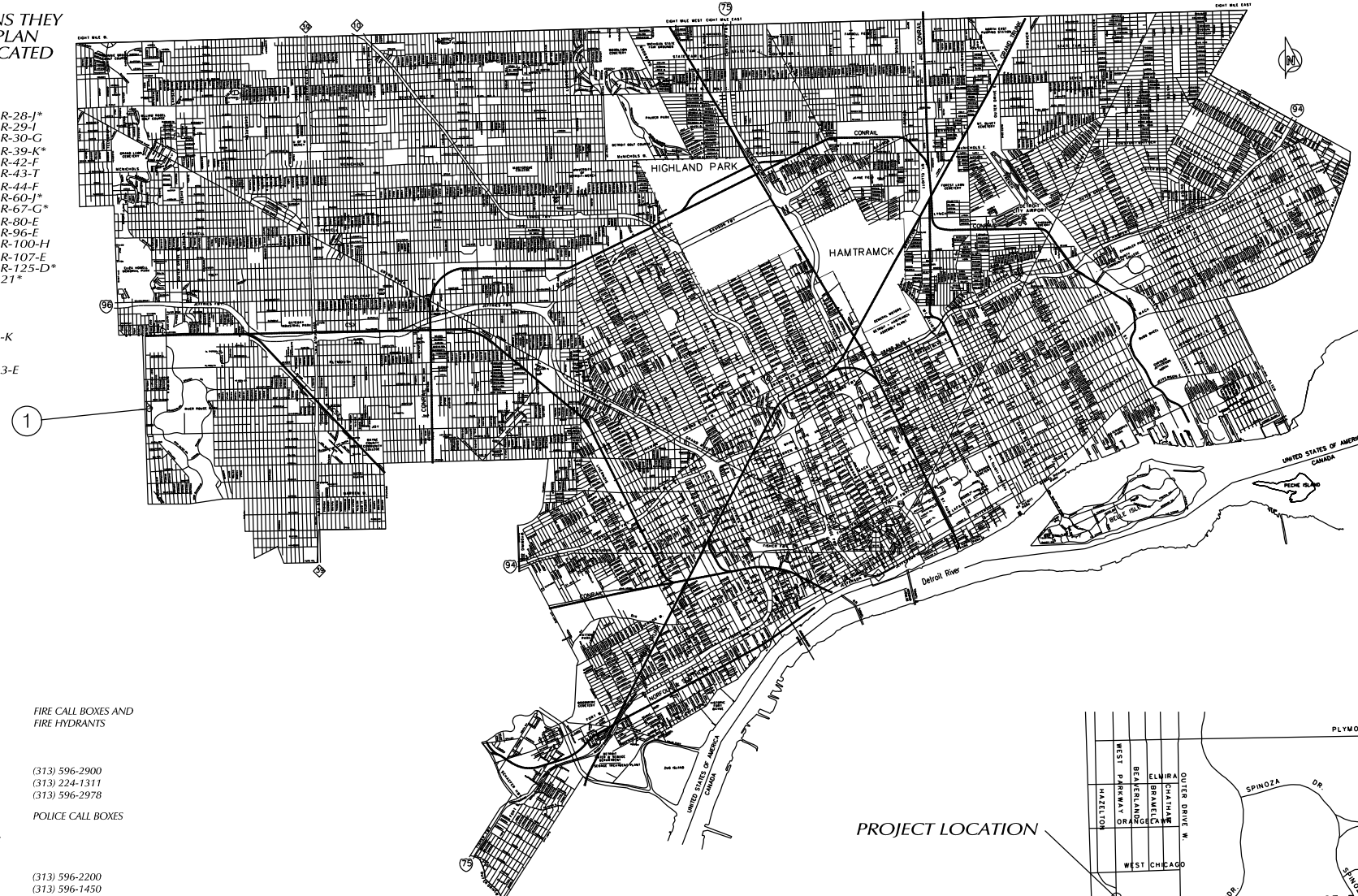
CONTROL SECTION

XXX XXXXX

PROJECT JOB NO.

PW-6987

CULVERT REPLACEMENT PROJECT
REPLACEMENT OF THE W. PARKWAY CULVERT OVER
ASHCROFT - SHERWOOD DRAIN



PROJECT LOCATION



THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AMERICAN ASSOCIATION OF THE STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO), FOR HIGHWAY BRIDGES HS 25 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF THE SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR CONSTRUCTION 2003 EDITION.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BELIEVE WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIALS OF THE FOLLOWING GRADES AND STRESSES.

- CONCRETE: GRADE S2 f'c = 3,000 PSI
- CONCRETE: GRADE D f'c = 4,000 PSI
- STEEL REINFORCEMENT: fy = 60,000 PSI
- PRESTRESSED CONCRETE: f'c = 5,000 PSI

ALL DIMENSIONS ON THESE PLANS ARE IN INCHES EXCEPT AS NOTED.



DESIGNED BY LA		Date: 01/24/2018
Drawn WLW		
Checked By ---	Approved By ---	Job No: PW-6987
<p>CONTRACT FOR:</p> <p>REPLACEMENT OF THE W. PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN</p>		
<p>LOCAL AUTHORITY APPROVAL CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERING DIVISION</p>		
APPROVED BY	DATE	
<p>PREPARED UNDER THE SUPERVISION OF</p> <p>REGISTERED PROFESSIONAL ENGINEER REGISTRATION NO.</p> <p>CITY OF DETROIT ORGANIZATION</p> <p>CITY ENGINEERING DIVISION, D.P.W. 2 WOODWARD AVE. SUITE 601 DETROIT MI 48216 ADDRESS</p>		
SHEET 01 OF 39		

CONTROL SECTION NO.: XXX XXXXX
JOB NO.: PW-6987

BENCHMARKS

BM#1 ELEV = 616.82
CHISEL MARK 26.4 FEET
RIGHT OF STA 4+81

BM#2 ELEV = 605.44
CHISEL MARK SW COR.
W. PARKWAY & MEADOWPARK

WITNESSES

WITNESSES TO CP#2 EAST - W. PARKWAY, NORTH HAZELTON
55' FRONT LIGHTPOLE NORTH

CP#86 SW COR. W. PARKWAY & MEADOWPARK
5' N. FIRE HYDRANT
7' W. CURB LINE
30' S. SOUTH CURB LINE OF MEADOWPARK

REF PT COORDINATES

REF PT A X=5000.00
Y=5092.93

REF PT B X=5040.57
Y=4555.99

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDED REMOVAL OF THE EXISTING METAL CORRUGATED STEEL CULVERT, CONSTRUCTION OF THE PROPOSED CULVERT & RETAINING WALL, PLACING RIPRAP TO THE LIMITS SHOWN, RE-WORK APPROACHES AND MAINTAINING TRAFFIC. ALL OTHER WORK NOT INCLUDED IN THESE PLANS THAT AREN'T PART OF THE PACKAGE.

THE STATIONING SHOWN IS UNIQUE TO THIS PROJECT AND CANNOT BE RELATED TO ANY OTHER EXISTING STATIONING.

W. PARKWAY TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURES. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE.

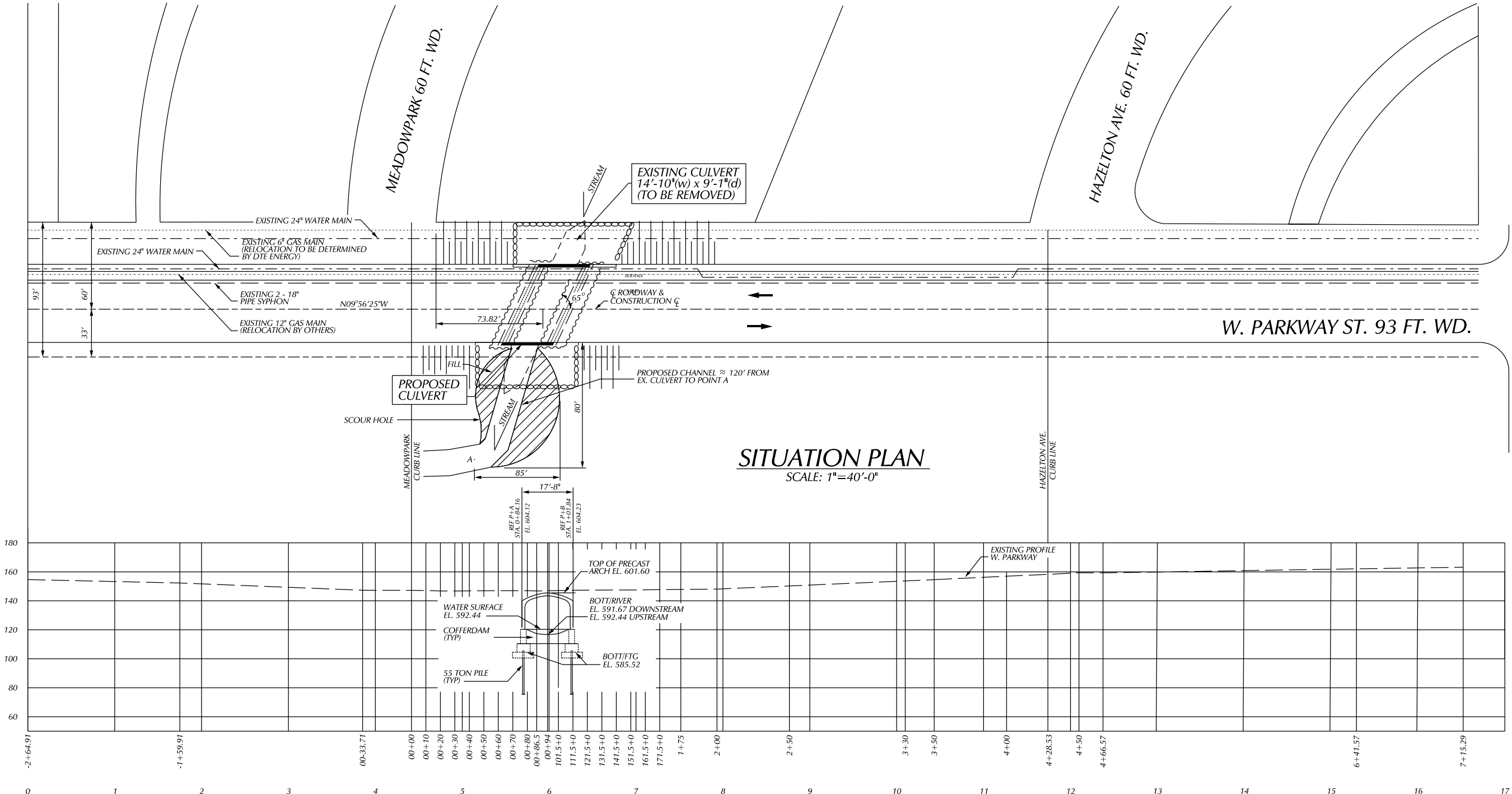
IMMEDIATELY AFTER THE CONSTRUCTION OF A CULVERT SLOPE IS COMPLETED, SLOPE PROTECTION AND SEEDING OR SODDING SHALL BE PLACED ON THE ADJACENT EMBANKMENT SLOPES.

PLANS REFER TO THE NAVD88 DATUM.

THE SURVEY INFORMATION ON THIS PROJECT WAS ACQUIRED BY THE CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS, CITY ENGINEER DIVISION SURVEYOR.

SCALE	HORIZONTAL	BOOK NO.	PG.	LEVEL
	VERTICAL			DATE
		PAVING COMPLETED		

BENCH MARKS ELEV



SITUATION PLAN
SCALE: 1"=40'-0"

PROPOSED PROFILE ALONG W. PARKWAY GRADE
VERT. SCALE: 1"=10'
HOR. SCALE: 1"=40'

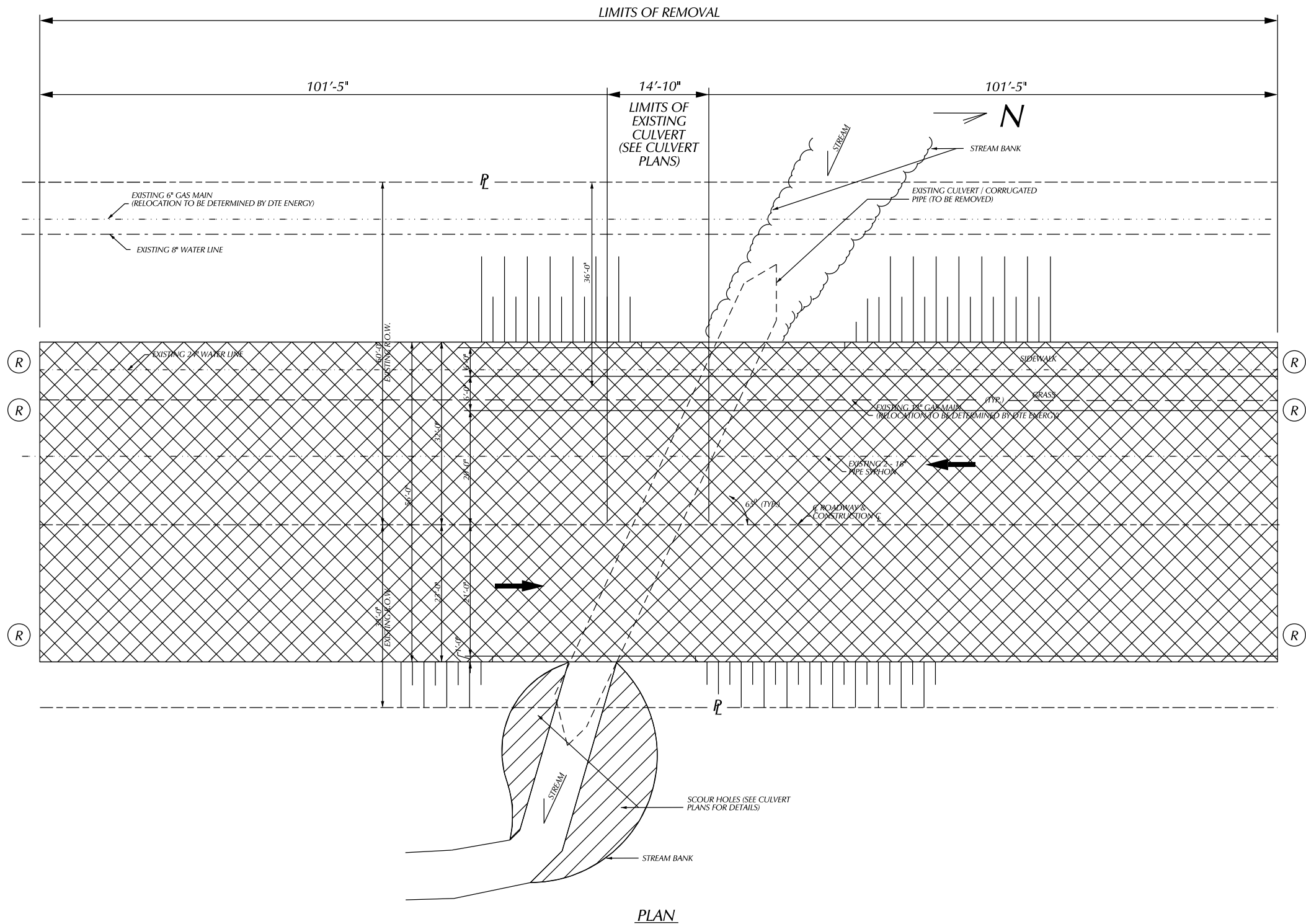
PLAN	BY	CHECKED BY	APPROVED
GRADE			
ESTIMATE			
DESCRIPTION	OR	DATE	
REVISIONS			

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

GENERAL PLAN OF SITE

SHEET 2 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018



REMOVAL LEGEND	
REMOVING HMA	
COLD-MILLING HMA	
REMOVING SIDEWALK	
REMOVING PAVEMENT	
HMA BASE CRUSHING AND SHAPING	
REMOVING CURB, GUTTER AND CURB & GUTTER	
REMOVING	(R)
ABANDING	(A)
SAVE	(S)
BULKHEAD	(B)
CLEARING	(C)

REMOVAL QUANTITIES	
6 EA	TREE, REM, 6 INCH TO 18 INCH
3 EA	TREE, REM, 18 INCH TO 36 INCH
4 EA	DR STRUCTURE, REM
436 FT	CURB AND GUTTER, REM
436 FT	GUARDRAIL, REM
970 SYD	PAVT, REM
291 SYD	SIDEWALK, REM

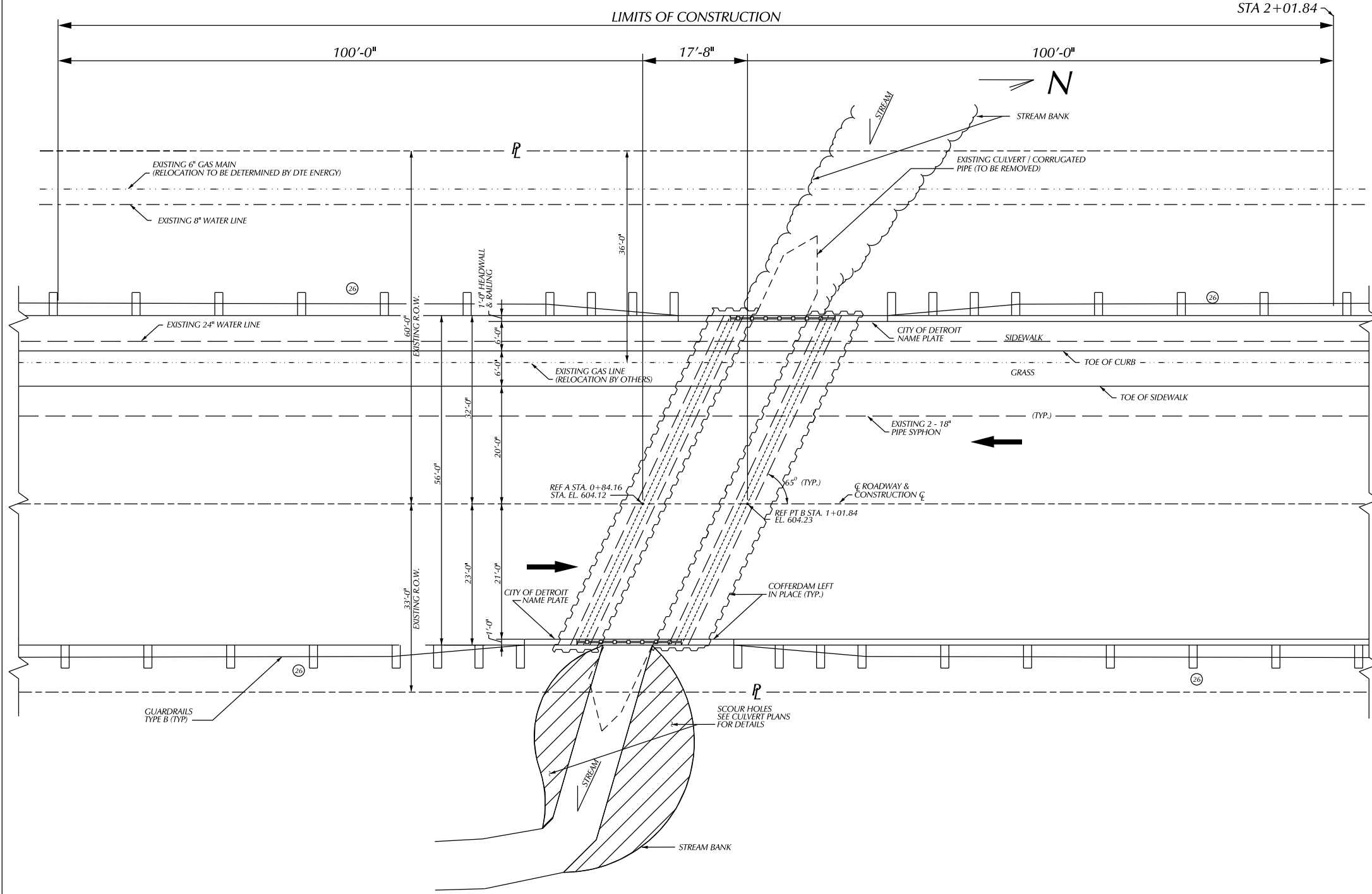
- NOTES:**
- NOTE 1:
SEE CULVERT PLANS FOR REMOVAL OF EX. CULVERT.
- NOTE 2:
EX. POWER AND LIGHT POLES ON _____ SIDE WILL BE PERMANENTLY REMOVED FOR CONSTRUCTION OF THIS PROJECT (BY DTE)
- NOTE 3:
EX. _____ WATER MAIN BECOMES LIVE AGAIN BETWEEN _____ AND _____ W. PARKWAY. CONTRACTOR SHALL ENSURE THAT BULKHEAD DOES NOT BLOCK OUT ANY EXISTING LIVE FEEDS.
- NOTE 4:
EX. _____ GAS WILL BE SHUTDOWN BY MICHCON (DTE) PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REMOVE THE OUT OF SERVICE SECTION DURING SIDEWALK REMOVAL. MICHCON (DTE) MAY REPLACE _____ DURING CONSTRUCTION.
- NOTE 5:
POSSIBLE WEIR REMOVAL WITHIN _____ SEWER. REMOVED AS DIRECTED BY THE ENGINEER. WORK SHALL BE PAID FOR AS MASONRY CONC. STRUCTURE, REM.
- NOTE 6:
VERIFY REMOVAL OF EXISTING SANITARY SEWER WITH THE DWSD ENGINEER.

DESCRIPTION	DR	CHK	DATE	BY	CHECKED BY	APPROVED:
PLAN						
GRADE						
ESTIMATE						
FINAL						

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN
REMOVAL

SHEET 4 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018



NOTES:

- NOTE 1: SEE CULVERT PLANS FOR CONSTRUCTION OF NEW RETAINING WALL AND BRIDGE CULVERT
- NOTE 2: MATCH FLOWLINES
- NOTE 3: TAPER PAVEMENT WIDTH
- * - MATCH EXISTING SLOPE
- ** - CONTRACTOR SHALL MATCH PROPOSED PAVEMENT DEPTHS WITH EXISTING

CONSTRUCTION QUANTITIES

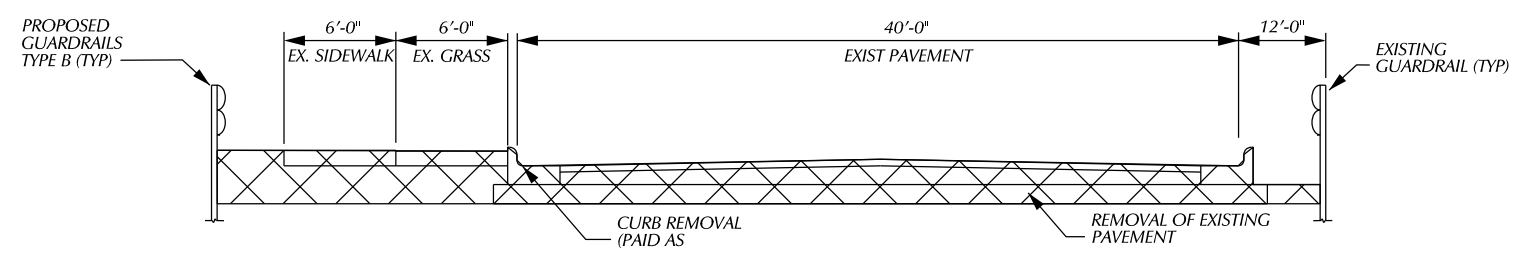
970 SYD	AGGREGATE BASE, 6 INCH
70 SYD	GEOTEXTILE SEPARATOR
170 TON	HMA, 4E3
180 TON	HMA, 5E3
400 FT	CURB, CONC, DET E2
200 FT	CURB AND GUTTER, CONC, DET F5
1,310 SFT	SIDEWALK, CONC, 6 INCH
50 SFT	SIDEWALK, RAMP, ADA
1 EA	GUARDRAIL DEPARTING TERMINAL, TYPE B
436 FT	GUARDRAIL, TYPE B
1 LS	SITE PREPARATION, MAX \$600.00

ENVIRONMENTAL NOTE:
SILT FENCE SHALL BE INSTALLED FROM STA. TO STA. (LT) AS DIRECTED BY THE ENGINEER.

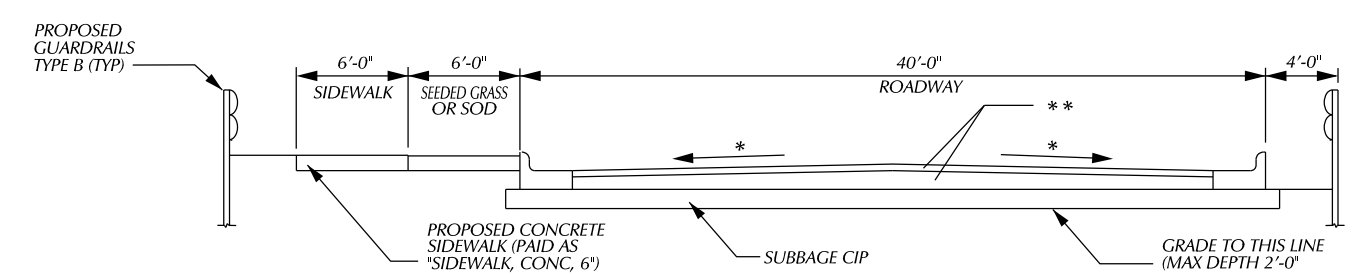
EROSION AND SEDIMENTATION CONTROL

KEY	QUANTITY	PAY ITEM
20	450 FT	EROSION CONTROL, SILT FENCE
39A	4 EA	EROSION CONTROL, INLET PROTECTION, FABRIC DROP
24	SEE CULVERT PLANS	EROSION CONTROL, SAND BAG
	15 LB	SEEDING, MIXTURE CR.
	300 SYD	SODDING
	300 SYD	MULCH

PLAN



CROSS - SECTION AT CULVERT APPROACHES (REMOVAL)



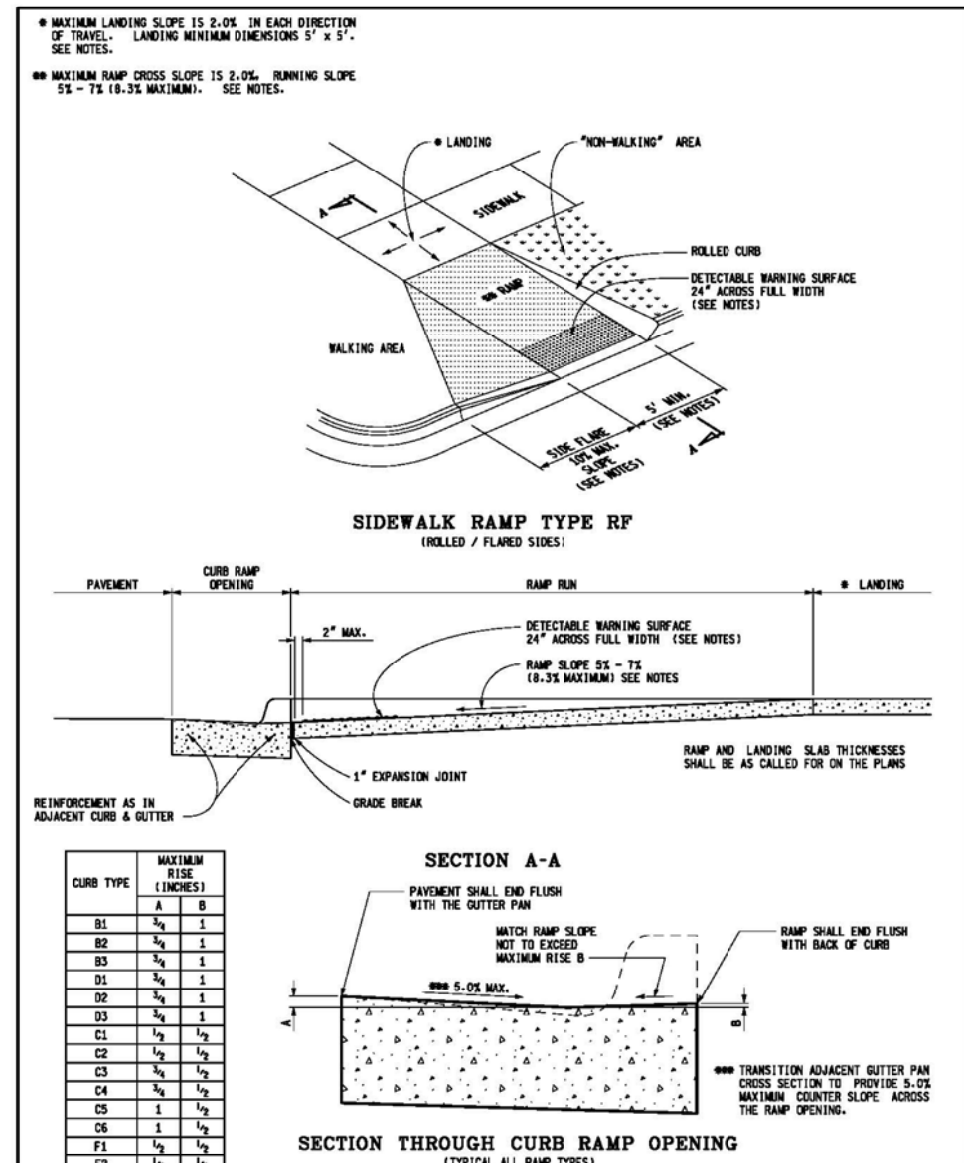
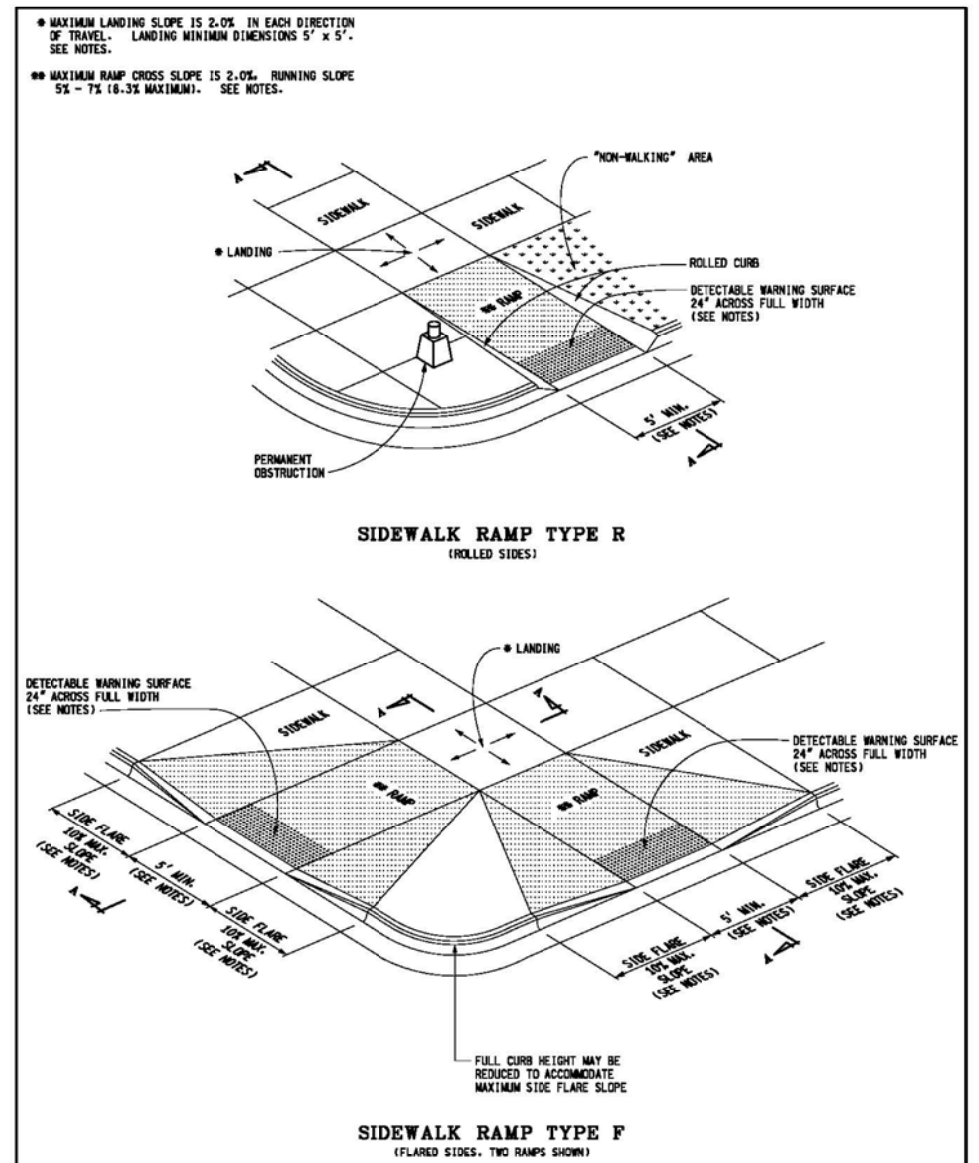
PROPOSED CROSS - SECTION AT CULVERT APPROACHES

DESCRIPTION	DATE	BY	CHECKED BY	APPROVED
REVISIONS				

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

CONSTRUCTION



	DEPARTMENT DIRECTOR Kirk T. Stouffe	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR
	APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES	SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
	PREPARED BY DESIGN DIVISION	
	DRAWN BY: <u>B.L.T.</u> CHECKED BY: <u>W.K.P.</u>	
	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	F.H.W.A. APPROVAL
		12-11-2017 PLAN DATE
		R-28-J
		SHEET 1 OF 7

	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR
	SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
	F.H.W.A. APPROVAL
	12-11-2017 PLAN DATE
	R-28-J
	SHEET 2 OF 7

AS-LET PLAN REVISIONS					
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE

VERT. (FT)
 0 ————— 0
 HORZ. (FT)

DATE: _____ CS: _____
 DESIGN UNIT: _____ JN: _____
 TSC: _____

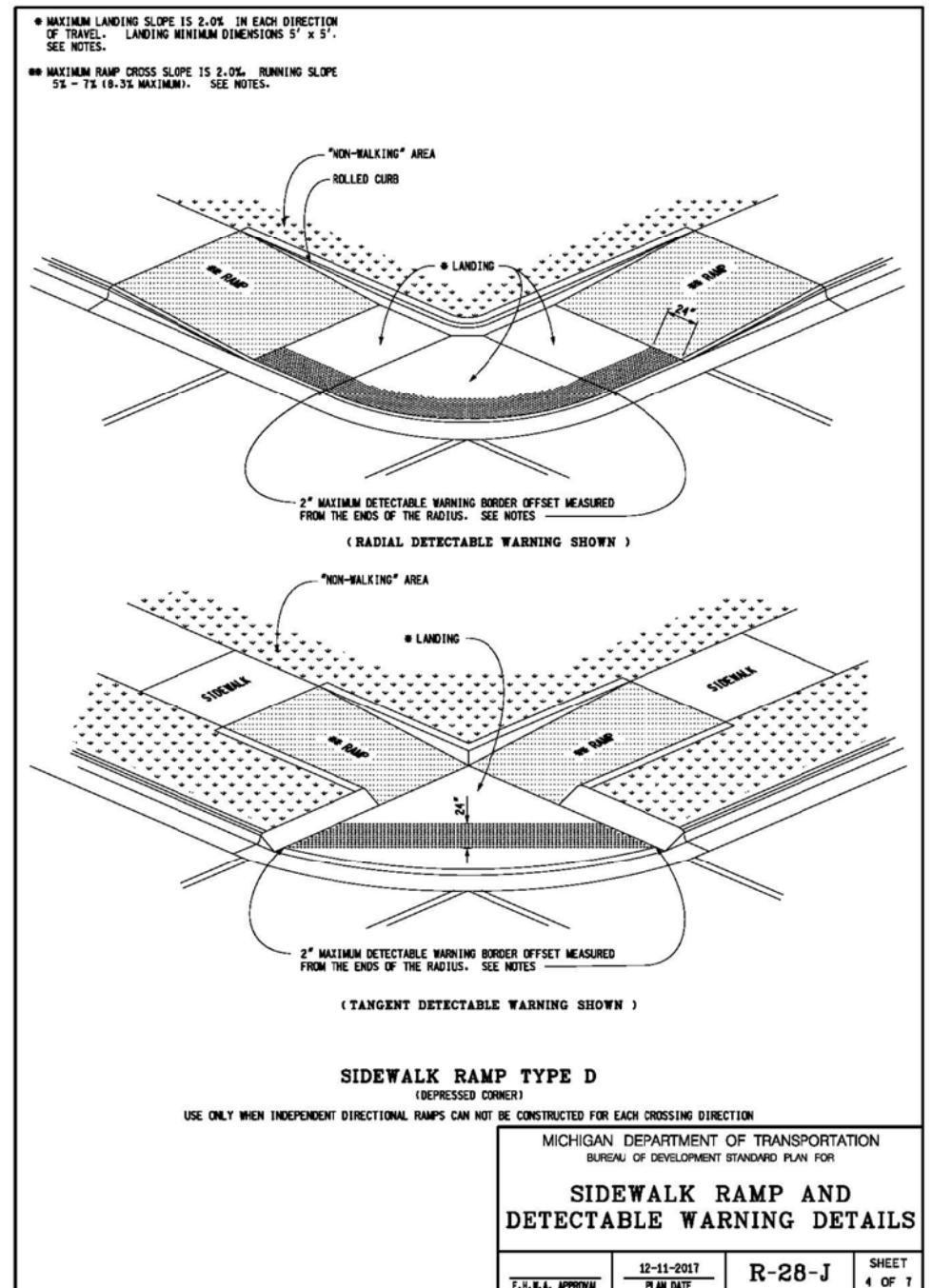
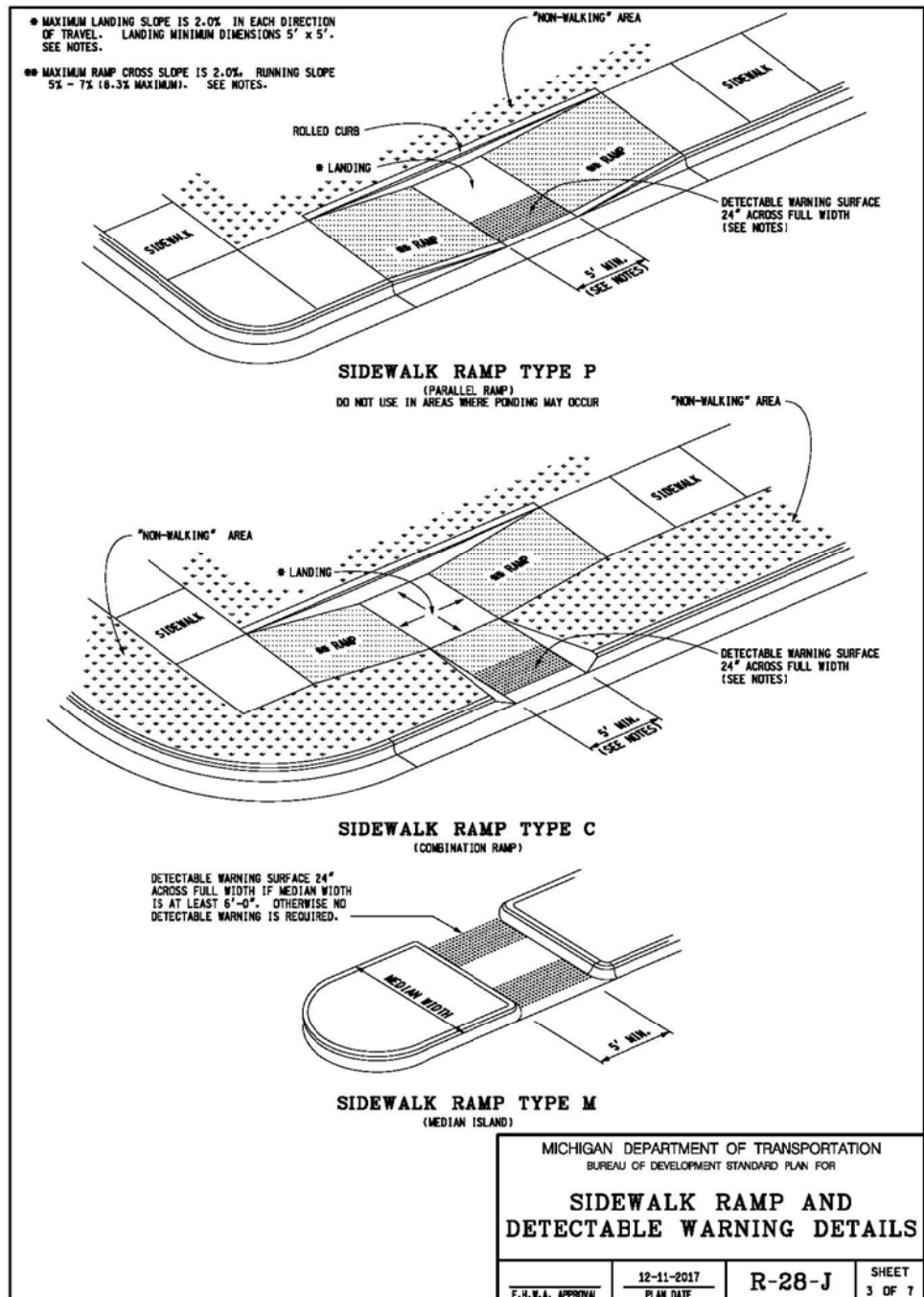
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CITY OF DETROIT
 CITY ENGINEERING DIVISION - D.P.W.
 BUREAUS OF STREETS AND HIGHWAYS
 FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN
ROAD - DETAILS

SHEET	6	OF	39	SHEETS
CONTRACT NO.	PW-6987			
ASSIGNMENT NO.				
DATE	01/24/2018			



AS-LET PLAN REVISIONS				MICHIGAN DEPARTMENT OF TRANSPORTATION				VERT. (FT)		DATE:		DRAWING SHEET	
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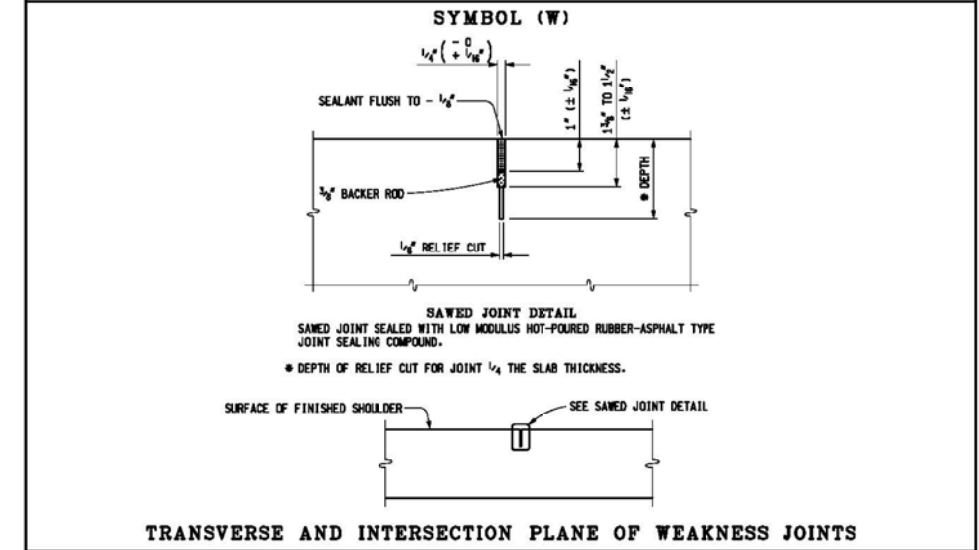
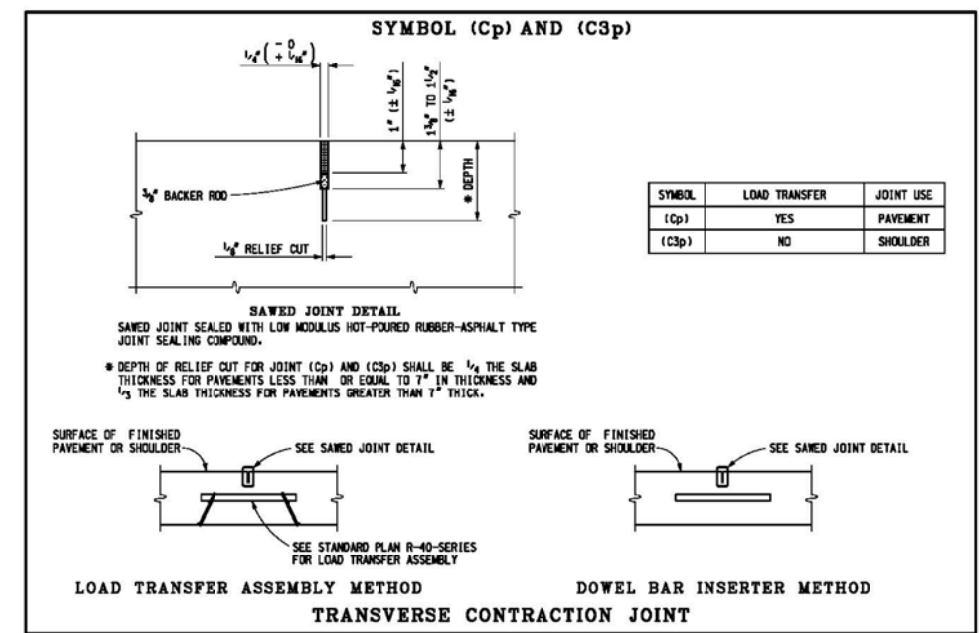
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CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

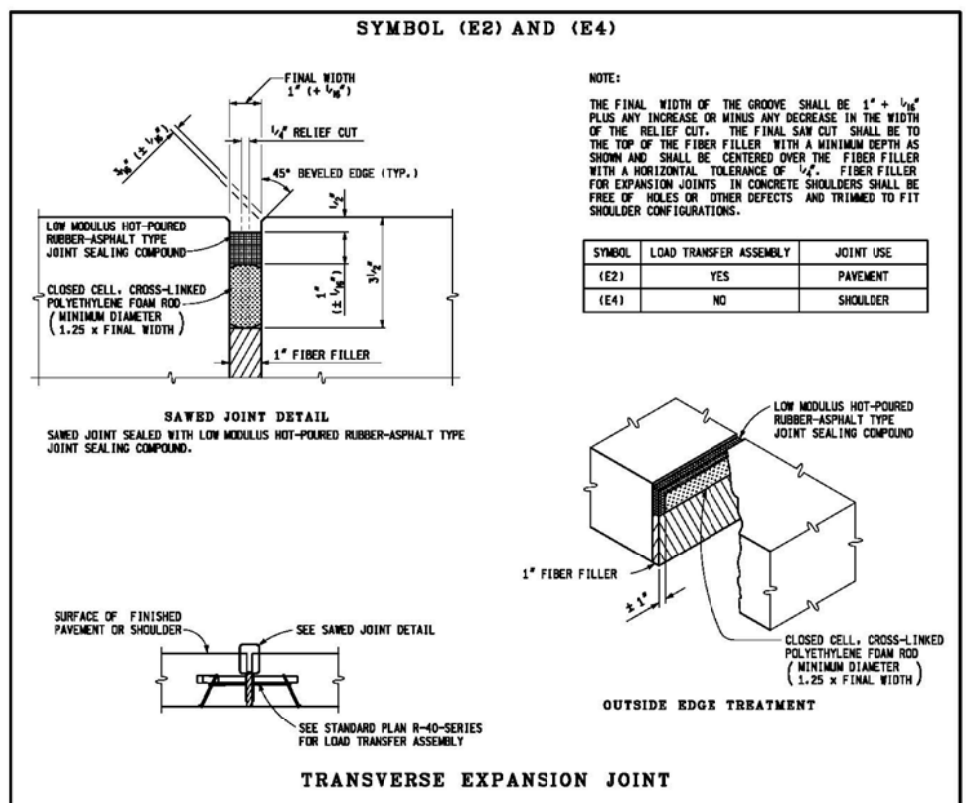
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

SHEET	7	OF	39	SHEETS
CONTRACT NO.	PW-6987			
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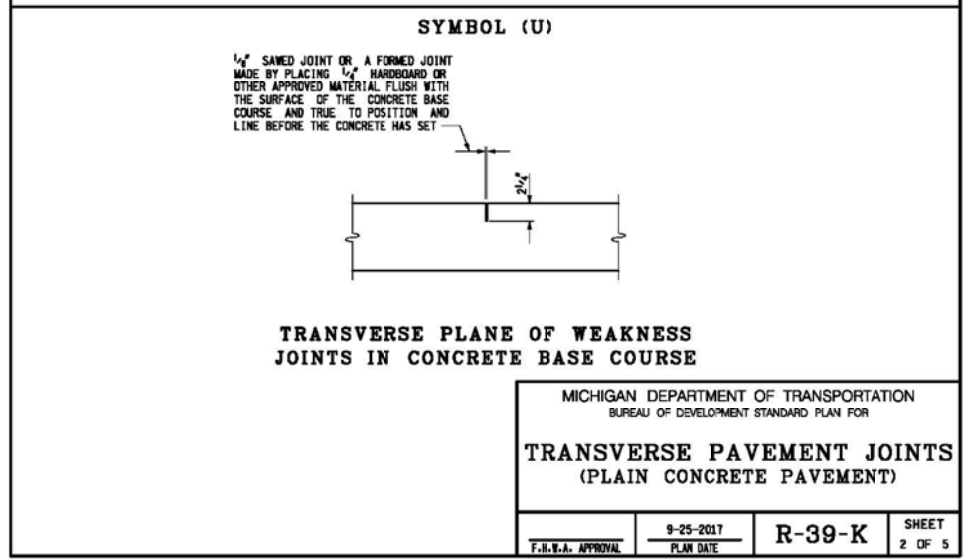


<p>PREPARED BY DESIGN DIVISION DRAWN BY: B.H.L. CHECKED BY: B.K.P.</p>	<p>DEPARTMENT DIRECTOR Mark T. Staudts</p> <p>APPROVED BY: _____ ENGINEER OF DELIVERY</p> <p>APPROVED BY: _____ ENGINEER OF DEVELOPMENT</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <p>TRANSVERSE PAVEMENT JOINTS (PLAIN CONCRETE PAVEMENT)</p>
	<p>F.I.R.A. APPROVAL</p> <p>9-25-2017 PLAN DATE</p> <p>R-39-K</p> <p>SHEET 1 OF 5</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <p>TRANSVERSE PAVEMENT JOINTS (PLAIN CONCRETE PAVEMENT)</p>



NOTE:
THE FINAL WIDTH OF THE GROOVE SHALL BE 1" + 1/8" PLUS ANY INCREASE OR MINUS ANY DECREASE IN THE WIDTH OF THE RELIEF CUT. THE FINAL SAW CUT SHALL BE TO THE TOP OF THE FIBER FILLER WITH A MINIMUM DEPTH AS SHOWN AND SHALL BE CENTERED OVER THE FIBER FILLER WITH A HORIZONTAL TOLERANCE OF 1/4". FIBER FILLER FOR EXPANSION JOINTS IN CONCRETE SHOULDERS SHALL BE FREE OF HOLES OR OTHER DEFECTS AND TRIMMED TO FIT SHOULDER CONFIGURATIONS.

SYMBOL	LOAD TRANSFER ASSEMBLY	JOINT USE
(E2)	YES	PAVEMENT
(E4)	NO	SHOULDER



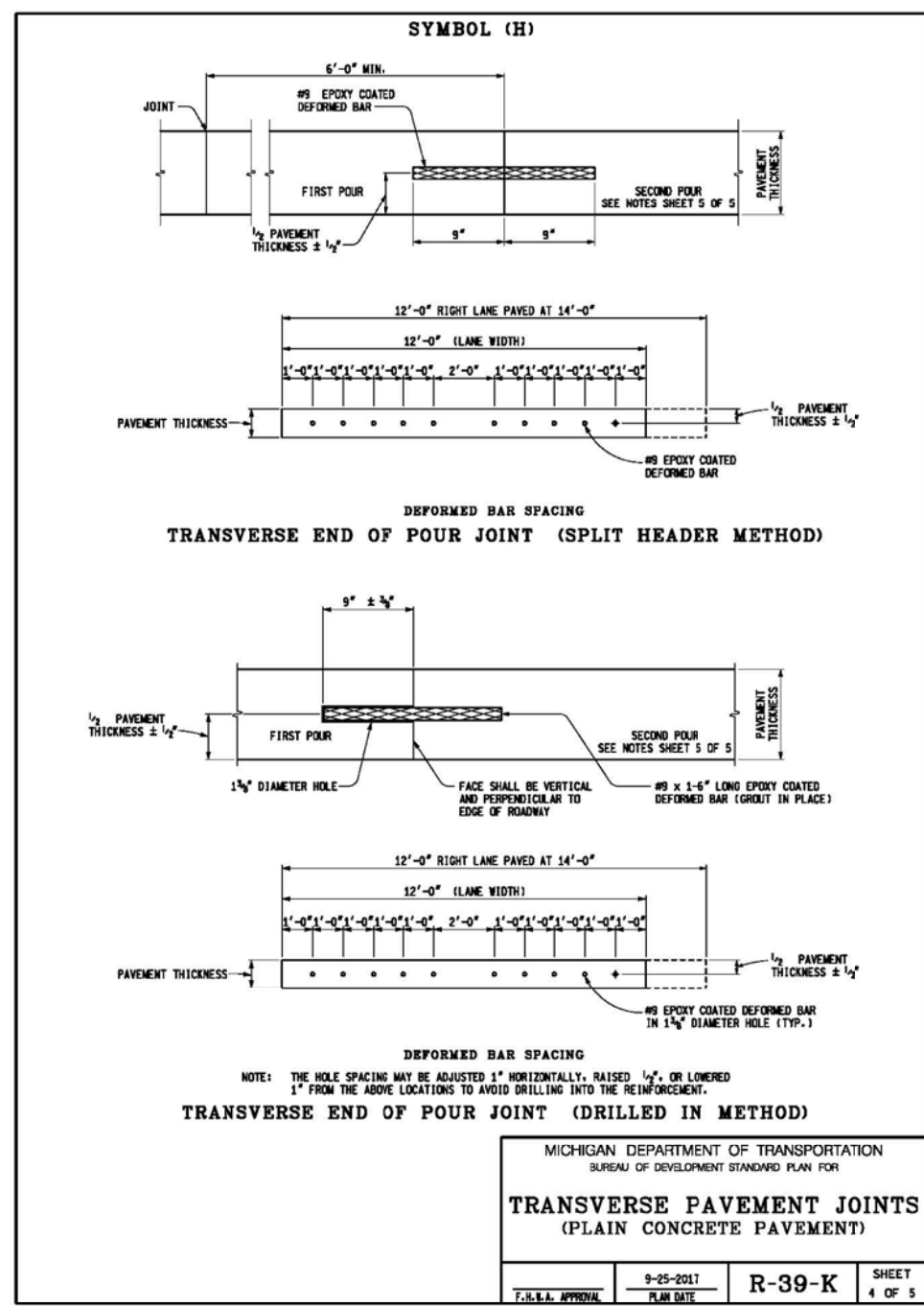
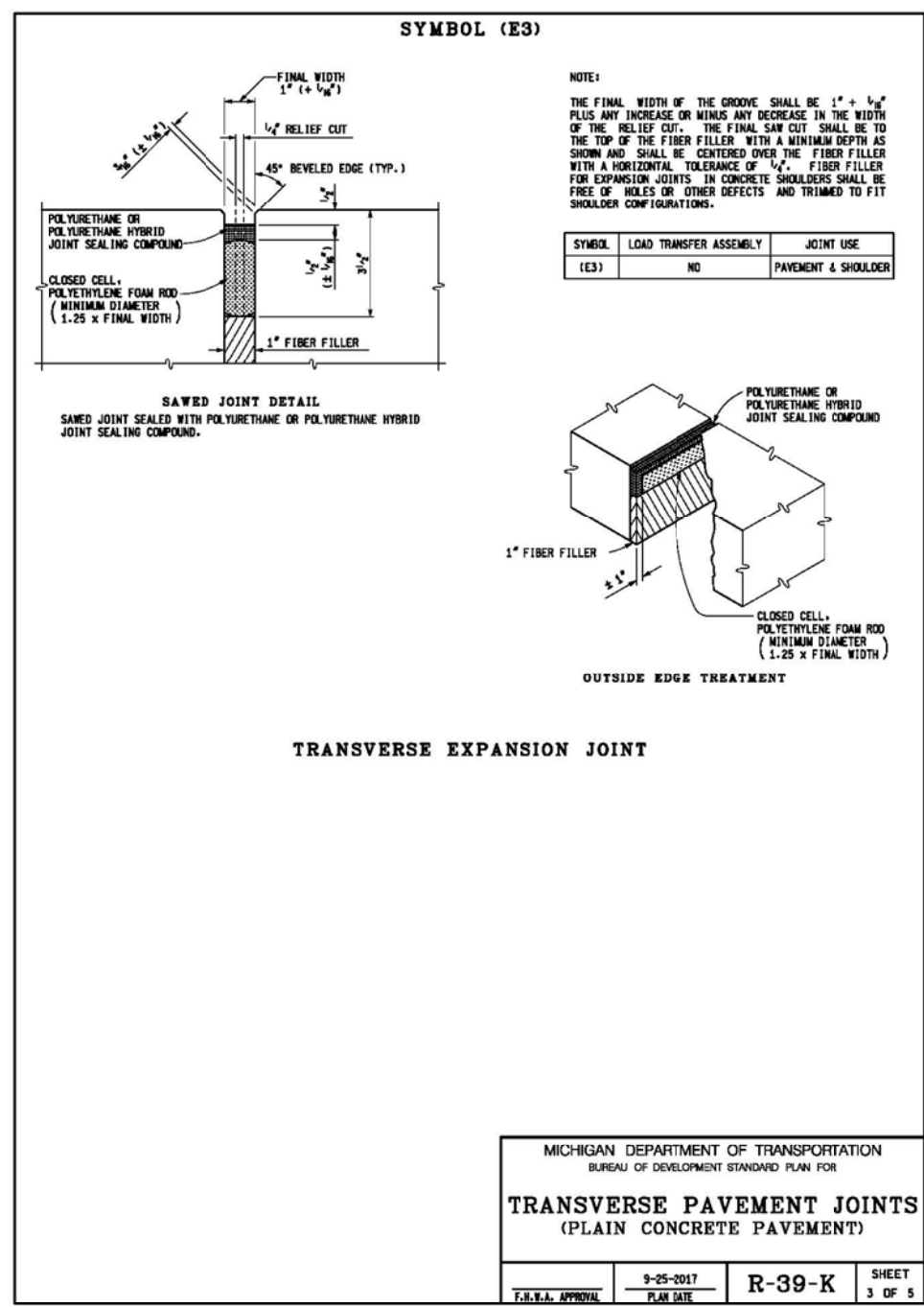
<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <p>TRANSVERSE PAVEMENT JOINTS (PLAIN CONCRETE PAVEMENT)</p>	<p>F.I.R.A. APPROVAL</p> <p>9-25-2017 PLAN DATE</p> <p>R-39-K</p> <p>SHEET 2 OF 5</p>
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AS-LET PLAN REVISIONS							<p>0 VERT. (FT)</p> <p>0 HORZ. (FT)</p>	DATE:	CS:	DRAWING SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE			AUTH	DESCRIPTION	

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AS-LET PLAN REVISIONS				MICHIGAN DEPARTMENT OF TRANSPORTATION				DATE:		CS:		DRAWING SHEET	
NO.	DATE	AUTH.	DESCRIPTION	NO.	DATE	AUTH.	DESCRIPTION	DATE:	DESIGN UNIT:	CS:	JN:	DRAWING SHEET	



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GRADE							
ESTIMATE							
REVISIONS							

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

SHEET	11	OF	39	SHEETS
CONTRACT NO.	PW-6987			
ASSIGNMENT NO.				
DATE	01/24/2018			

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

F.H.W.A. APPROVAL	PLAN DATE	SHEET OF
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SYMBOL (H)

TRANSVERSE END OF POUR JOINT (PLASTIC TUBE METHOD)

NOTES:

LOAD TRANSFER ASSEMBLIES ARE DETAILED ON THE CURRENT STANDARD PLAN R-40-SERIES.

TRANSVERSE JOINTS SHALL BE SPACED ACCORDING TO THE CURRENT STANDARD PLAN R-43-SERIES.

A TRANSVERSE END OF POUR JOINT (DRILLED IN METHOD) SYMBOL (H), SHALL BE CONSTRUCTED WHEN IT IS ANTICIPATED THAT THE SECOND POUR WILL BE DELAYED 7 DAYS OR LONGER.

A TRANSVERSE END OF POUR JOINT (SPLIT HEADER METHOD) OR (PLASTIC TUBE METHOD) SHALL BE USED AT THE END OF THE DAY'S POUR OR WHEN THERE IS AN UNAVOIDABLE INTERRUPTION OF THE WORK FOR MORE THAN ONE-HALF HOUR AND LESS THAN 7 DAYS. THE JOINT SHALL BE CONSTRUCTED ACCORDING TO TRANSVERSE END OF POUR JOINT (SPLIT HEADER METHOD) OR (PLASTIC TUBE METHOD), SYMBOL (H).

THE EXPANSION JOINT MATERIAL IN THE SHOULDERS SHALL BE SUPPORTED BY ONE OF THE FOLLOWING METHODS:

- A CONTINUOUS SUPPORT WIRE, AS SPECIFIED FOR EXPANSION LOAD TRANSFERS ASSEMBLIES, AS DETAILED ON STANDARD PLAN R-40-SERIES, SHALL BE USED ON EACH SIDE OF EXPANSION MATERIAL. THIS WIRE SHALL BE EQUIPPED WITH STAKES AND STAKE POCKETS TO RIGIDLY HOLD THE EXPANSION MATERIAL IN PLACE DURING CONCRETE PLACEMENT. STAKES SHALL BE AS SPECIFIED ON STANDARD PLAN R-40-SERIES, SPACED NOT MORE THAN 2'-0" APART.
- "U" OR "J" SHAPE STAPLES OF W8 WIRE (0.315" NOMINAL DIAMETER) SHALL BE SPACED ON 2'-0" CENTERS, EACH SIDE OF THE EXPANSION MATERIAL. EACH VERTICAL LEG OF THE STAPLE SHALL BE AT LEAST 1'-3" LONG.
- OTHER EQUIVALENT METHODS MAY BE USED WHEN APPROVED BY THE ENGINEER.

JOINTS SHALL NOT BE SEALED IN CONCRETE BASE COURSE.

WHEN CONCRETE SHOULDERS ARE CAST SEPARATELY FROM MAINLINE CONCRETE PAVEMENT, A KEYWAY MAY BE USED TO FACILITATE THE PLACING OF LAME TIES. WHEN A KEYWAY GROOVE IS USED, IT SHALL BE CONTINUOUS AND UNIFORM.

THE LOCATION OF TRANSVERSE JOINTS IN CONCRETE SHOULDERS SHALL MATCH THE LOCATION OF ADJACENT TRANSVERSE PAVEMENT JOINTS. CORRESPONDING TRANSVERSE CONCRETE SHOULDER AND PAVEMENT JOINTS SHALL BE (C3) SHOULDER WITH (C3) PAVEMENT, (E4) SHOULDER WITH (E2) PAVEMENT, AND (E3) BEING THE SAME IN BOTH SHOULDER AND PAVEMENT.

DEFORMED BARS FOR TRANSVERSE END OF POUR JOINTS (DRILLED IN METHOD) SHALL BE GROUTED INTO EXISTING PAVEMENT WITH A GROUT SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SOURCE GUIDE" UNDER ADHESIVE SYSTEMS FOR GROUTING DOBEL BARS AND TIE BARS FOR FULL-DEPTH PAVEMENT REPAIRS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**TRANSVERSE PAVEMENT JOINTS
(PLAIN CONCRETE PAVEMENT)**

F.H.W.A. APPROVAL	9-25-2017 PLAN DATE	R-39-K SHEET 5 OF 5
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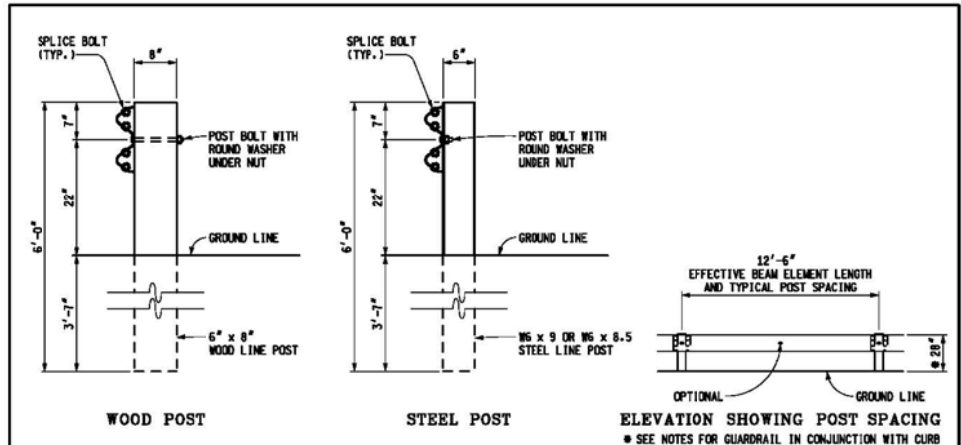
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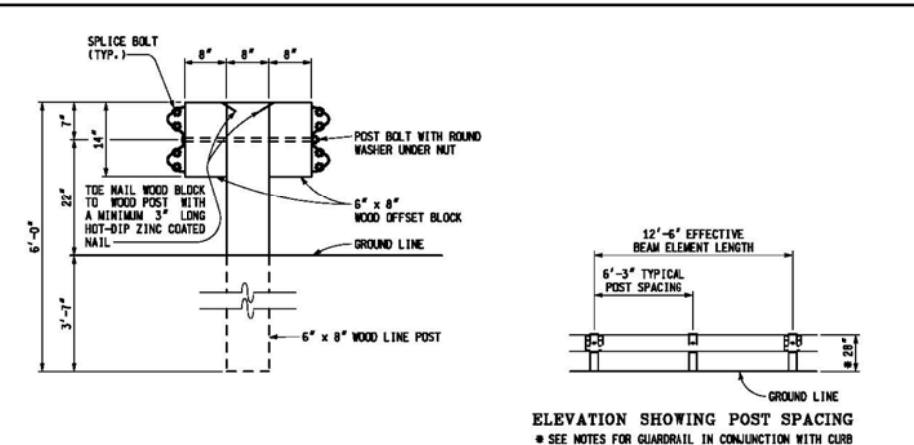
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	BY	CHECKED BY	APPROVED:	CITY OF DETROIT CITY ENGINEERING DIVISION - D.P.W. BUREAUS OF STREETS AND HIGHWAYS FOR	WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN	ROAD - DETAILS	SHEET 12 of 39 SHEETS CONTRACT NO. PW-6987 ASSIGNMENT NO. DATE 01/24/2018
PLAN							
GRADE							
ESTIMATE							
DESCRIPTION	DR	CK	APPROV	DATE			
REVISIONS	FINAL	****	****				



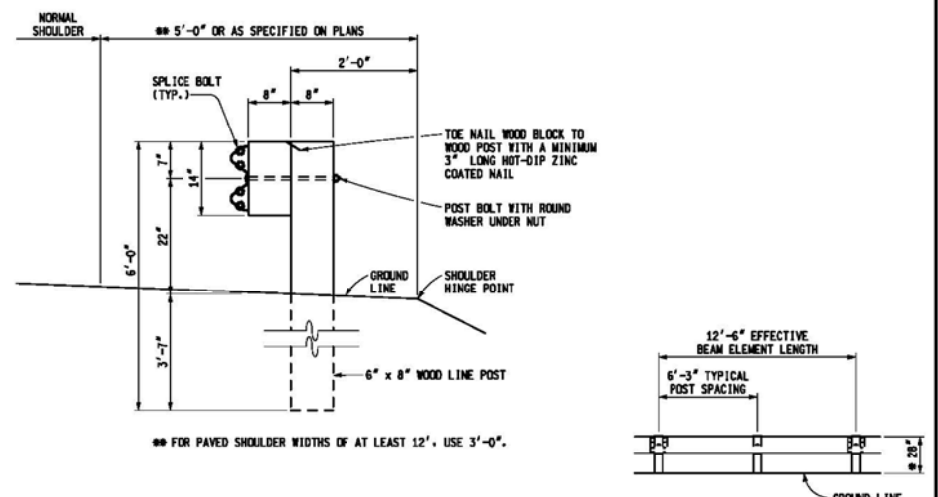
WOOD POST STEEL POST
ELEVATION SHOWING POST SPACING
* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

GUARDRAIL, TYPE A



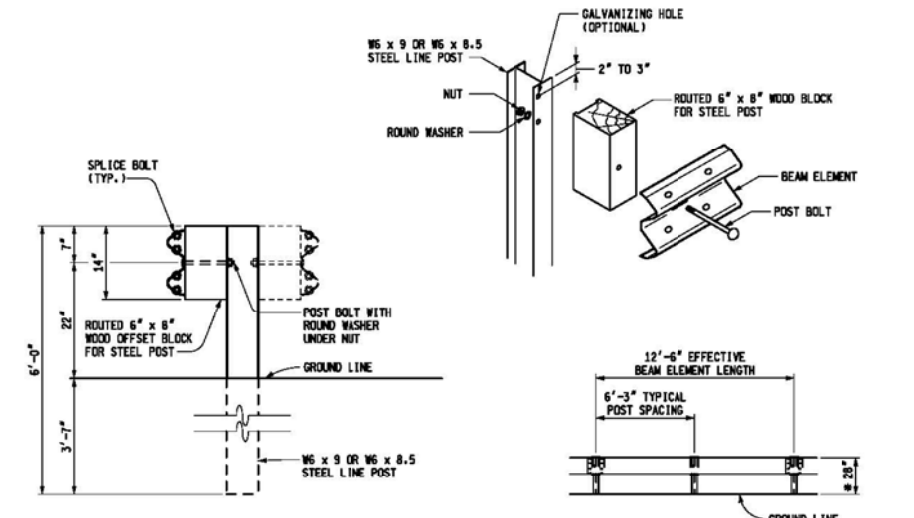
ELEVATION SHOWING POST SPACING
* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

GUARDRAIL, TYPE BD (WOOD POST)



ELEVATION SHOWING POST SPACING
* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

GUARDRAIL, TYPE B (WOOD POST)



ELEVATION SHOWING POST SPACING
* SEE NOTES FOR GUARDRAIL IN CONJUNCTION WITH CURB

GUARDRAIL, TYPE B (OR BD) (STEEL POST)

<p>PREPARED BY DESIGN DIVISION DRAWN BY: B.L.T. CHECKED BY: R.K.P.</p>	<p>DEPARTMENT DIRECTOR Kirk T. Staudie</p> <p>APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D</p>		
	<p>APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT</p>	<p>T.H.W.A. APPROVAL</p>	<p>7-26-2017 PLAN DATE</p>	<p>R-60-J</p>
			<p>SHEET 1 OF 17</p>	

<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D</p>			
<p>T.H.W.A. APPROVAL</p>	<p>7-26-2017 PLAN DATE</p>	<p>R-60-J</p>	<p>SHEET 2 OF 17</p>

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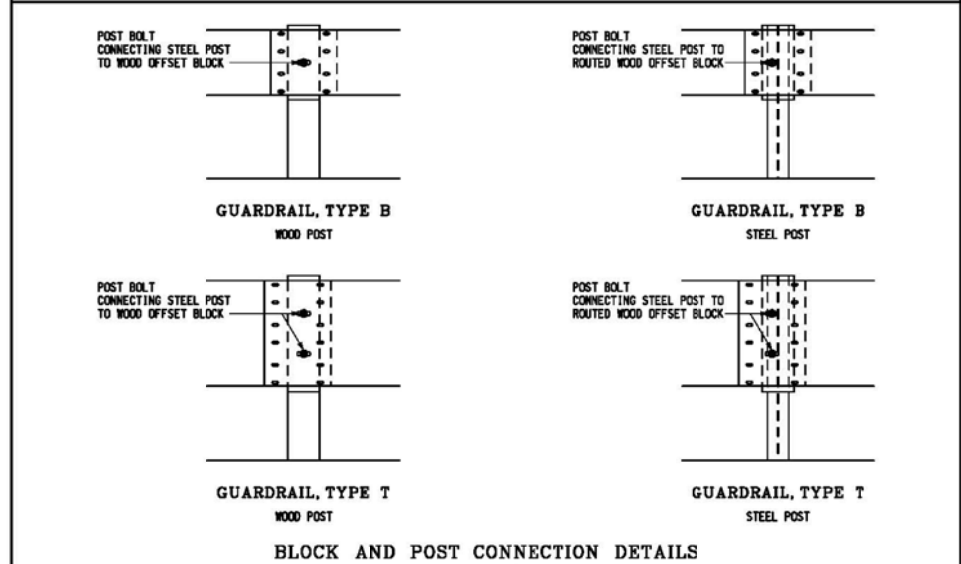
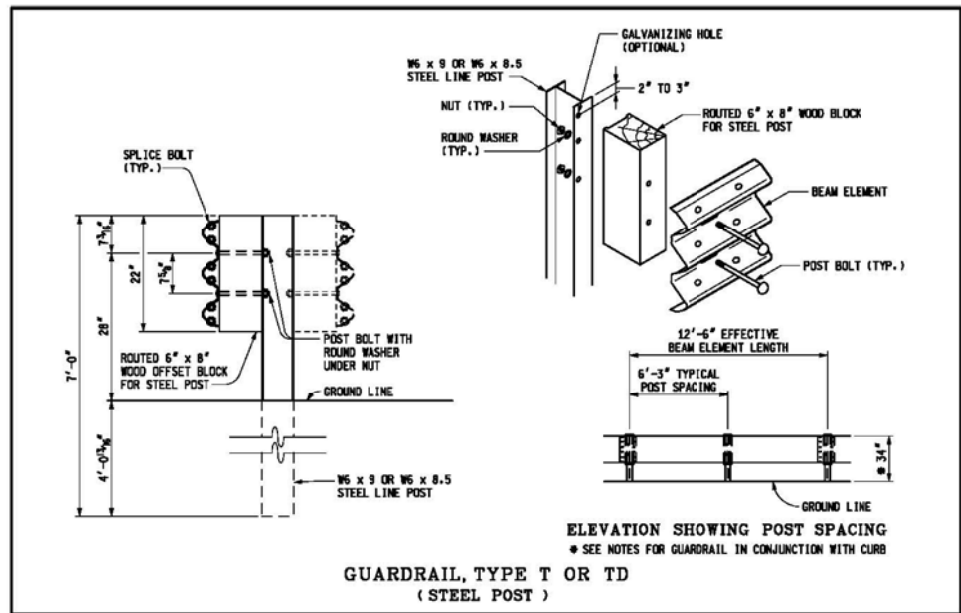
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CITY OF DETROIT
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BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

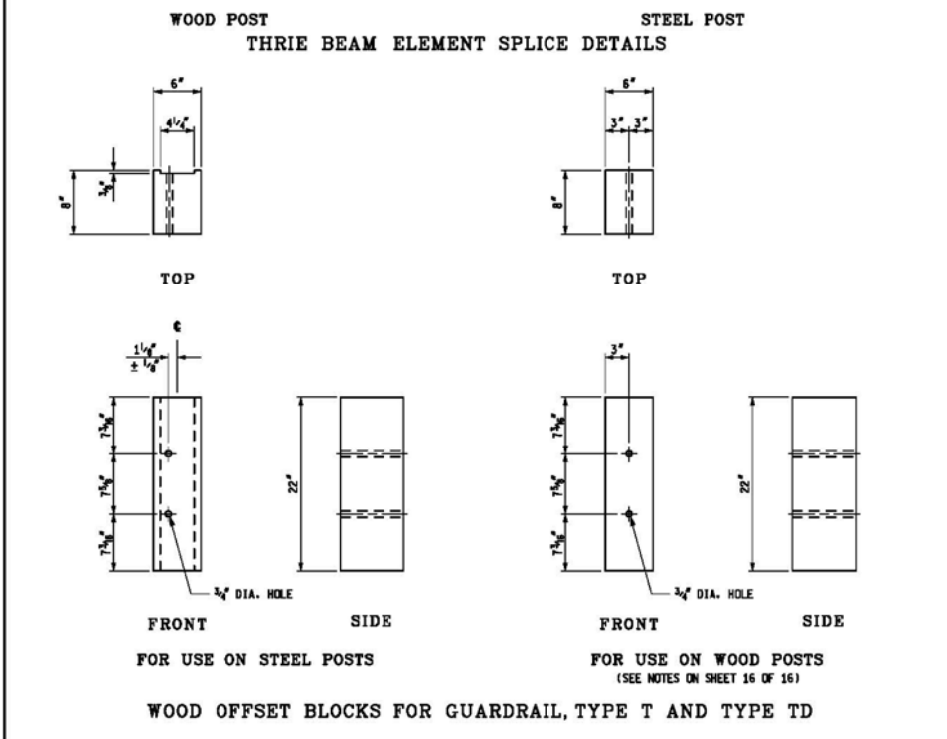
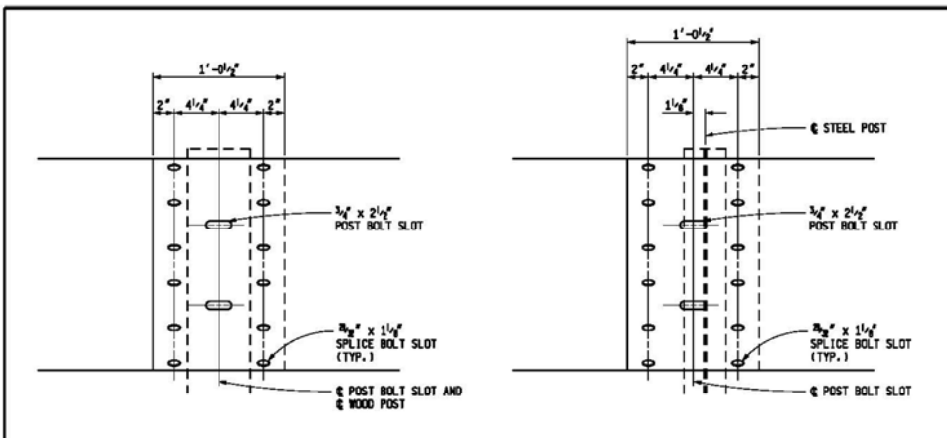
ROAD - DETAILS

SHEET 13 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL,
TYPES A, B, BD, T, TD,
MGS-8, & MGS-8D**

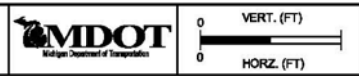
F.H.W.A. APPROVAL: _____ 7-26-2017 PLAN DATE: _____ R-60-J SHEET 5 OF 17



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL,
TYPES A, B, BD, T, TD,
MGS-8, & MGS-8D**

F.H.W.A. APPROVAL: _____ 7-26-2017 PLAN DATE: _____ R-60-J SHEET 6 OF 17

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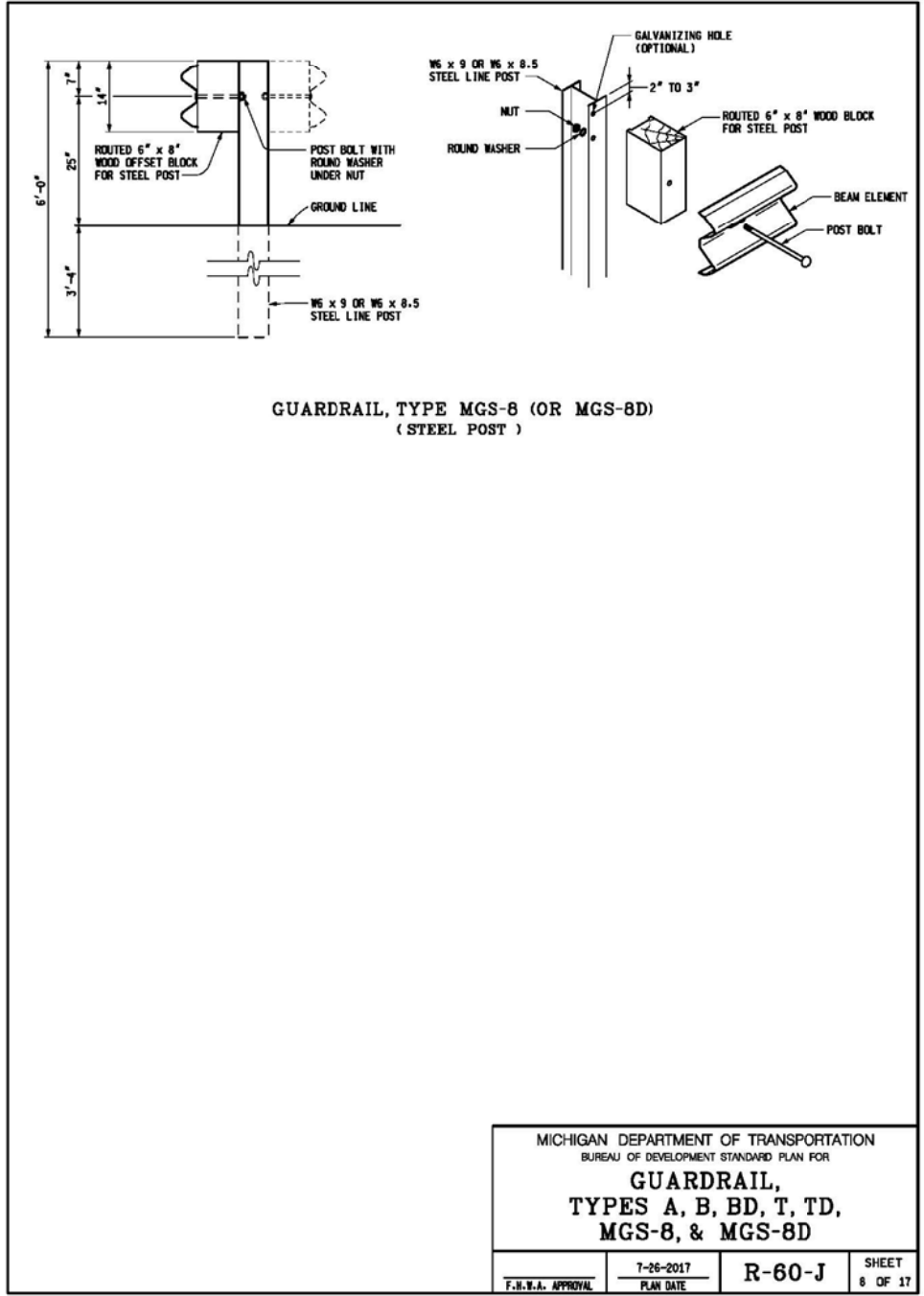
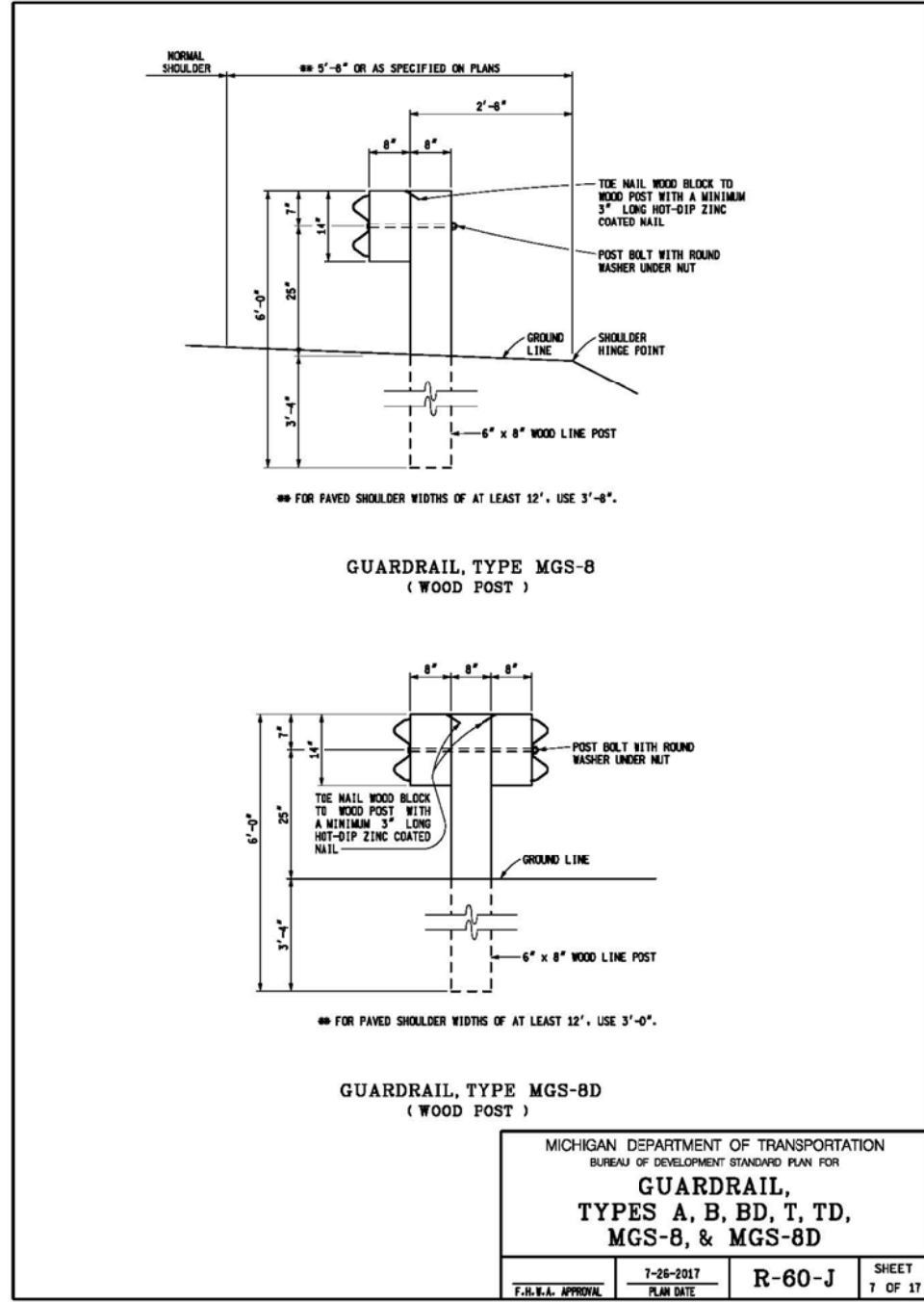
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CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

SHEET	15	OF	39	SHEETS
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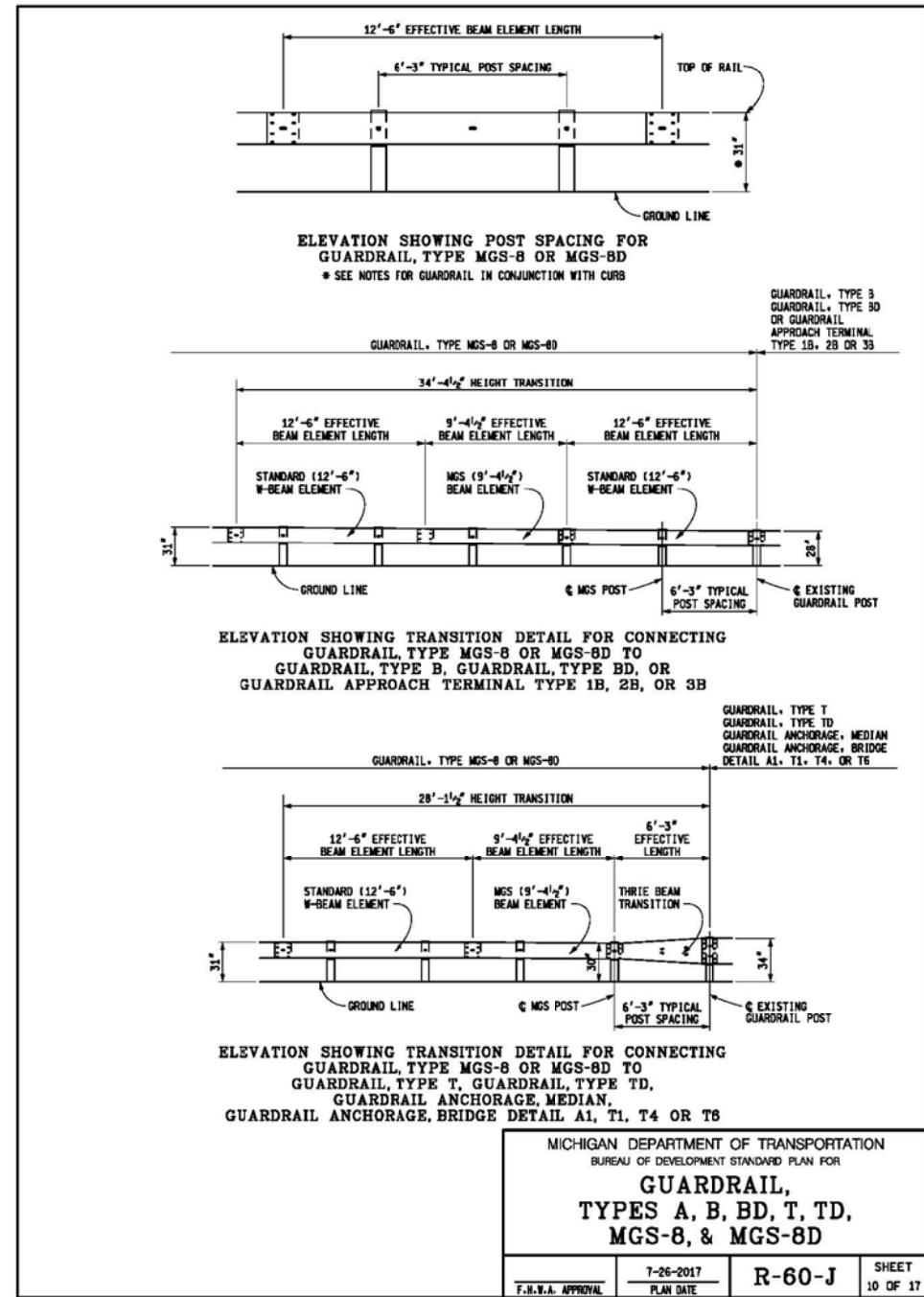
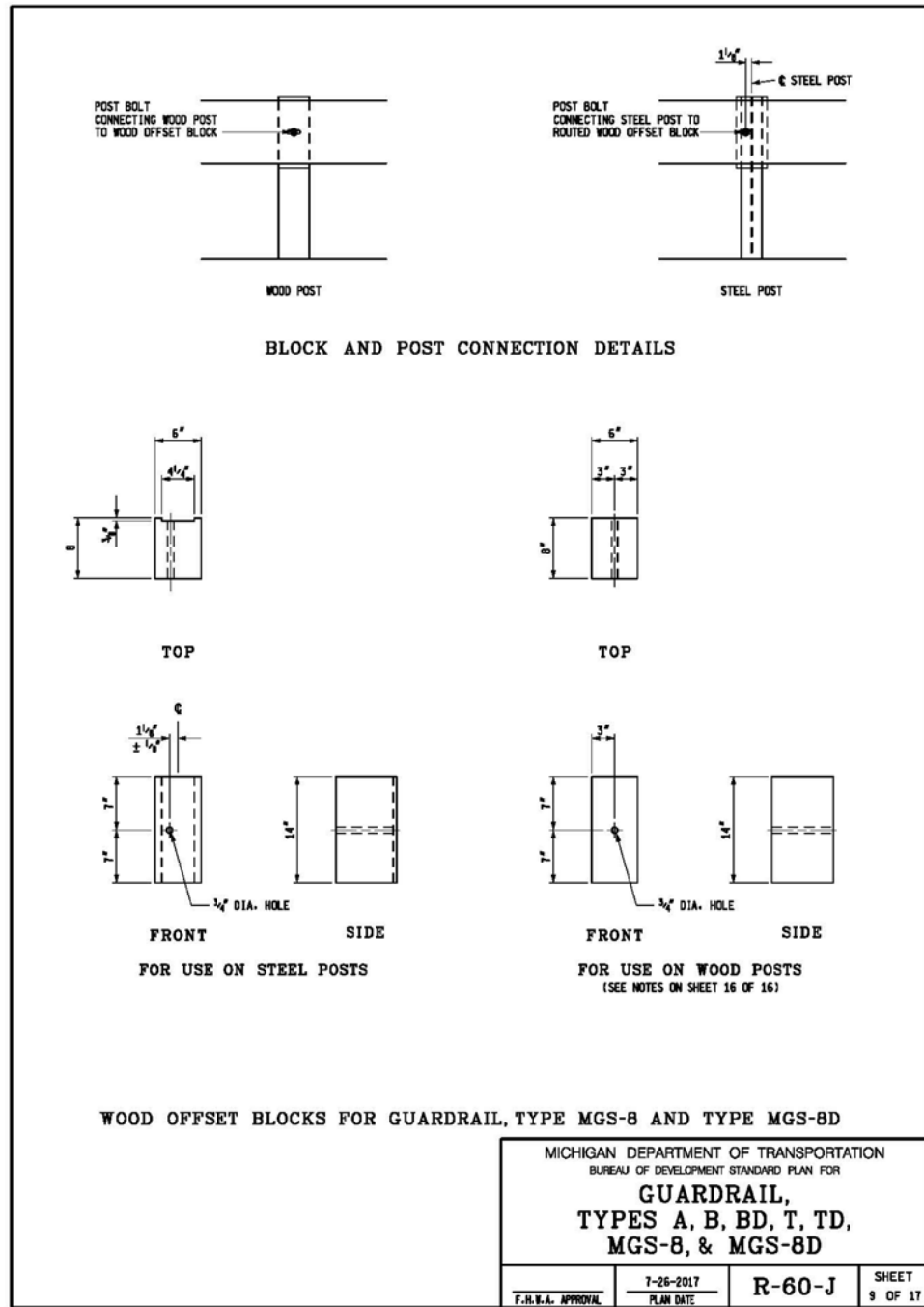
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CITY OF DETROIT
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BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

SHEET	16	OF	39	SHEETS
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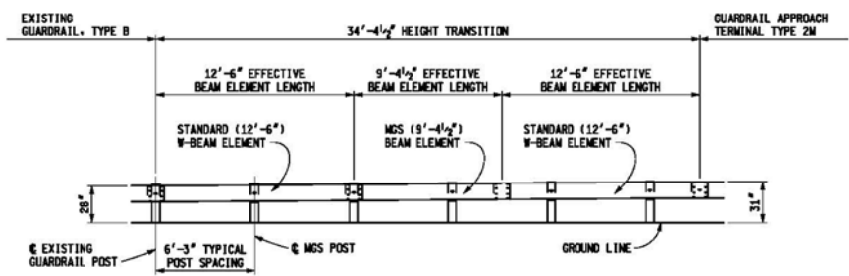
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FOR

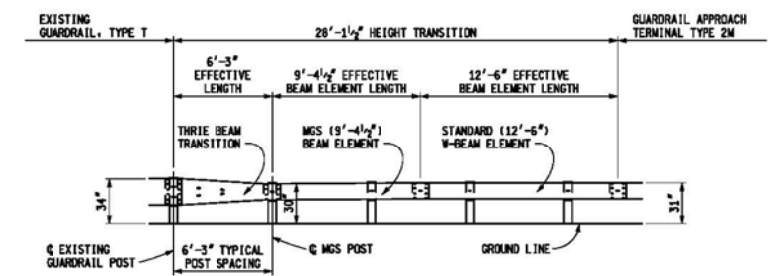
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

SHEET	17	OF	39	SHEETS
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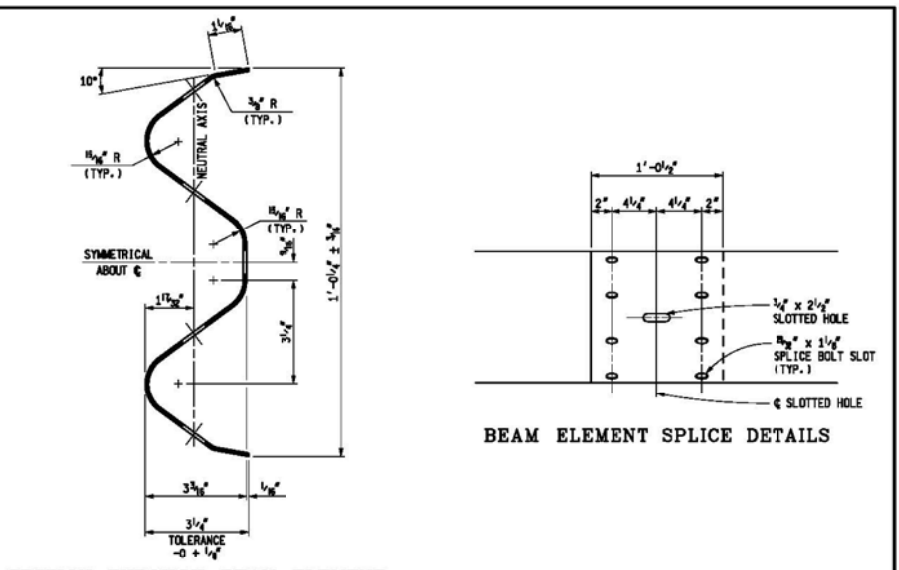
ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING GUARDRAIL, TYPE B TO GUARDRAIL APPROACH TERMINAL TYPE 2M



ELEVATION SHOWING TRANSITION DETAIL FOR CONNECTING GUARDRAIL, TYPE T TO GUARDRAIL APPROACH TERMINAL TYPE 2M

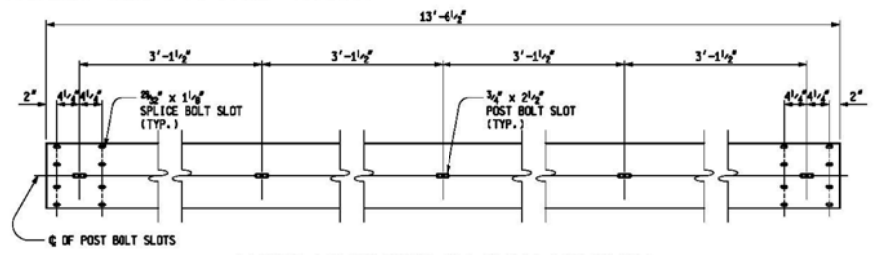
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL,
TYPES A, B, BD, T, TD,
MGS-8, & MGS-8D**

F.H.S.A. APPROVAL: 7-26-2017 PLAN DATE: R-60-J SHEET 11 OF 17

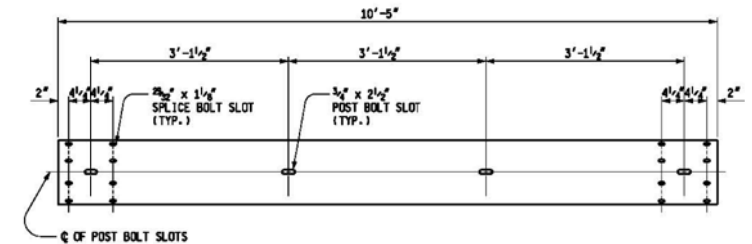


SECTION THROUGH BEAM ELEMENT

BEAM ELEMENT SPLICE DETAILS



FRONT ELEVATION OF BEAM ELEMENT



FRONT ELEVATION OF MGS (9'-4 1/2'') BEAM ELEMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL,
TYPES A, B, BD, T, TD,
MGS-8, & MGS-8D**

F.H.S.A. APPROVAL: 7-26-2017 PLAN DATE: R-60-J SHEET 12 OF 17

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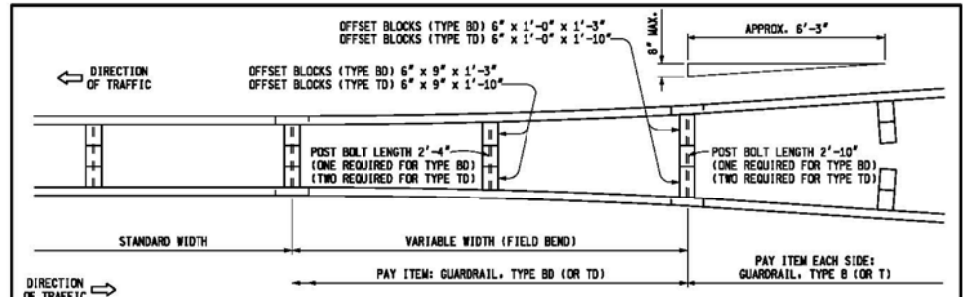
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CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

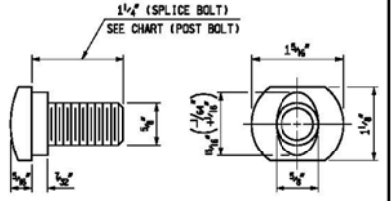
SHEET 18 OF 39 SHEETS
CONTRACT NO. PW-6987
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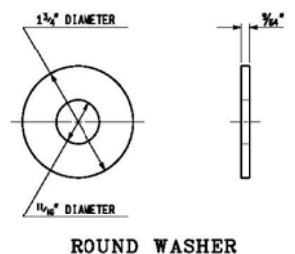
DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD)

POST BOLTS, SPLICE BOLTS AND WASHERS AT BEAM ELEMENT SPLICE POSTS AND AT INTERMEDIATE POSTS						
GUARDRAIL TYPE	POST	OFFSET BLOCK	POST BOLTS (NO. REQ'D)	SPLICE BOLTS (1 1/2" LONG) (NO. REQ'D)	WASHERS (ROUND) (NO. REQ'D)	
A	WOOD	N/A	1	9 1/2"	8	NOT NEEDED AT INTERMEDIATE POSTS
	STEEL	N/A	1	2"	8	
B	WOOD	WOOD	1	18"	1	NOT NEEDED AT INTERMEDIATE POSTS
	STEEL	WOOD	1	9 1/2"	1	
BD	WOOD	WOOD	1	26 1/2"	16	NOT NEEDED AT INTERMEDIATE POSTS
	STEEL	WOOD	2	9 1/2"	2	
T	WOOD	WOOD	2	18"	2	NOT NEEDED AT INTERMEDIATE POSTS
	STEEL	WOOD	2	9 1/2"	2	
TD	WOOD	WOOD	2	26 1/2"	24	NOT NEEDED AT INTERMEDIATE POSTS
	STEEL	WOOD	4	9 1/2"	4	

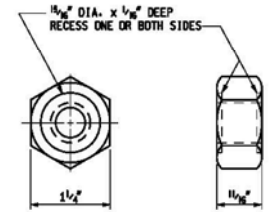
MINIMUM POST BOLT THREAD LENGTH	
BOLT LENGTH	MINIMUM THREAD LENGTH
9 1/2"	1 1/2"
18"	2 1/2"
26 1/2"	3"



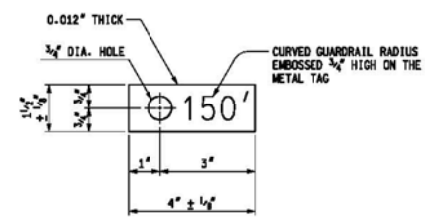
SPLICE BOLT AND POST BOLT



ROUND WASHER



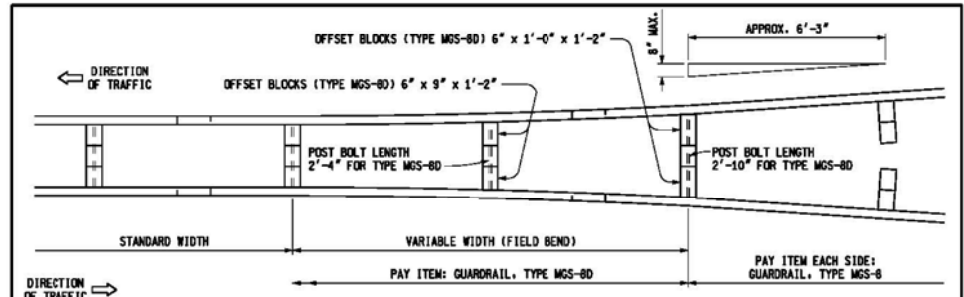
NUT



METAL TAG FOR CURVED GUARDRAIL WITH RADIUS OF 150' OR LESS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

F.I.B.L. APPROVAL: _____ 7-25-2017 PLAN DATE: _____ R-60-J SHEET 15 OF 17



DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL, TYPE MGS-8D

POST BOLTS, SPLICE BOLTS AND WASHERS AT BEAM ELEMENT SPLICE POSTS AND AT INTERMEDIATE POSTS						
GUARDRAIL TYPE	POST	OFFSET BLOCK	POST BOLTS (NO. REQ'D)	LENGTH	SPLICE BOLTS (1 1/2" LONG) (NO. REQ'D)	WASHERS (ROUND) (NO. REQ'D)
MGS-8	WOOD	WOOD	1	18"	8	1
	STEEL	WOOD	1	9 1/2"	8	1
MGS-8D	WOOD	WOOD	1	26 1/2"	16	2
	STEEL	WOOD	2	9 1/2"	16	2

MINIMUM POST BOLT THREAD LENGTH	
BOLT LENGTH	MINIMUM THREAD LENGTH
9 1/2"	1 1/2"
18"	2 1/2"
26 1/2"	3"

THREE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 ON TYPE T END AND 8 ON TYPE MGS END).
* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL, TYPE MGS-8D POST BOLTS SHALL NOT EXTEND MORE THAN 1/2" BEYOND NUT.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

F.I.B.L. APPROVAL: _____ 7-25-2017 PLAN DATE: _____ R-60-J SHEET 16 OF 17

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CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

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DATE 01/24/2018

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

F.H.W.A. APPROVAL	PLAN DATE	SHEET OF
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GUARDRAIL REFLECTOR

ONE-WAY TRAFFIC

TWO-WAY TRAFFIC
DIRECTION OF RAIL LAP

NOTES:

DETAILS SPECIFIED ON THIS STANDARD ARE ACCORDING TO THE AASHTO-AGC-ARTBA JOINT COMMITTEE, TASK FORCE 13 PUBLICATION TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE."

BEAM ELEMENTS SHALL BE SHOP BENT TO PLAN RADIUS FOR CURVE RADIUS 150' OR LESS. A TAG IDENTIFYING THE CURVATURE OF THE SHOP BENT SECTION WILL BE REQUIRED FOR EACH CURVED ELEMENT.

SEE STANDARD PLAN R-61-SERIES, R-62-SERIES OR R-63-SERIES FOR GUARDRAIL APPROACH TERMINALS; STANDARD PLAN R-66-SERIES FOR GUARDRAIL DEPARTING TERMINALS AND STANDARD PLAN R-67-SERIES FOR GUARDRAIL ANCHORAGE, BRIDGE.

WHEN THE PLANS SPECIFY GUARDRAIL (TYPE B OR T) TO BE PLACED ON THE SHOULDER HINGE POINT, RATHER THAN AS SPECIFIED ON THIS PLAN, 8'-0" POSTS SHALL BE PROVIDED, WITH THE ADDITIONAL LENGTH EMBEDDED FOR ADDED STABILITY. (NOT NECESSARY WHEN THE SLOPE IS REASONABLY LEVEL BEYOND THE SHOULDER HINGE POINT, AS DETERMINED BY THE ENGINEER.)

WHEN THE PLANS SPECIFY GUARDRAIL TYPE MGS-8 TO BE PLACED ON THE SHOULDER HINGE POINT, RATHER THAN AS SPECIFIED ON THIS PLAN, 9'-0" POSTS SHALL BE PROVIDED, WITH THE ADDITIONAL LENGTH EMBEDDED FOR ADDED STABILITY. (NOT NECESSARY WHEN THE SLOPE IS REASONABLY LEVEL BEYOND THE SHOULDER HINGE POINT, AS DETERMINED BY THE ENGINEER.)

WOOD POSTS WITH 1/2" BEVELS AT THE TOP MAY BE USED IN LIEU OF WOOD POSTS WITHOUT BEVELS SPECIFIED. THE LENGTH, WIDTH AND DEPTH OF THE POST SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT.

WOOD OFFSET BLOCKS WITH 1/2" BEVELS AT THE TOP AND BOTTOM OR A 1" BEVELED TOP MAY BE USED IN LIEU OF WOOD BLOCKS WITHOUT BEVELS SPECIFIED. THE LENGTH (FRONT AND BACK FACE), WIDTH AND DEPTH OF THE BLOCK SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT AND COMPATIBILITY WITH POST HOLES.

WHEN THE FACE OF GUARDRAIL IS PLACED FLUSH WITH FACE OF CURB, THE RAIL HEIGHT SHOULD BE MEASURED FROM THE FRONT EDGE OF THE GUTTER PAN, WHICH IS THE POINT ON THE GUTTER PAN THAT IS CLOSEST TO THE EDGE OF THE TRAVELED LANE. WHEN THE FACE OF THE GUARDRAIL PANEL IS LOCATED BEHIND THE CURB THE RAIL HEIGHT SHOULD BE MEASURED FROM THE GROUND JUST IN FRONT OF THE GUARDRAIL.

NOTES GOVERNING THE USE OF GUARDRAIL REFLECTORS

- GUARDRAIL REFLECTORS SHALL BE USED ON ALL STANDARD GUARDRAIL RUNS, REGARDLESS OF ROADWAY LIGHTING.
- GUARDRAIL REFLECTORS ARE TO BE SPACED AT THE FOLLOWING INTERVALS:
 - a) 50'-0" ON TANGENT SECTIONS AND CURVES WITH A RADIUS OF 1150' OR MORE.
 - b) 25'-0" ON CURVES WITH A RADIUS LESS THAN 1150'.
- FOR GUARDRAIL REFLECTOR PLACEMENT ON APPROACH TERMINALS, SEE THE APPROPRIATE GUARDRAIL APPROACH TERMINAL STANDARD PLAN.
- A GUARDRAIL REFLECTOR IS TO BE PLACED ON THE SECOND POST FROM THE GUARDRAIL DEPARTING TERMINAL.
- ON GUARDRAIL, TYPE T AND TYPE TD GUARDRAIL REFLECTORS ARE TO BE PLACED ON THE UPPER POST BOLT.
- GUARDRAIL REFLECTORS SHALL MATCH COLOR OF EDGE LINE.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**GUARDRAIL,
TYPES A, B, BD, T, TD,
MGS-8, & MGS-8D**

F.H.W.A. APPROVAL	7-26-2017 PLAN DATE	R-60-J	SHEET 17 OF 17
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AS-LET PLAN REVISIONS				NO.		DATE		AUTH		DESCRIPTION	

MICHIGAN DEPARTMENT OF TRANSPORTATION

0 VERT. (FT)

0 HORZ. (FT)

DATE: _____ CS: _____

DESIGN UNIT: _____ JN: _____

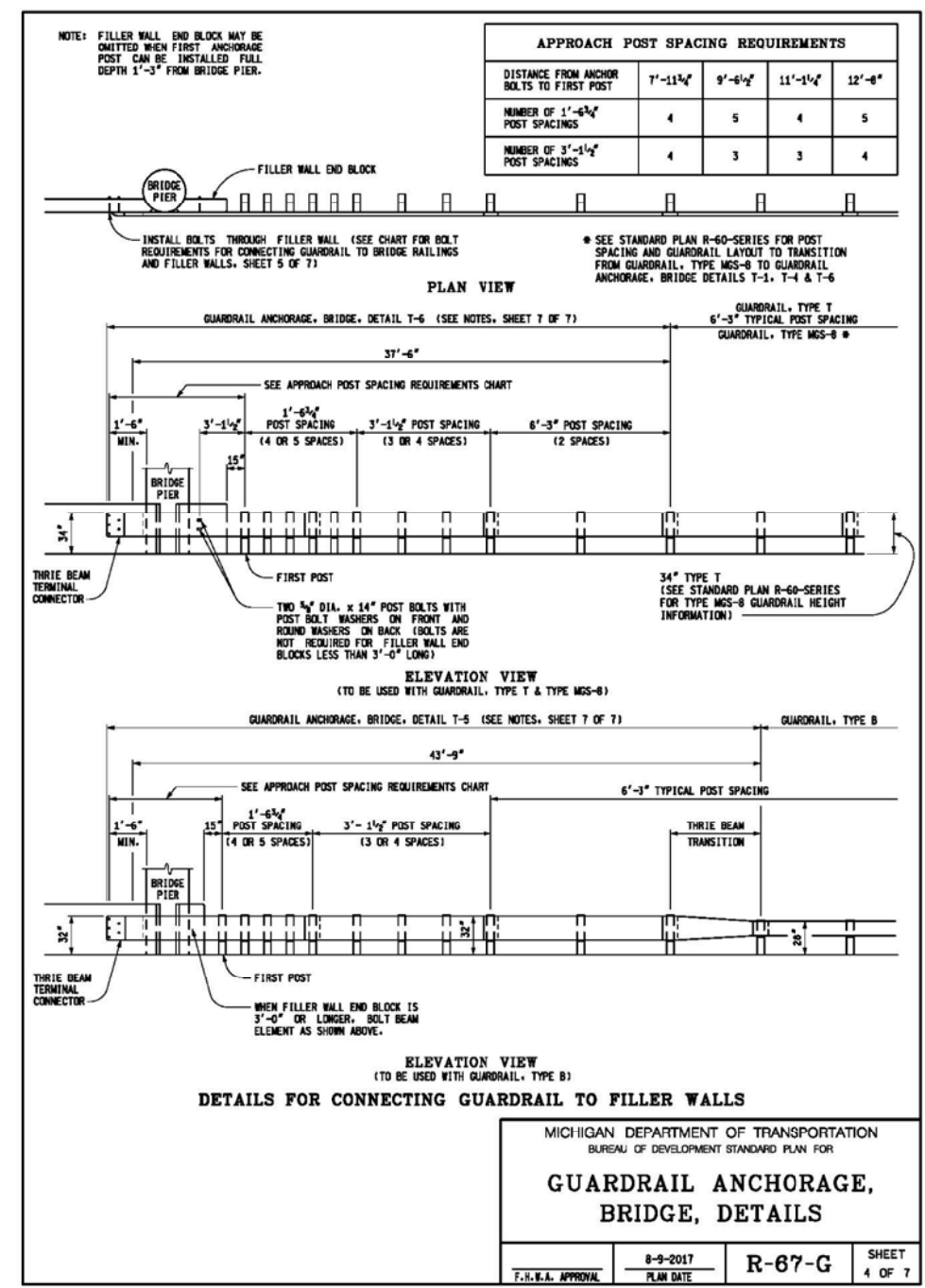
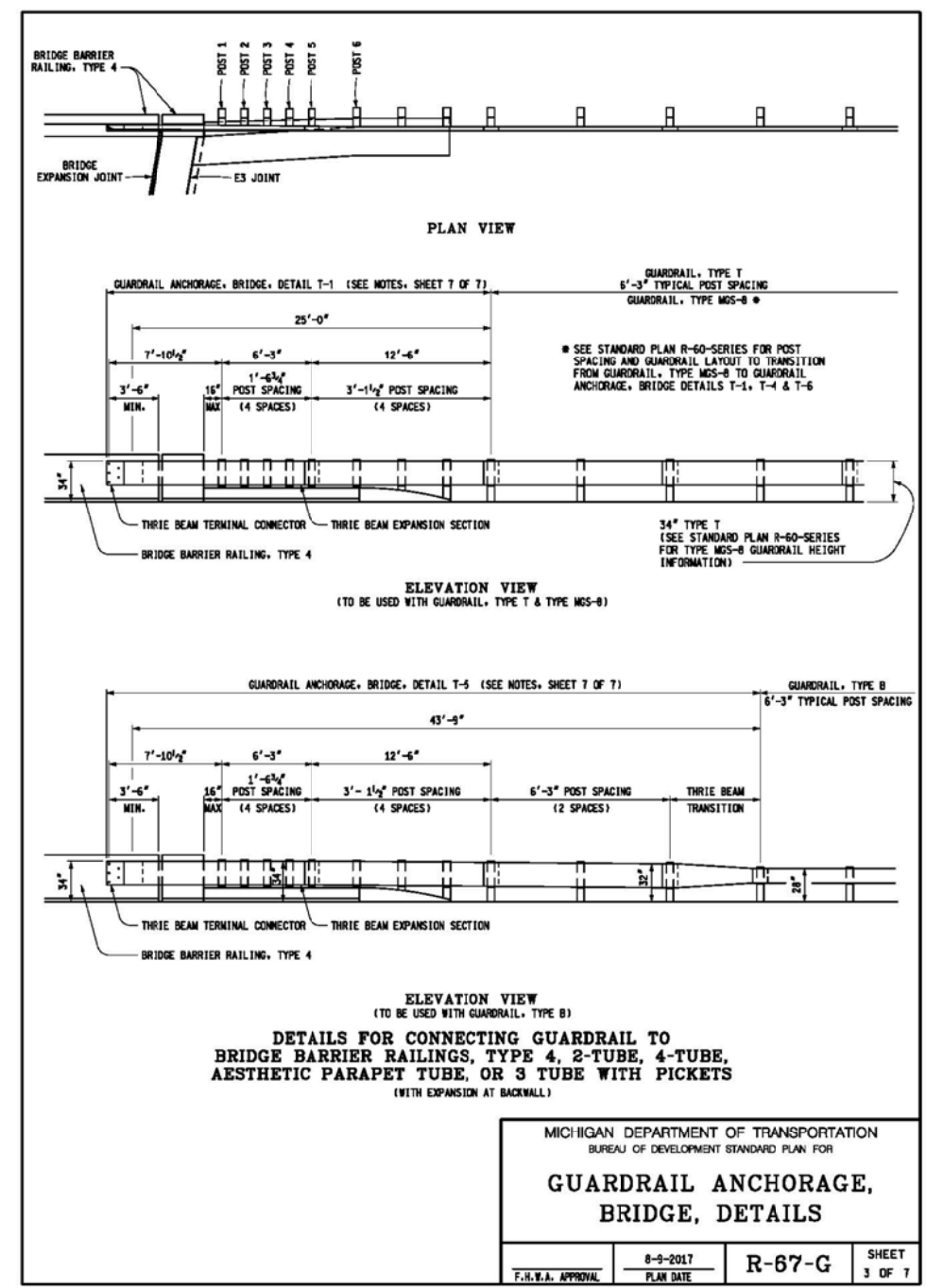
TSC: _____

DRAWING SHEET

EXISTING

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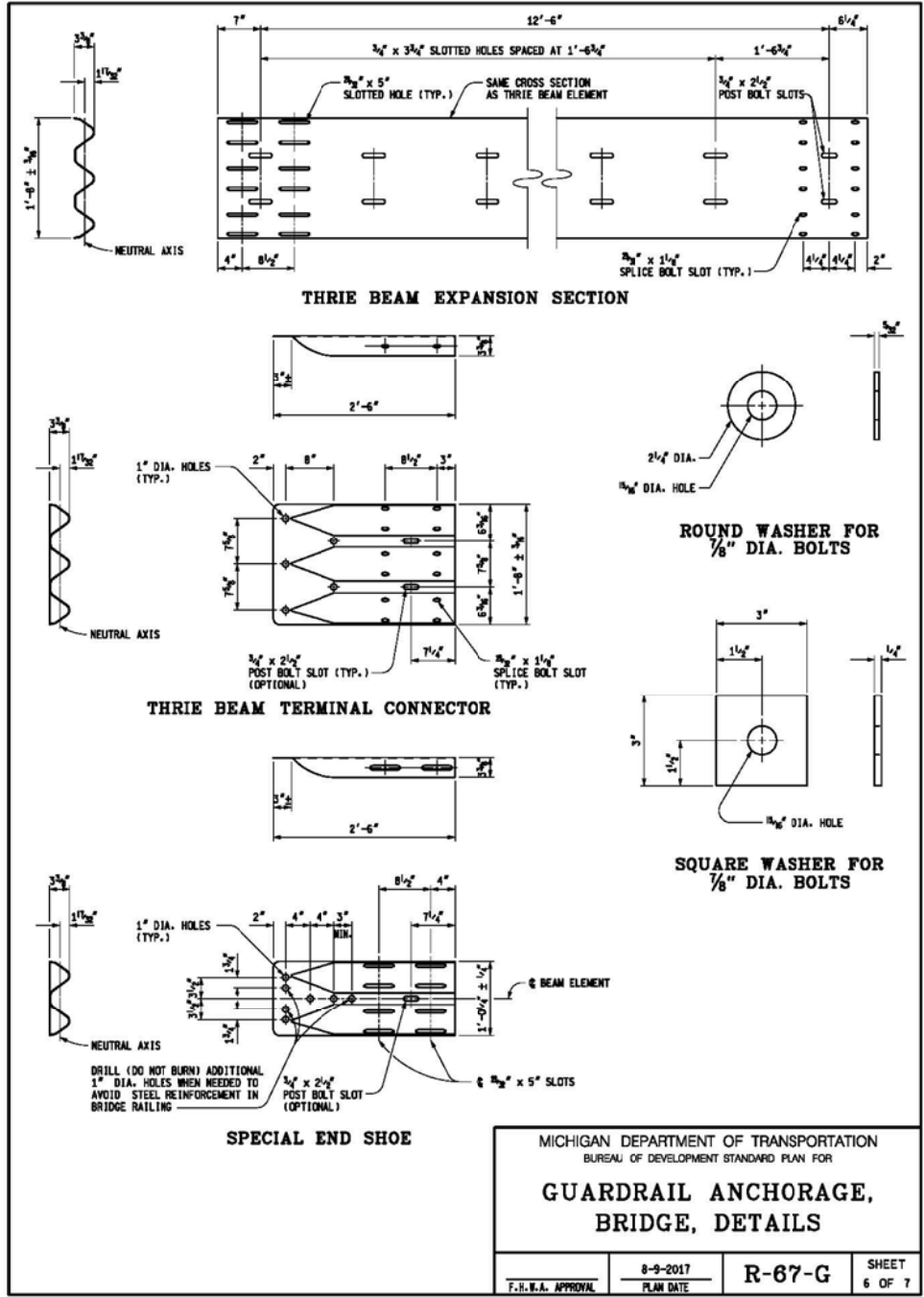
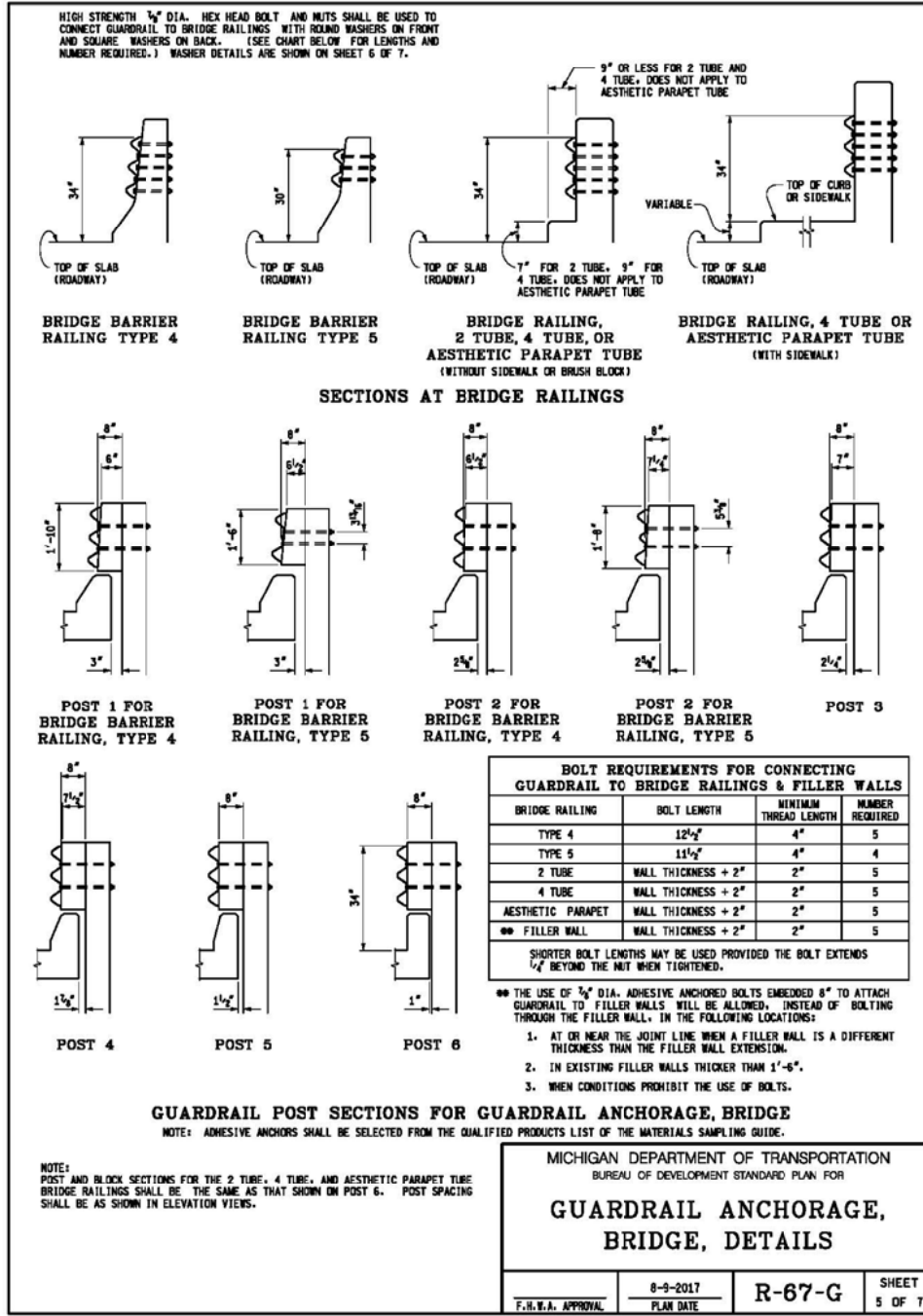


AS-LET PLAN REVISIONS				MDOT Michigan Department of Transportation				DATE: _____ CS: _____		DRAWING SHEET	
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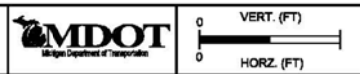
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AS-LET PLAN REVISIONS

NO.	DATE	AUTH.	DESCRIPTION



DATE:	CS:	DRAWING:	SHEET:
DESIGN UNIT:	JN:		
TSC:			

EXISTING
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DESCRIPTION	DR	CHK	APP	DATE	FINAL	BY	CHECKED BY	APPROVED:

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

ROAD - DETAILS

SHEET 24 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018

<p style="text-align: center;">MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">F.H.W.L. APPROVAL</td> <td style="width: 30%;">PLAN DATE</td> <td style="width: 20%;">SHEET</td> <td style="width: 20%;">OF</td> </tr> </table>	F.H.W.L. APPROVAL	PLAN DATE	SHEET	OF	<p>NOTES:</p> <p>ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, REFLECTORS, AND HARDWARE, (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.</p> <p>ALL POSTS USED TO CONSTRUCT GUARDRAIL ANCHORAGE, BRIDGE SHALL BE 7'-0" LONG.</p> <p>THE THRIE BEAM TERMINAL CONNECTOR AND SPECIAL END SHOE SHALL BE THE SAME MATERIAL AS ADJACENT RUN OF GUARDRAIL, EXCEPT THAT THEY SHALL NOT BE LIGHTER THAN 10 GAGE (0.136").</p> <p>SECTIONS OF THE THRIE BEAM ELEMENT REQUIRED TO BE TWISTED FOR USE IN ANCHORAGE SHALL BE FIELD BENT.</p> <p>GUARDRAIL BEAM ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC, EXCEPT FOR THE THRIE BEAM TERMINAL CONNECTOR WHICH MAY BE LAPPED IN EITHER DIRECTION.</p> <p>STANDARD SPLICE BOLTS SHALL BE USED WHEN SPLICING THE THRIE BEAM TERMINAL CONNECTOR TO THE THRIE BEAM EXPANSION SECTION AND WHEN SPLICING THE SPECIAL END SHOE TO THE TRANSITION SECTION. THE SPLICE BOLT NUT SHALL BE INSTALLED FINGER-TIGHT AND SHALL FULLY ENGAGE THE SPLICE BOLT WITH A MINIMUM OF ONE THREAD EXTENDING BEYOND THE NUT. THIS SHALL BE FOLLOWED UP BY UPSETTING THE FIRST THREAD ON THE OUTSIDE OF THE NUT WITH A CENTER PUNCH OR COLD CHISEL, SO THAT IT WILL NOT LOOSEN.</p> <p>SEE THE CURRENT STANDARD PLAN R-32-SERIES FOR APPROACH CURB AND GUTTER AND DOWNSPOUT HEADER.</p> <p>GUARDRAIL ANCHORAGE, BRIDGE, DETAILS T-1, T-2, T-5, AND T-6 REQUIRE THAT THE THRIE BEAM TERMINAL CONNECTOR BE ATTACHED TO THE 2 1/2" x 5" LONG SLOTTED HOLES IN THE THRIE BEAM EXPANSION SECTION.</p> <p>SEE APPROPRIATE PLANS TO DETERMINE WHETHER GUARDRAIL ANCHORAGE, BRIDGE SPANS A BRIDGE EXPANSION JOINT.</p> <p>SEE THE CURRENT STANDARD PLAN R-55-SERIES FOR FILLER WALLS AND FILLER WALL END BLOCK.</p> <p style="text-align: center;">MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <p style="text-align: center;">GUARDRAIL ANCHORAGE, BRIDGE, DETAILS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">F.H.W.L. APPROVAL</td> <td style="width: 30%;">8-9-2017 PLAN DATE</td> <td style="width: 20%;">R-67-G</td> <td style="width: 20%;">SHEET 1 OF 1</td> </tr> </table>	F.H.W.L. APPROVAL	8-9-2017 PLAN DATE	R-67-G	SHEET 1 OF 1
F.H.W.L. APPROVAL	PLAN DATE	SHEET	OF						
F.H.W.L. APPROVAL	8-9-2017 PLAN DATE	R-67-G	SHEET 1 OF 1						

AS-LET PLAN REVISIONS						DATE:	CS:	DRAWING SHEET
NO.	DATE	AUTH	DESCRIPTION			DESIGN UNIT:	JN:	

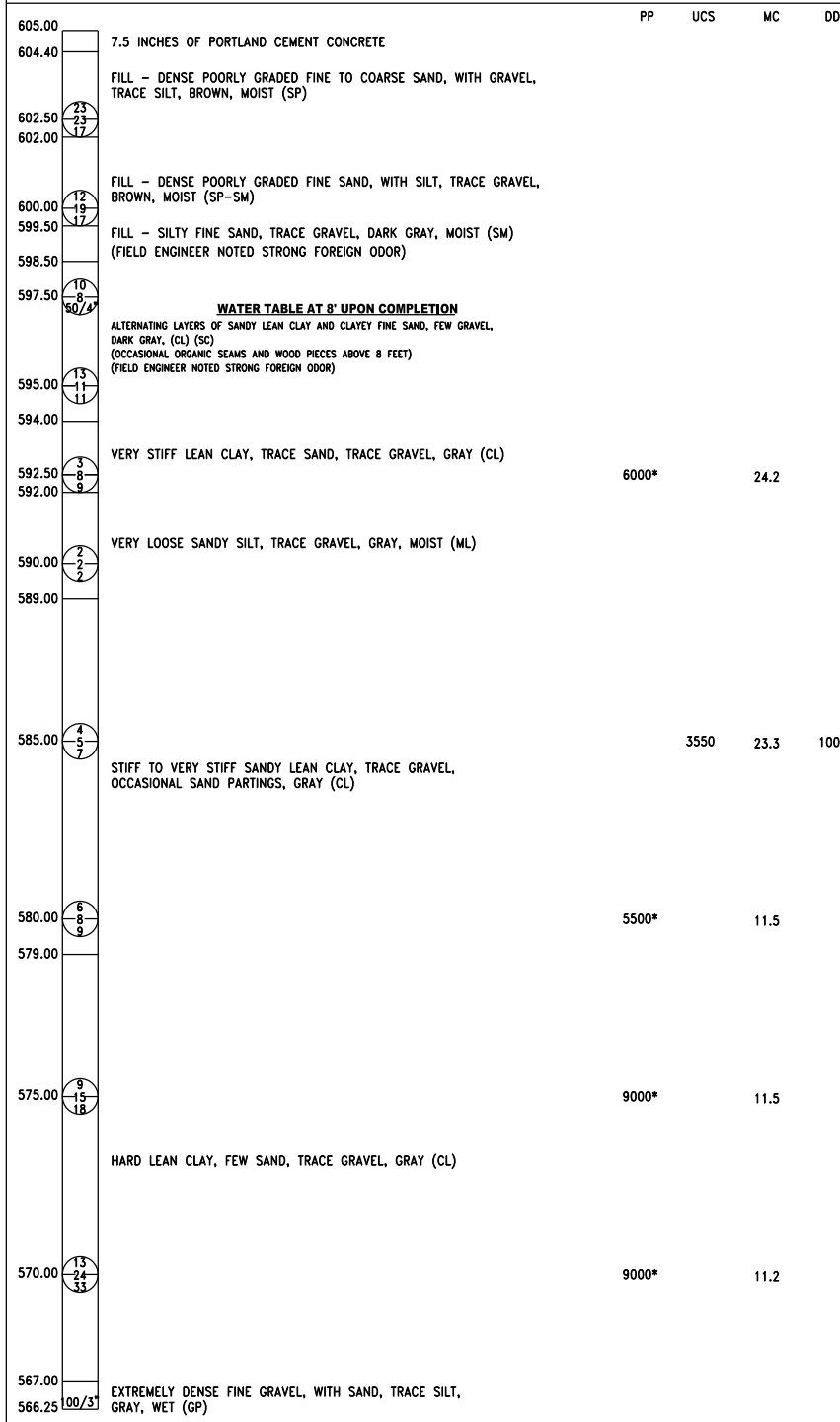
EXISTING

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TEST BORING NO. SB-01

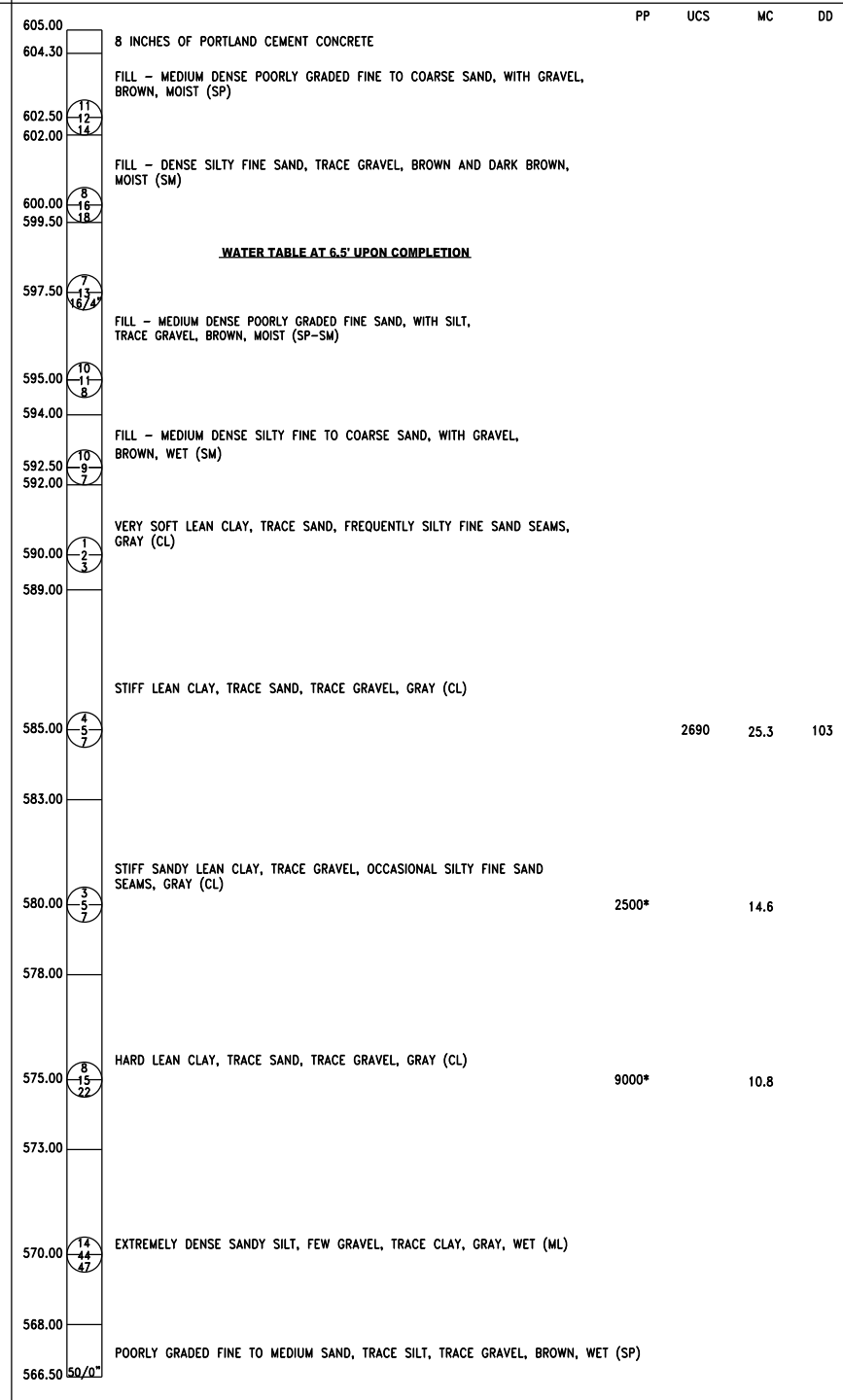
LOCATION: WEST PARKWAY STREET
 PHYSICAL REFERENCE: 20' NORTH OF EXISTING CULVERT CENTER LINE
 PHYSICAL OFFSET: 21' EAST OF TOE OF THE WEST SIDE SIDEWALK
 STATION: -
 GROUND SURFACE ELEVATION: 605.0 FT BORING DATE: 9/11/17



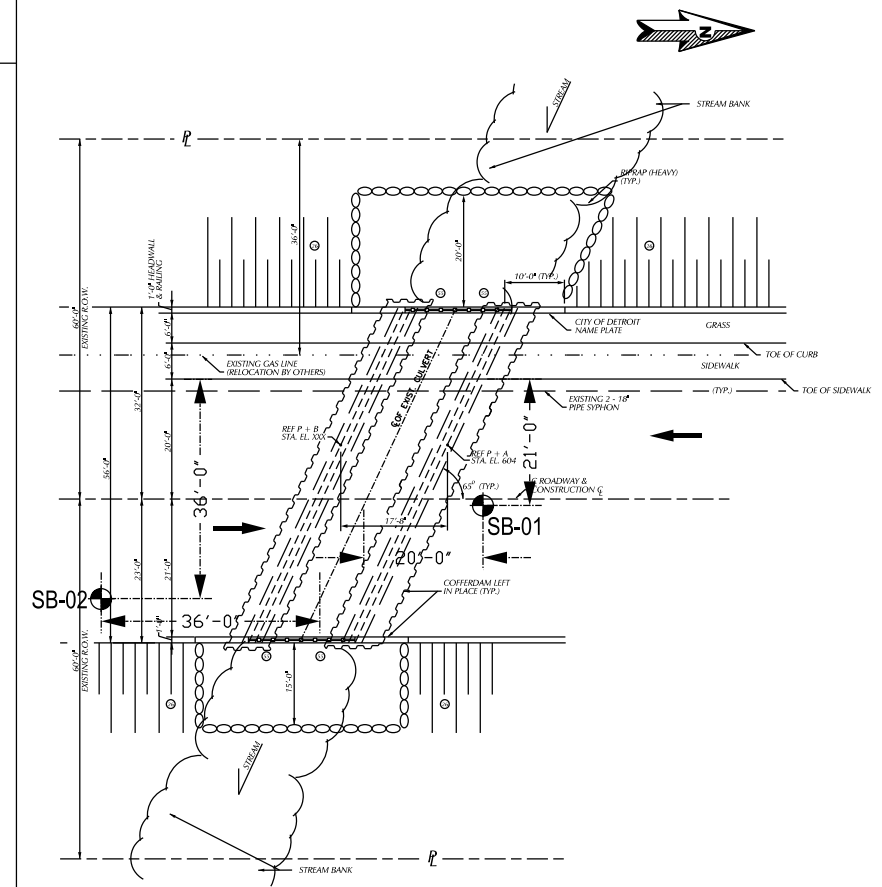
E.O.B. 38.75 FEET (EL. 566.25)
 BORING TERMINATED AT SAMPLER AND AUGER REFUSAL.
 POSSIBLE TOP OF BEDROCK

TEST BORING NO. SB-02

LOCATION: WEST PARKWAY STREET
 PHYSICAL REFERENCE: 36' SOUTH OF EXISTING CULVERT CENTER LINE
 PHYSICAL OFFSET: 36' EAST OF TOE OF THE WEST SIDE SIDEWALK
 STATION: -
 GROUND SURFACE ELEVATION: 605.0 FT BORING DATE: 9/11/17



E.O.B. 38.50 FEET (EL. 566.50)
 BORING TERMINATED AT SAMPLER AND AUGER REFUSAL.
 POSSIBLE TOP OF BEDROCK



SOIL BORING LOCATION PLAN

SOIL BORING LOCATION

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" O.D. X 1.5" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140 LB HAMMER FALLING 30".

PP = POCKET PENETROMETER, UNCONFINED COMPRESSIVE STRENGTH - TONS/SQ.FT (TSF)
 UCS = LAB DETERMINED UNCONFINED COMPRESSIVE STRENGTH - TONS/SQ.FT (TSF)
 MC = MOISTURE CONTENT - (%)
 DD = DRY DENSITY - LBS/CU.FT (PCF)

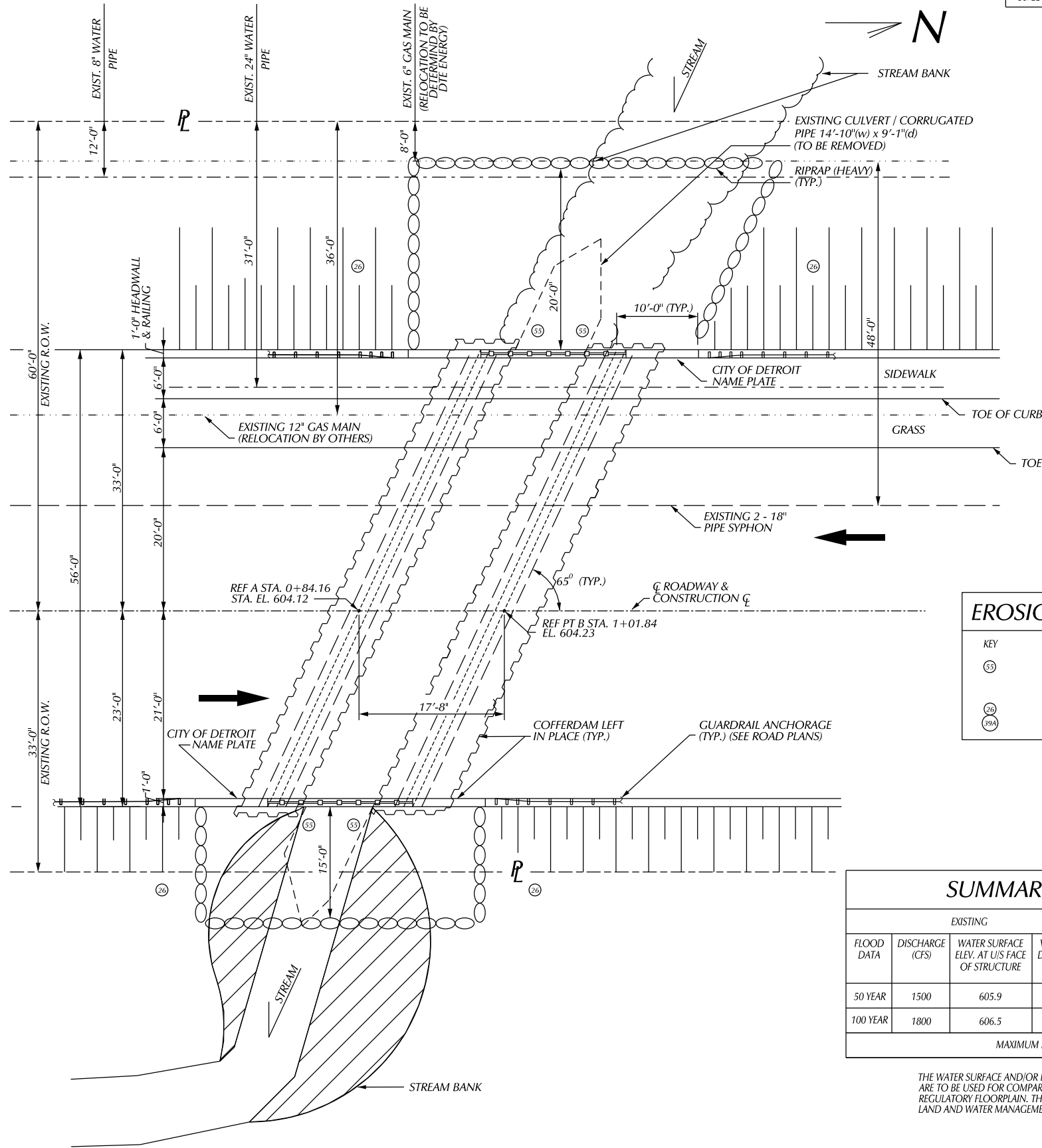
REV#	DATE	DESCRIPTION

3031 W. Grand Blvd., Ste. 228
 Detroit, MI 48202
 Tel: 313-963-2731
 Fax: 313-963-2736
 www.somatech.com

CITY OF DETROIT
 DEPARTMENT OF PUBLIC WORKS
 CITY ENGINEERING DIVISION
 WEST PARKWAY CULVERT REPLACEMENT
 SOIL BORING LOG PLAN

ISSUED FOR:
 DATE:
 BY:
 JOB NO.:

SHEET:
 1 OF 1



MISCELLANEOUS QUANTITIES

1 LS	MONITORING, VIBRATIONS UTILITIES
1 LS	STRUCTURES, REM *
47 CYD	EXCAVATION, FDN **
2,270 CYD	BACKFILL, STRUCTURE, CIP
569 CYD	EMBANKMENT, CIP
610 CYD	NON HAZ CONTAMINATED MATERIAL HANDLING AND DISPOSAL, LM
400 TON	RIPRAP, HEAVY
1 LS	CONFFERDAMS, LEFT IN PLACE
150 SYD	CONC. SURFACE COATING
1 LS	CONC. QUALITY INITIATIVE

* STRUCTURE, REM INCLUDED: REMOVAL OF EXISTING CORRUGATED PIPE-CULVERT, REMOVAL EXISTING GUARDRAIL, EXCAVATING, FDN FOR CULVERT REMOVAL

** THIS QUANTITY FOR EXCAVATION FOUNDATION FOR PROPER INSTALLATION OF PROPOSED COFFERDAMS.

NOTES:

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES HS25 LOADING. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE REMOVAL OF THE EXISTING STRUCTURE, SLOPEWALLS AND GABIONS IS INCLUDED IN THE PAY ITEM, "STRUCTURE, REM". SEE "STRUCTURES REMOVAL SEQUENCE" ON SHEET.

REMOVAL OF THE EXISTING SUBSTRUCTURE UNITS SHALL BE ISOLATED FROM THE WATERWAY USING TEMPORARY STEEL SHEET PILING. TEMPORARY SHEETING FOR THE REMOVAL SHALL ADHERE TO THE SAME REQUIREMENTS FOR CONSTRUCTION AND DE-WATERING AS THE COFFERDAM. TEMPORARY SHEETING SHALL BE CUT OFF 1'-0" BELOW FINISH GRADE AND SHALL NOT INTERFERE WITH PROPOSED CONSTRUCTION. ALL COST ASSOCIATED WITH THE TEMPORARY SHEETING IS INCLUDING IN THE REMOVAL ITEMS.

DURING WORK ON THE EXISTING AND PROPOSED RETAINING WALLS CASE SHALL BE TAKEN TO PREVENT ANY MATERIAL FROM ENTERING THE WATERWAY. THE CONTRACTOR SHALL PROPOSE A SYSTEM FOR PROTECTION OF THE WATERWAY & SUBMIT IT TO THE ENGINEER FOR APPROVAL. PAID FOR AS "SEDIMENTATION CONTROL". SEE SPECIAL PROVISION.

PAYMENT FOR FALSE DECKING SHALL BE BASED ON THE AREA OF THE EXISTING ARCH BARREL OVER THE WATERWAY REGARDLESS OF THE SIZE OF THE BARGE OR PLATFORM USED. THE CONTRACTOR SHALL TAKE CARE NOT TO ALLOW THE EXISTING EARTH FILL TO FALL INTO THE WATERWAY.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN THE PAYMENT FOR "RIPRAP, HEAVY".

THE EXISTING STRUCTURE PROVIDES A WATERWAY AREA OF 91 SQUARE FEET. TO UNDERCLEARANCE ELEVATION 592.15.

WITHOUT THE PREVENTIVE MEASURES SHOWN ON THESE PLANS, THERE IS A POSSIBILITY THAT STREAM BED SCOUR MAY OCCUR. THE ESTIMATED TOTAL SCOUR DEPTH IS CALCULATED TO BE 12.6 AT ABUMENT A AND 12.6 AT ABUMENT B. THESE DEPTHS ARE BASED ON A 100 YEAR RUNOFF EVENT.

THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 6.1 SQUARE MILES.

BROKEN CONCRETE SHALL NOT BE USED AS RIPRAP.

THE TREMIE SEAL DESIGN WAS BASED ON A WATER SURFACE AT EL. 580.00.

THE WIDTH OF THE TREMIE UNDER THE STRUCTURE MAY NOT BE INCREASED EXCEPT IN THE SOUTHWEST QUADRANT IN THE VICINITY OF THE EXISTING AND PROPOSED SANITARY SEWER.

THE USE OF VIBRATORY HAMMERS FOR INSTALLATION COFFERDAM SHALL NOT BE ALLOWED.

DEWATERING OF THE COFFERDAM IS TO BE MADE THRU FILTER BAGS UNTIL COMPLETION OF THE TREMIE SEAL. ALL COST ASSOCIATED WITH DEWATERING ARE THE RESPONSIBILITY OF THE CONTRACTOR.

COFFERDAMS IN STREAM SHALL BE CUT OFF AT ELEVATION 585.2 OR A MINIMUM OF 1'-0" BELOW THE STREAM BOTTOM OR 1'-0" BELOW GRADE. WORK IS INCLUDED IN THE BID ITEM, "CONFFERDAMS, LEFT IN PLACE".

CONCRETE SURFACE COATING IS TO BE APPLIED TO BOTH SIDES OF THE RAILING, THE HEADRAIL FACIA, THE CULVERT AND PEDESTAL WALL END FACES, THE TOP AND EXPOSED SIDE OF THE WINGWALL, RETURNWALLS AND THE RETAINING WALL COATING SHALL EXTEND 6 INCHES MINIMUM BELOW FINISHED GRADE.

ALL EXCAVATION ON THE PROJECT SHALL BE CONSIDERED NONHAZARDOUS CONTAMINATED. STORAGE AREA FOR THE MATERIAL ON SITE MAY BE LIMITED.

EROSION AND SEDIMENTATION CONTROL

KEY	QUANTITY	PAY ITEM
55	4 EA	EROSION CONTROL, FILTER BAG
20	500 FT	TURBIDITY CURTAIN (SHALLOW)
20	100 FT	EROSION CONTROL, SILT FENCE
29A	4 EA	EROSION CONTROL, INLET PROTECTION, FABRIC DROP

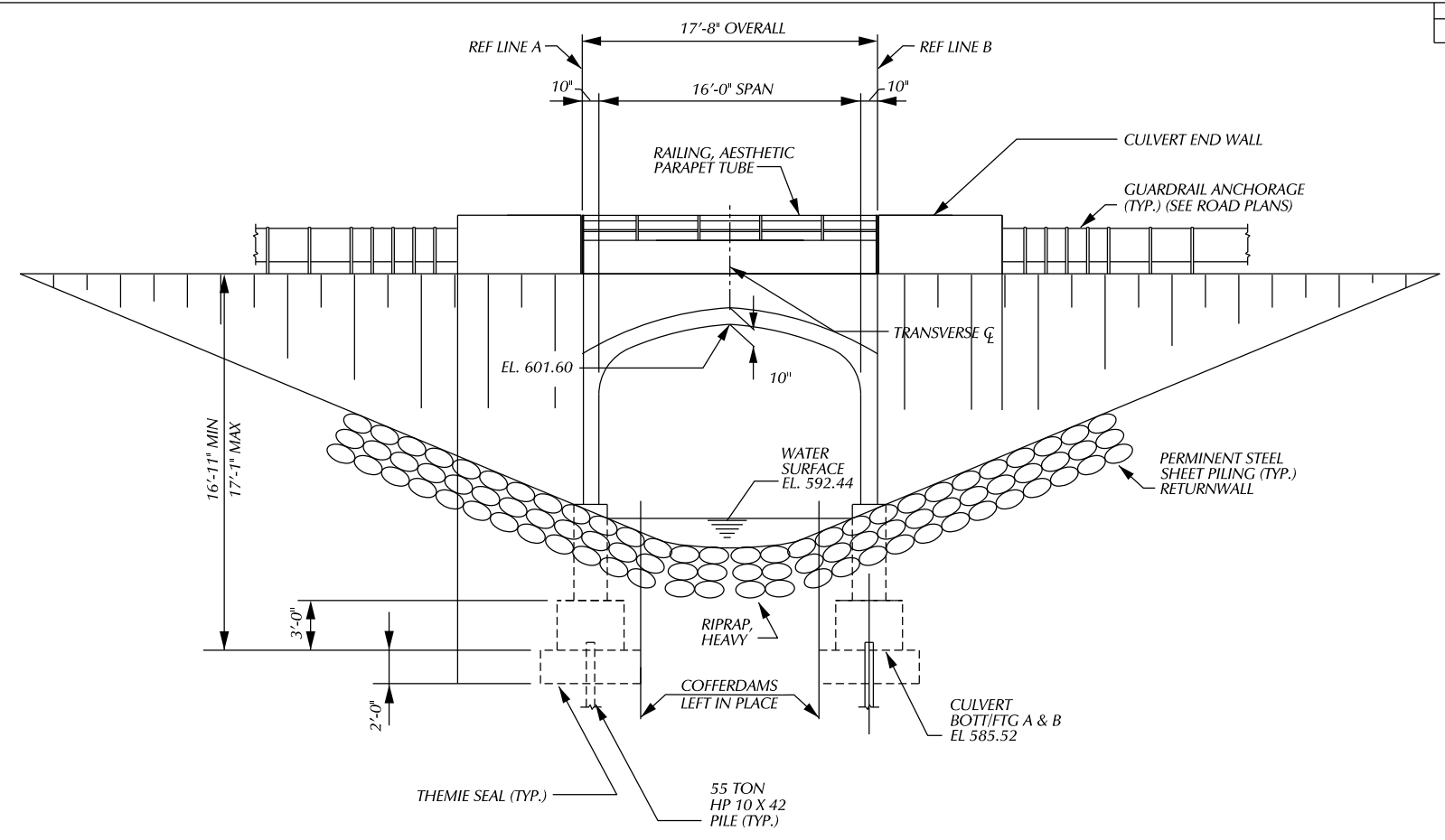
SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	EXISTING			PROPOSED			
	DISCHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS EL. 3 U/S OF PROPOSED STRUCTURE
50 YEAR	1500	605.9	13.3	605.7	9.9	1321	3.2
100 YEAR	1800	606.5	13.8	606.4	11.9	1842	1.9

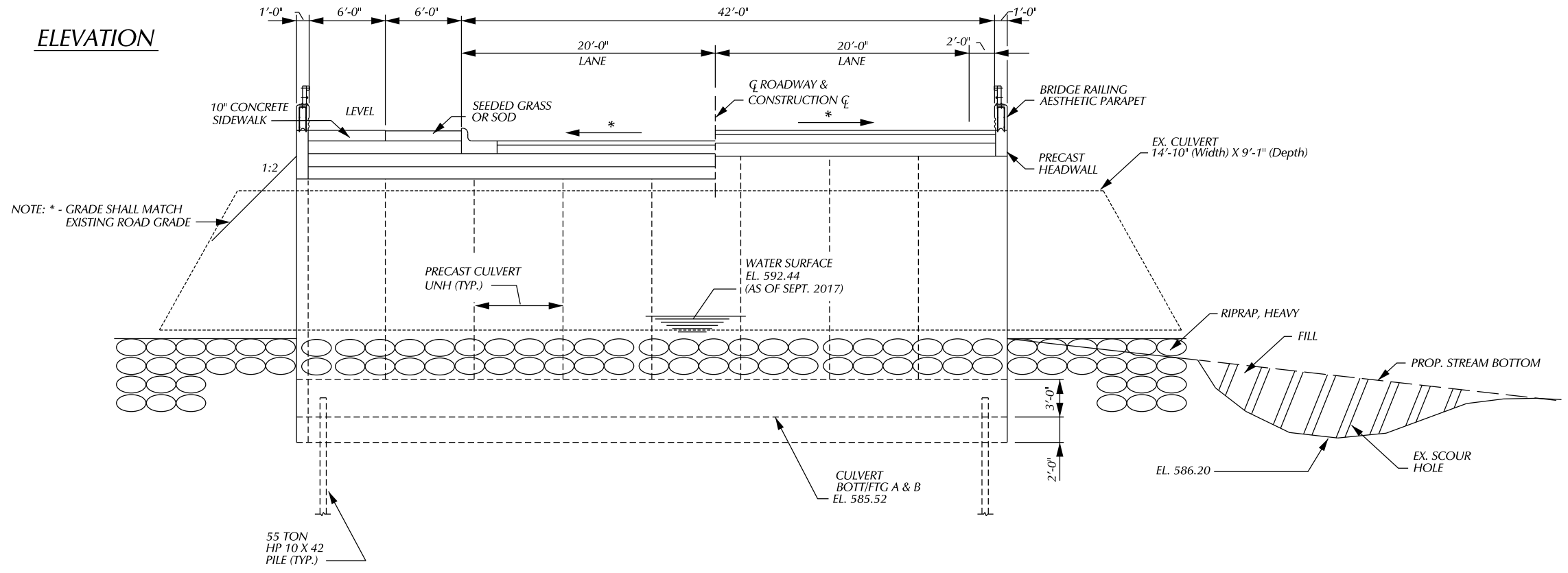
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 151 SQUARE FEET

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOORPLAIN. THE ELEVATIONS MAY NOT BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

PLAN



ELEVATION



SECTION A - A

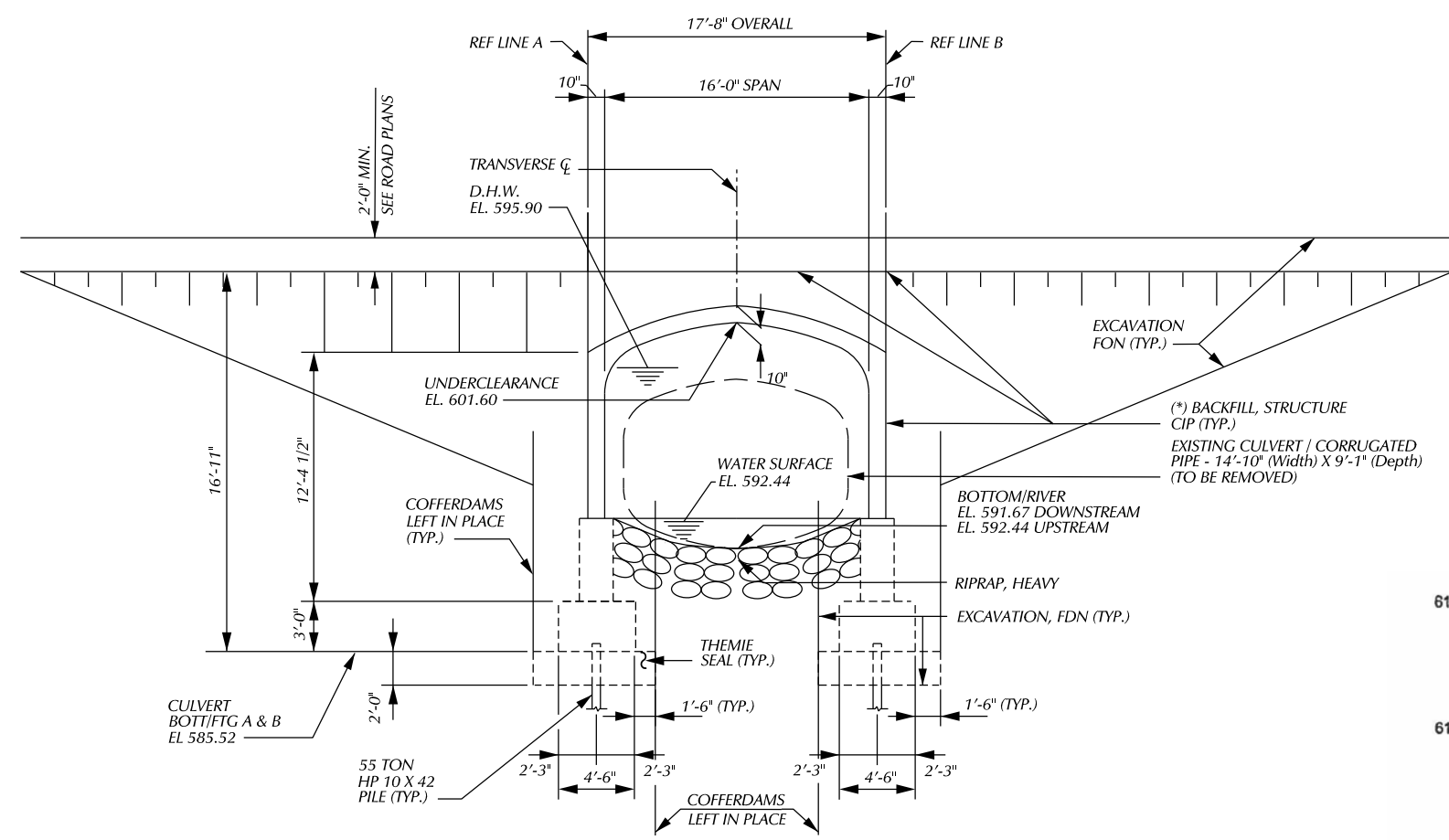
DESCRIPTION	DR	CHK	APP	DATE
REVISIONS				
PLAN		BY	CHECKED BY	APPROVED:
GRADE				IN CHARGE OF STRUCTURE
ESTIMATE				
FINAL	****	****		

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

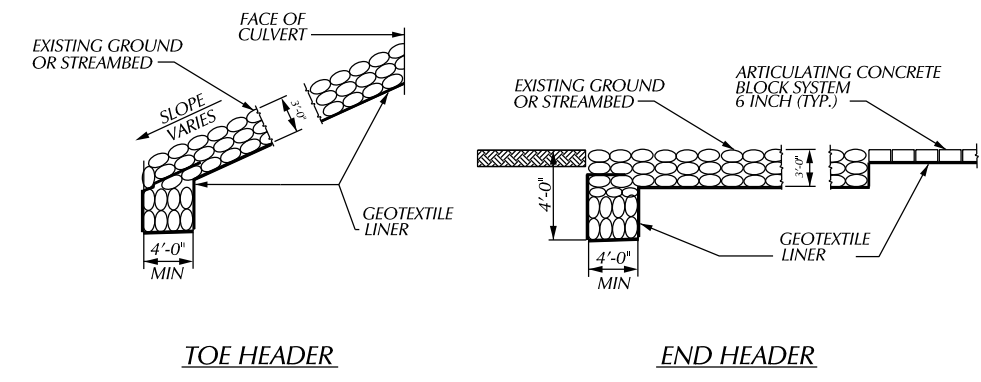
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

GENERAL PLAN OF STRUCTURE

SHEET 28 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018

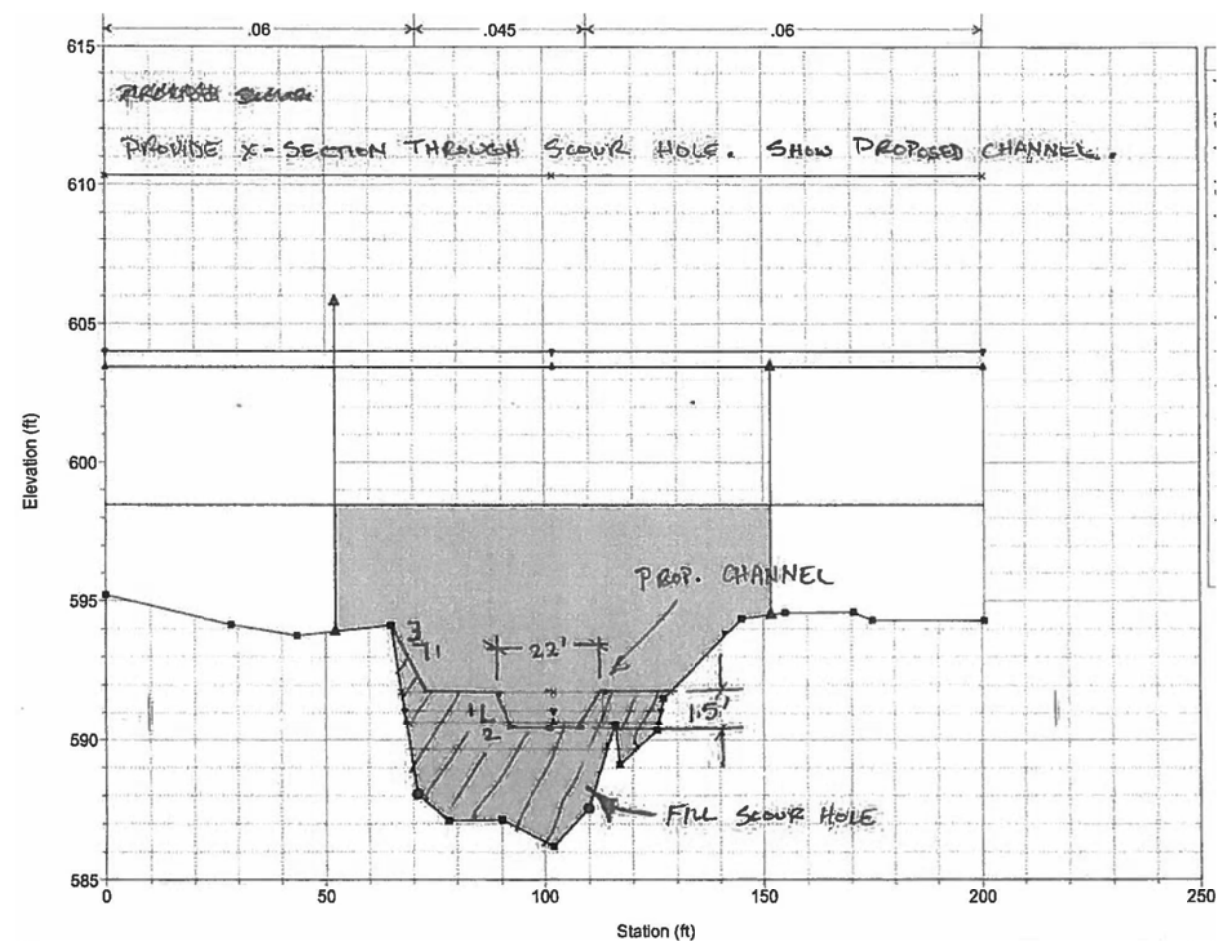


CULVERT SECTION



RIPRAP HEADER DETAILS

RIPRAP SHALL BE BURIED BELOW TOP OF EXISTING SLOPE



CROSS-SECTION THROUGH SCOUR HOLE (DOWNSTREAM)

- NOTES:**
- * - BACKFILL FRONT ABUT A & B : 50 CYD (EA)
 - * - BACKFILL BACK ABUT A & B : 368 CYD (EA)
 - SCOUR FILL: 700 CYD
 - BACKFILL & SCOUR FILL INCLUDED IN PAY ITEM "BACKFILL, STRUCTURE, CIP."

DESCRIPTION	DR	CHK	APP	DATE	BY	CHECKED BY	APPROVED:
PLAN							
GRADE							
ESTIMATE							
FINAL							

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

GENERAL PLAN OF STRUCTURE

SHEET 29 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018

DATE	REVISIONS
OLD MAP	3-30-55
	Added Sec. AA 6-12-58 J.E.

SUPPLEMENTARY DETAILS			
C-325	C-324	C-733	C-928
C-326A	C-385	C-739	C-1608
C-327	C-386	C-739A	C-1783
C-390	C-387	C-739B	

BEFORE STARTING CONSTRUCTION
CONTRACTOR MUST CHECK WITH UTILITIES FOR LOCATIONS OF EXISTING STRUCTURES WHETHER OR NOT INDICATED ON PLANS.

SCALE

LOTS & ALLEYS

STREET WIDTH

VERTICAL

DRAINAGE COMPLETED

PAVING COMPLETED C.C. 8-4-59

QUANTITIES	ESTIMATED	
	LOTS	CITY
EXCAVATION CU. YDS.		
NEW CURB LIN. FT.		
PAVING LIN. FT.		
TEST CORES		
SIDEWALK		
HANDHOLES	ADJUST	
	CONSTRUCT	
*ASINS	ADJUST	
	CONSTRUCT	
SEWER-12" LIN. FT.		

SECTION NO. F.C.C. DATE 6-4-57

ASSIGNMENT NO. GROUP NO.

BOOK NO. PG. LEVEL DATE

DATE OF DRAWING

SEE SHEET 1 OF 3 FOR ASSESSMENT

MADE BY: J. Wallace

CHECKED BY: J. Wallace

ESTIMATE: J. Wallace

SEWER APPROVED: J. Wallace

FINAL CHECK: J. Wallace

APPROVED: J. Wallace

CITY ENGINEER

58-4 ✓

INDEX NO.	77
TOPO NO.	117
INDEXED	1

CONTRACT NO. P.W. 3249 F

STREET PAVING PLAN
CITY OF DETROIT

DEPARTMENT OF PUBLIC WORKS - CITY ENGINEERS OFFICE

NAME OF STREET: WEST PARKWAY

FROM: 959.2' S OF S.L. CHICAGO

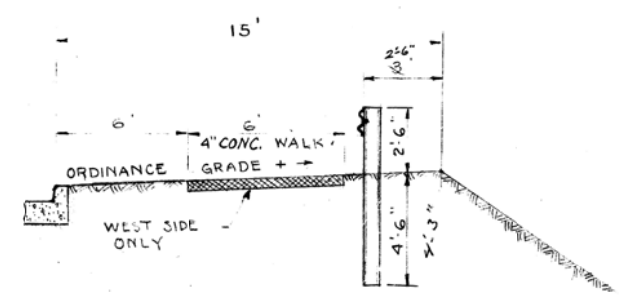
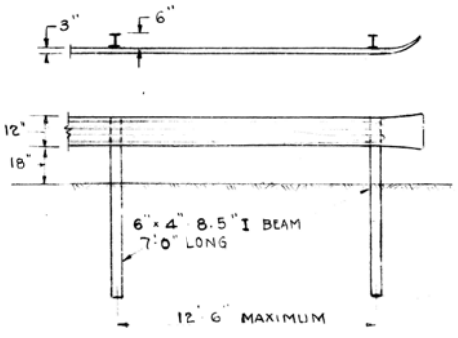
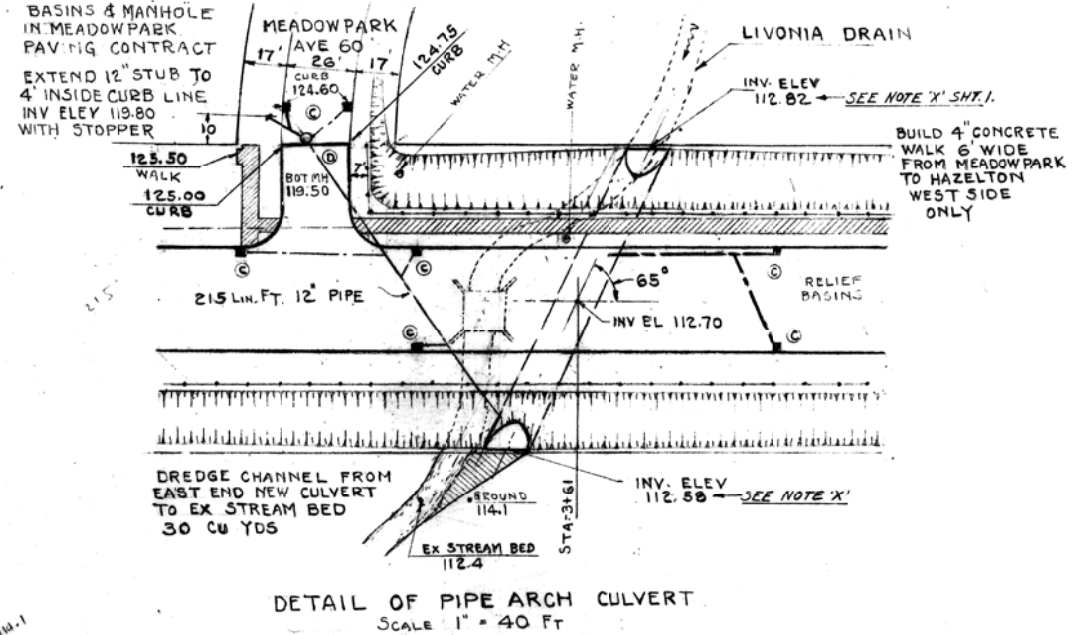
TO: 33' N OF S.L. CHICAGO

TYPE OF PAVEMENT: ONE COURSE CONCRETE INTEGRAL CURB

UNIFORM AT STREET INTERSECTION EXCEPT AS NOTED

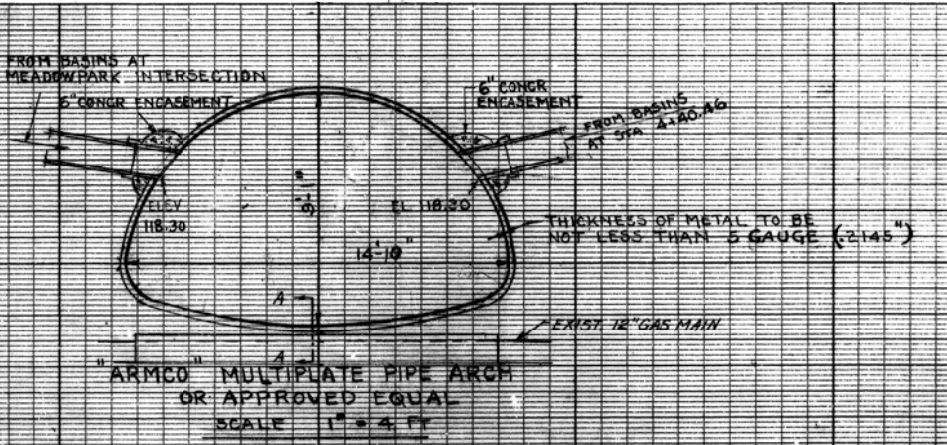
FORCED COMMON COUNCIL 6-4-57

BENCH MARKS ELEV.



FOR LOTS ONLY

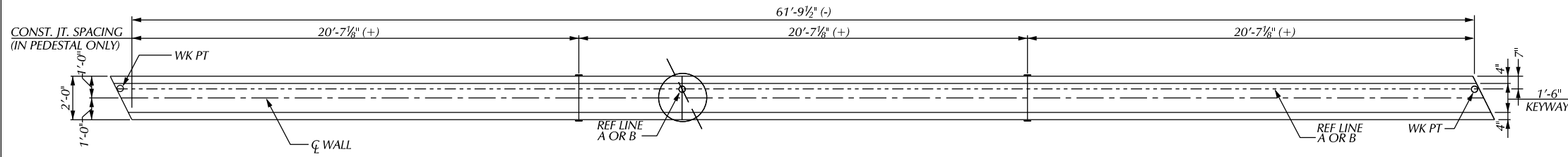
#	STA.	SIZE	NO.
0173	6' ASH	1	
0177	6' ASH	2	
0185	6' ASH	1	
2110	8' ASH	1	
2116	14' OAK	1	
2127	18' OAK	1	
2153	13' OAK	1	
2177	8' OAK	1	
2188	8' OAK	1	
2192	8' OAK	1	
2193	8' OAK	1	
2194	8' OAK	1	
2195	8' OAK	1	
2196	8' OAK	1	
2197	8' OAK	1	
2198	8' OAK	1	
2199	8' OAK	1	
2200	8' OAK	1	
2201	8' OAK	1	
2202	8' OAK	1	
2203	8' OAK	1	
2204	8' OAK	1	
2205	8' OAK	1	
2206	8' OAK	1	
2207	8' OAK	1	
2208	8' OAK	1	
2209	8' OAK	1	
2210	8' OAK	1	
2211	8' OAK	1	
2212	8' OAK	1	
2213	8' OAK	1	
2214	8' OAK	1	
2215	8' OAK	1	
2216	8' OAK	1	
2217	8' OAK	1	
2218	8' OAK	1	
2219	8' OAK	1	
2220	8' OAK	1	
2221	8' OAK	1	
2222	8' OAK	1	
2223	8' OAK	1	
2224	8' OAK	1	
2225	8' OAK	1	
2226	8' OAK	1	
2227	8' OAK	1	
2228	8' OAK	1	
2229	8' OAK	1	
2230	8' OAK	1	
2231	8' OAK	1	
2232	8' OAK	1	
2233	8' OAK	1	
2234	8' OAK	1	
2235	8' OAK	1	
2236	8' OAK	1	
2237	8' OAK	1	
2238	8' OAK	1	
2239	8' OAK	1	
2240	8' OAK	1	
2241	8' OAK	1	
2242	8' OAK	1	
2243	8' OAK	1	
2244	8' OAK	1	
2245	8' OAK	1	
2246	8' OAK	1	
2247	8' OAK	1	
2248	8' OAK	1	
2249	8' OAK	1	
2250	8' OAK	1	
2251	8' OAK	1	
2252	8' OAK	1	
2253	8' OAK	1	
2254	8' OAK	1	
2255	8' OAK	1	
2256	8' OAK	1	
2257	8' OAK	1	
2258	8' OAK	1	
2259	8' OAK	1	
2260	8' OAK	1	
2261	8' OAK	1	
2262	8' OAK	1	
2263	8' OAK	1	
2264	8' OAK	1	
2265	8' OAK	1	
2266	8' OAK	1	
2267	8' OAK	1	
2268	8' OAK	1	
2269	8' OAK	1	
2270	8' OAK	1	
2271	8' OAK	1	
2272	8' OAK	1	
2273	8' OAK	1	
2274	8' OAK	1	
2275	8' OAK	1	
2276	8' OAK	1	
2277	8' OAK	1	
2278	8' OAK	1	
2279	8' OAK	1	
2280	8' OAK	1	
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2284	8' OAK	1	
2285	8' OAK	1	
2286	8' OAK	1	
2287	8' OAK	1	
2288	8' OAK	1	
2289	8' OAK	1	
2290	8' OAK	1	
2291	8' OAK	1	
2292	8' OAK	1	
2293	8' OAK	1	
2294	8' OAK	1	
2295	8' OAK	1	
2296	8' OAK	1	
2297	8' OAK	1	
2298	8' OAK	1	
2299	8' OAK	1	
2300	8' OAK	1	



EXISTING

FOR INFORMATION ONLY

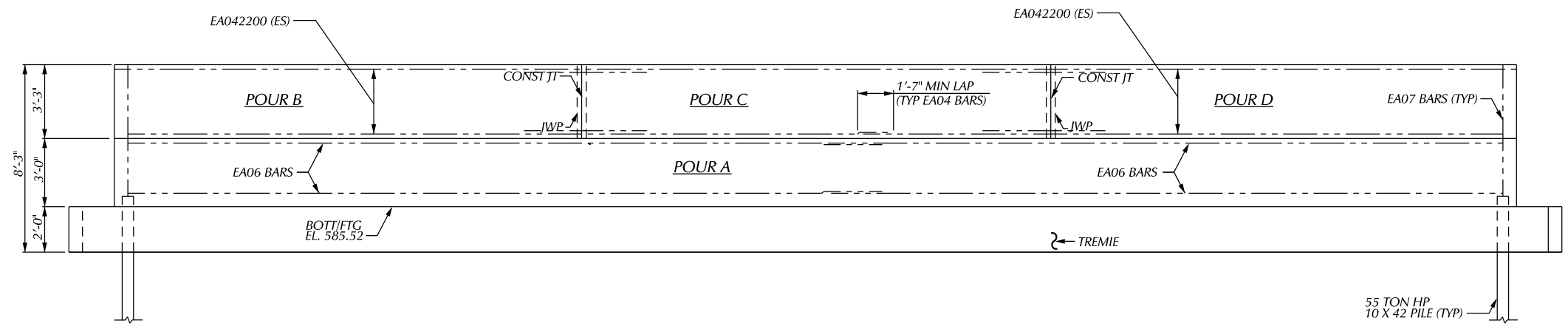
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.



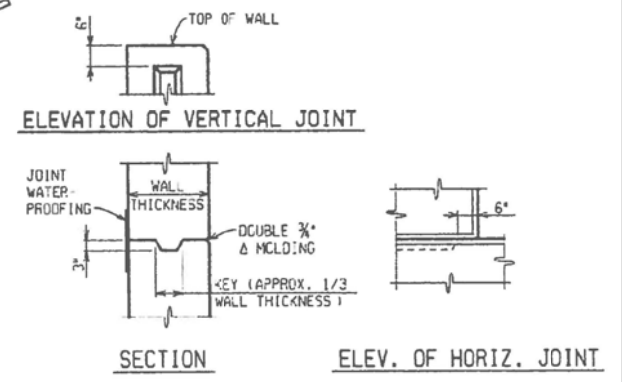
PLAN OF PEDESTAL WALL

SUBSTRUCTURE CONCRETE QUANTITIES		
POUR	FTG A	FTG B
A	31	31
B	5	5
C	5	5
D	5	5

MISCELLANEOUS QUANTITIES			
WALL A	WALL B	TOTAL	
36	36	72 CYD	CONC. GRADE T
46	46	92 CYD	SUBSTRUCTURE CONC.
4319	4319	8638 LB	REINFORCEMENT STEEL, EPOXY COATED
15	15	30 SFT	JOINT WATERPROOFING

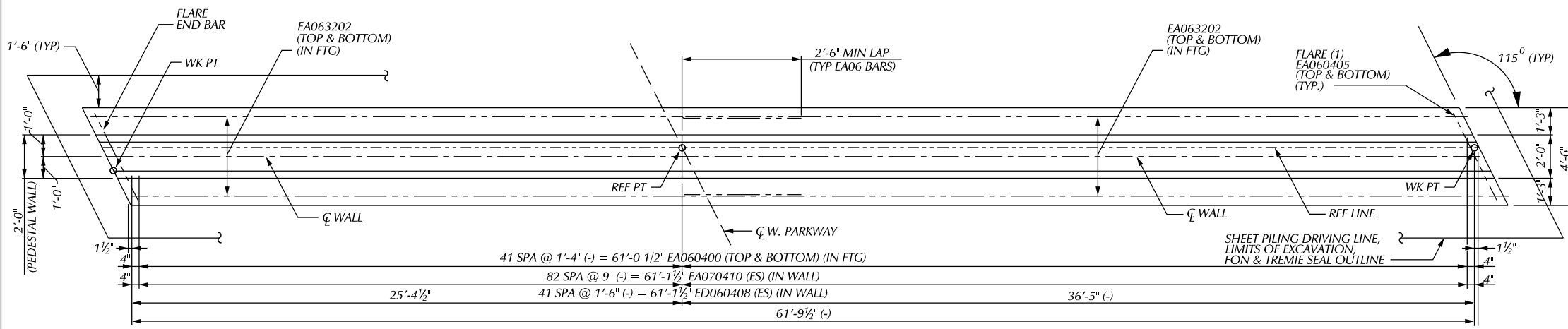


ELEVATION - PEDESTAL WALL

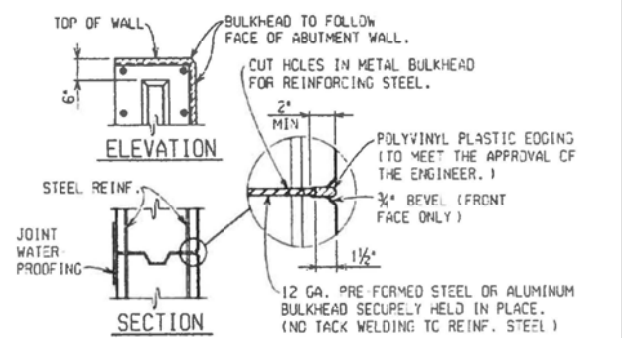


CONSTRUCTION JOINT DETAILS

NOTE: WHERE OPTIONAL CONSTRUCTION JOINTS ARE USED, THERE WILL BE NO PAYMENT FOR THE REQUIRED JOINT WATERPROOFING.



PLAN OF FOOTINGS
(FTG A SHOWN, FTG B OPPOSITE)



METAL BULKHEAD DETAILS

NOTES: METAL BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT AT CONTRACTOR'S EXPENSE. CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

NOTES:

THE SUBSTRUCTURE DESIGN IS BASED ON A FACTORED MAXIMUM VERTICAL LOAD OF 20 KIPS/FT AND A HORIZONTAL LOAD OF 8 KIPS/FT.

JWP DENOTES JOINT WATERPROOFING.

FOR PILE QUANTITIES, LAYOUT AND NOTES, SEE SHEET ____.

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03J OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT PAID FOR SEPARATELY BUT WILL INCLUDED IN THE BID ITEM FOR "SUBSTRUCTURE CONC" AND "CONCRETE GRADE T".

ES - DENOTES EACH SIDE

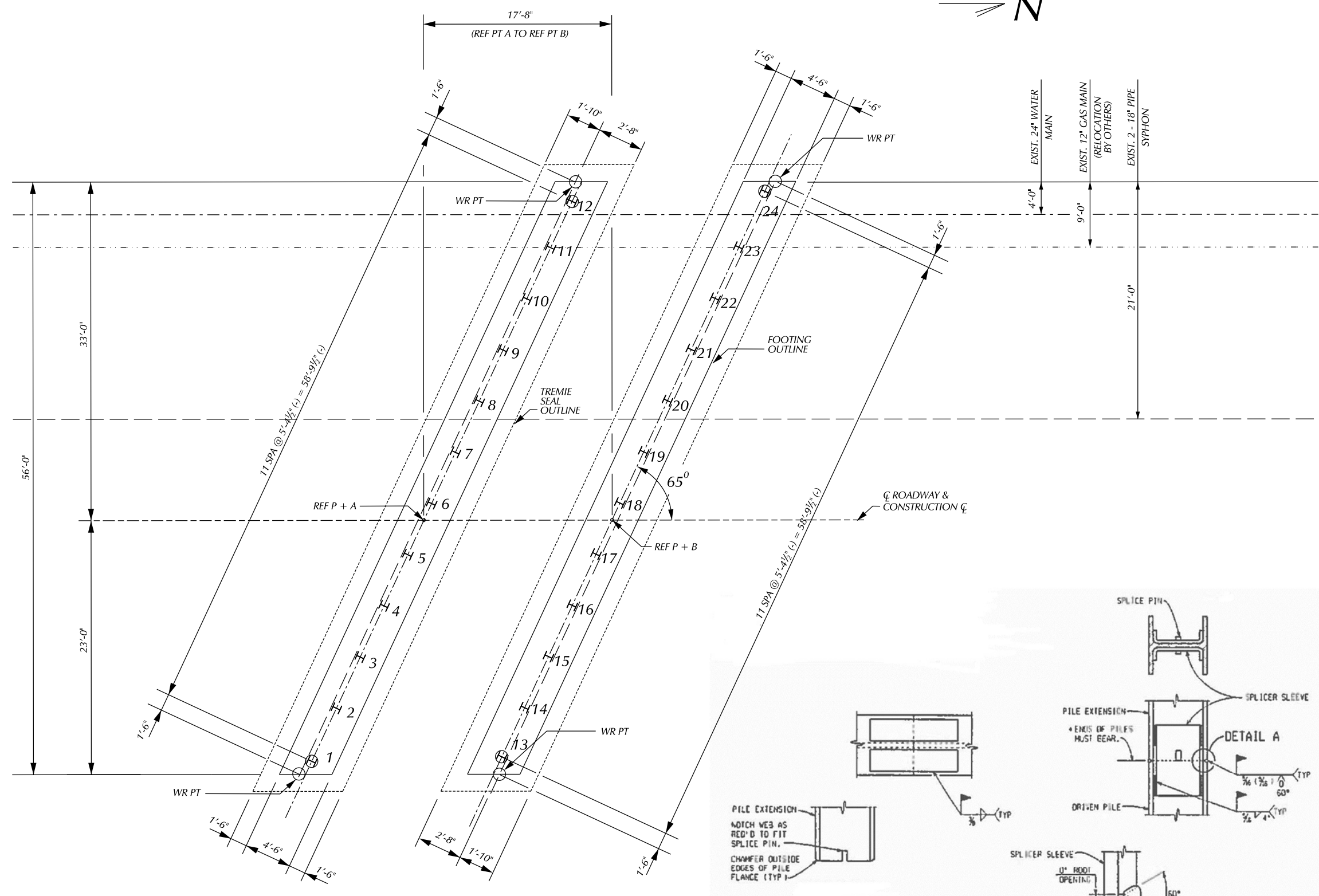
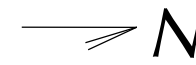
PLAN	BY	CHECKED BY	APPROVED:
GRADE			
ESTIMATE			
DESCRIPTION	OR	DATE	
REVISIONS	FINAL	DATE	

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

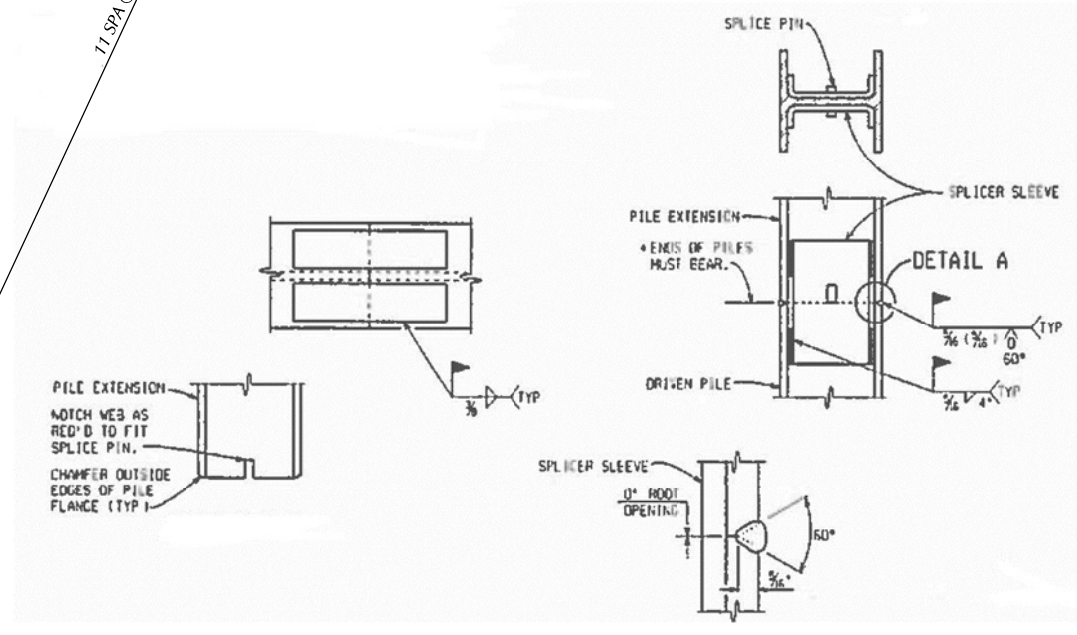
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

CULVERT SUBSTRUCTURE DETAILS

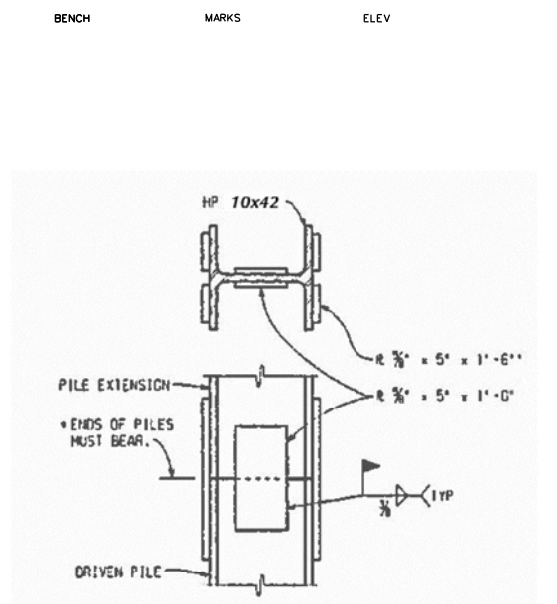
SHEET	33	OF	39	SHEETS
CONTRACT NO.	PW-6987			
ASSIGNMENT NO.				
DATE	01/24/2018			



FTG A **FTG B**
PILE LAYOUT



NOTCH DETAIL **DETAIL A**
ALTERNATE SPLICE DETAILS



SPLICE DETAILS
* SET PILE EXTENSION IN PLACE WITH SPLICE PLATES ATTACHED. TAP SEVERAL TIMES WITH THE HAMMER TO IMPROVE BEARING CONTACT, THEN COMPLETE WELDING OF PLATES TO THE LOWER SECTION.

55 TON STEEL "H" PILES					
LOCATION	PILE TYPE	NUMBER OF PILES	ESTIMATED LENGTH FURNISHED & DRIVEN		CUT-OFF ELEV.
			EACH LFT	TOTAL LFT	
FTG A	TEST	2	35	70	566.00
	VERTICAL	10	25	250	566.00
FTG B	TEST	2	30	70	566.00
	VERTICAL	10	25	250	566.00
TOTAL				640	

MISCELLANEOUS QUANTITIES	
1 LS	PILE DRIVING EQUIPMENT, FURN
640 FT	PILE STEEL, FURN AND DRIVEN, 10 INCH
4 EA	TEST PILE, STEEL 10 INCH
24 EA	PILE POINT, STEEL

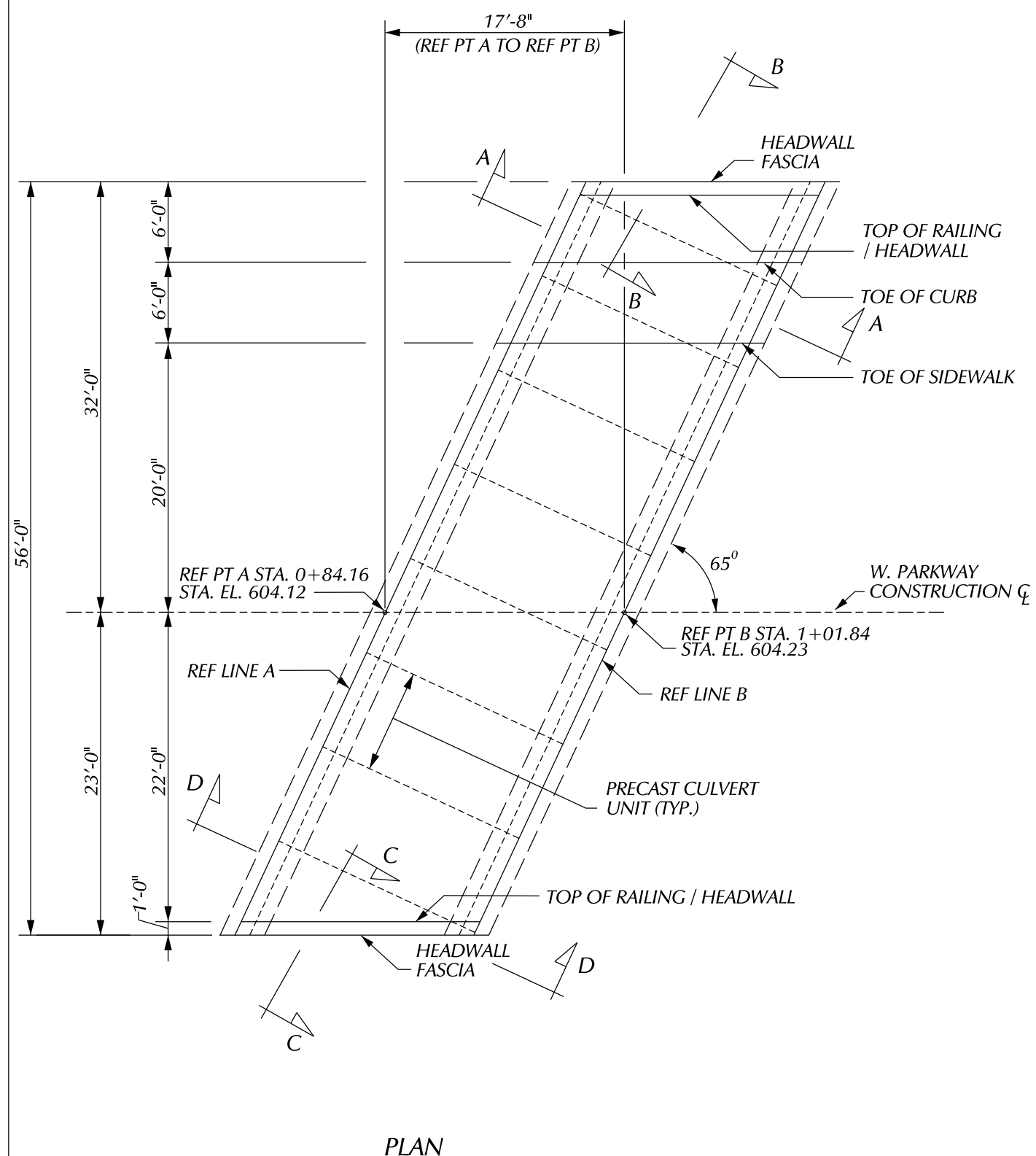
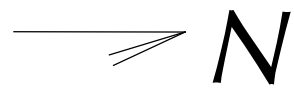
NOTES:
 H - DENOTES VERTICAL PILES.
 (H) - DENOTES VERTICAL TEST PILES.
 ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 55 TONS.
 NOMINAL DRIVING RESISTANCE R_{ndr} OF PILES SHALL BE 275 KPS.
 STEEL PILES SHALL BE HP 10 X 42.
 ESTIMATED PILE PENETRATIONS HAVE BEEN DETERMINED BY USE OF THE STATIC FORMULA.
 THE PILE DRIVING FORMULAS IN THE STANDARD SPECIFICATIONS ARE NOT TO BE USED TO DETERMINE BATTERED PILE CAPACITY. BATTERED PILES ARE TO BE DRIVEN TO THE ELEVATION ESTABLISHED FOR VERTICAL PILES.
 THE USE OF VIBRATORY HAMMERS FOR INSTALLING H-PILES SHALL NOT BE ALLOWED.

DESCRIPTION	DR	CHK	APPROV	DATE	BY	CHECKED BY	APPROVED
REVISIONS							
PLAN							
GRADE							
ESTIMATE							
FINAL	*****						

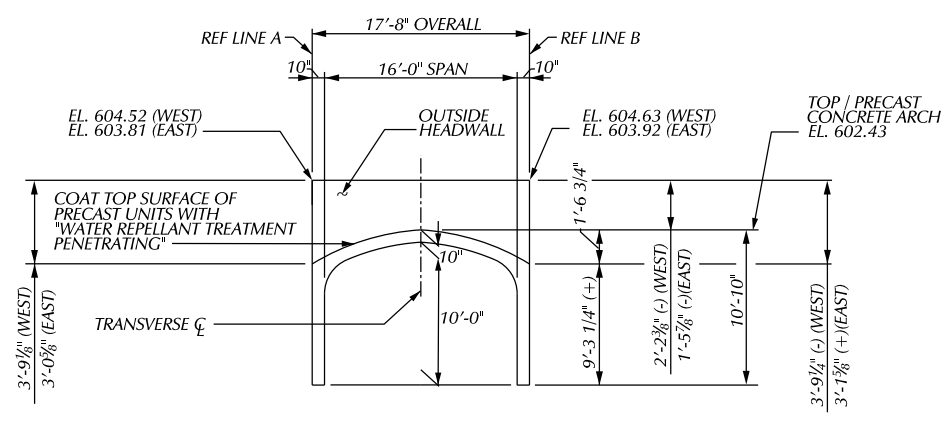
CITY OF DETROIT
 CITY ENGINEERING DIVISION - D.P.W.
 BUREAUS OF STREETS AND HIGHWAYS
 FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN
CULVERT H PILE LAYOUT

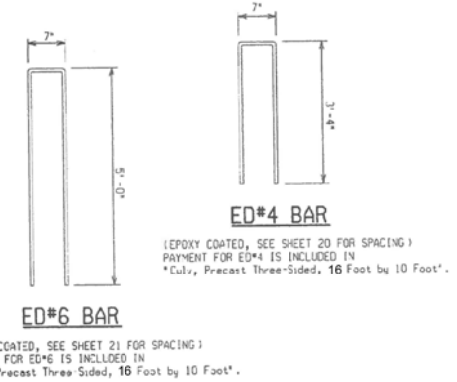
SHEET	32	OF	39	SHEETS
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DATE	01/24/2018			



PLAN



SECTION A-A (WEST HEADWALL)
SECTION D-D (EAST HEADWALL)
(ED BARS NOT SHOWN)

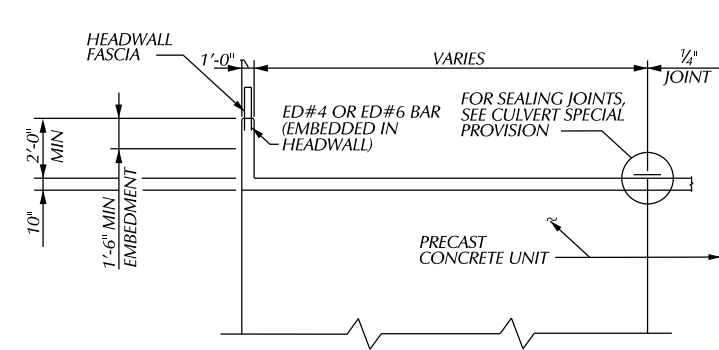


MISCELLANEOUS QUANTITIES

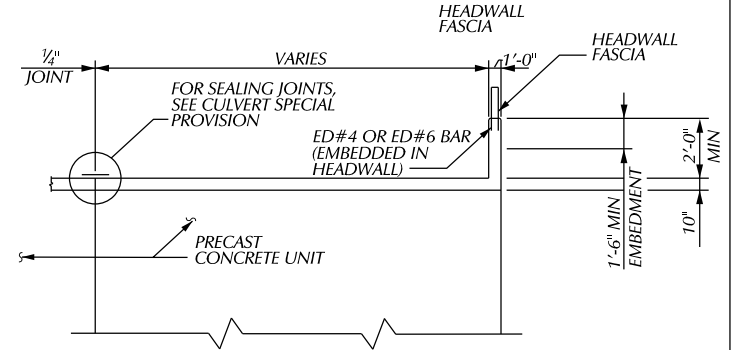
62 FT	CULV, PRECAST THREE-SIDED OR ARCH, 16 FOOT BY 10 FOOT
100 SYD	WATER REPELLANT TREATMENT, PENETRATING

NOTES:

DESIGN ALL CULVERT / HEADWALL CONNECTIONS FOR TRAFFIC LOADS.



SECTION B-B



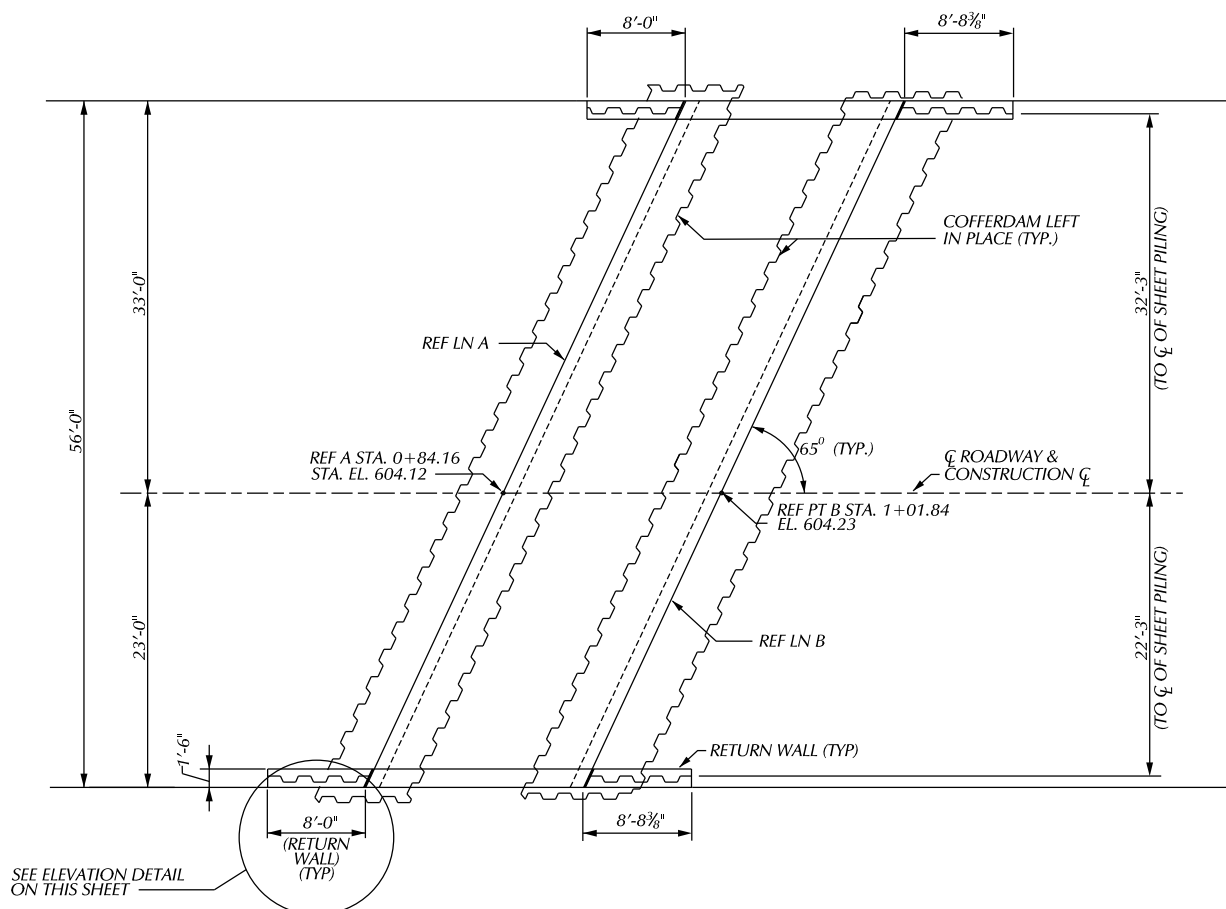
SECTION C-C

BY	CHECKED BY	APPROVED
PLAN		
GRADE		
ESTIMATE		
DESCRIPTION	DR	CHK
REVISIONS	DATE	BY

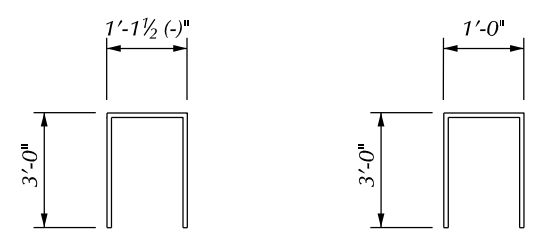
CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN
CONCRETE ARCH DETAILS

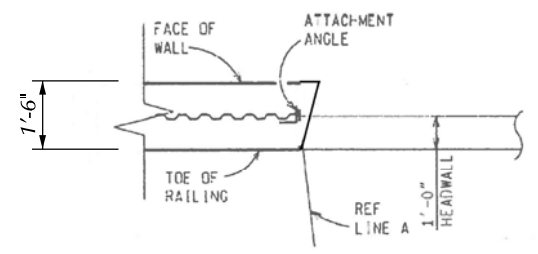
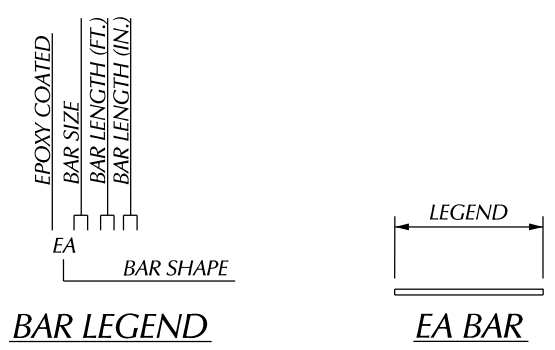
SHEET 35 OF 39 SHEETS
CONTRACT NO. PW-6987
ASSIGNMENT NO.
DATE 01/24/2018



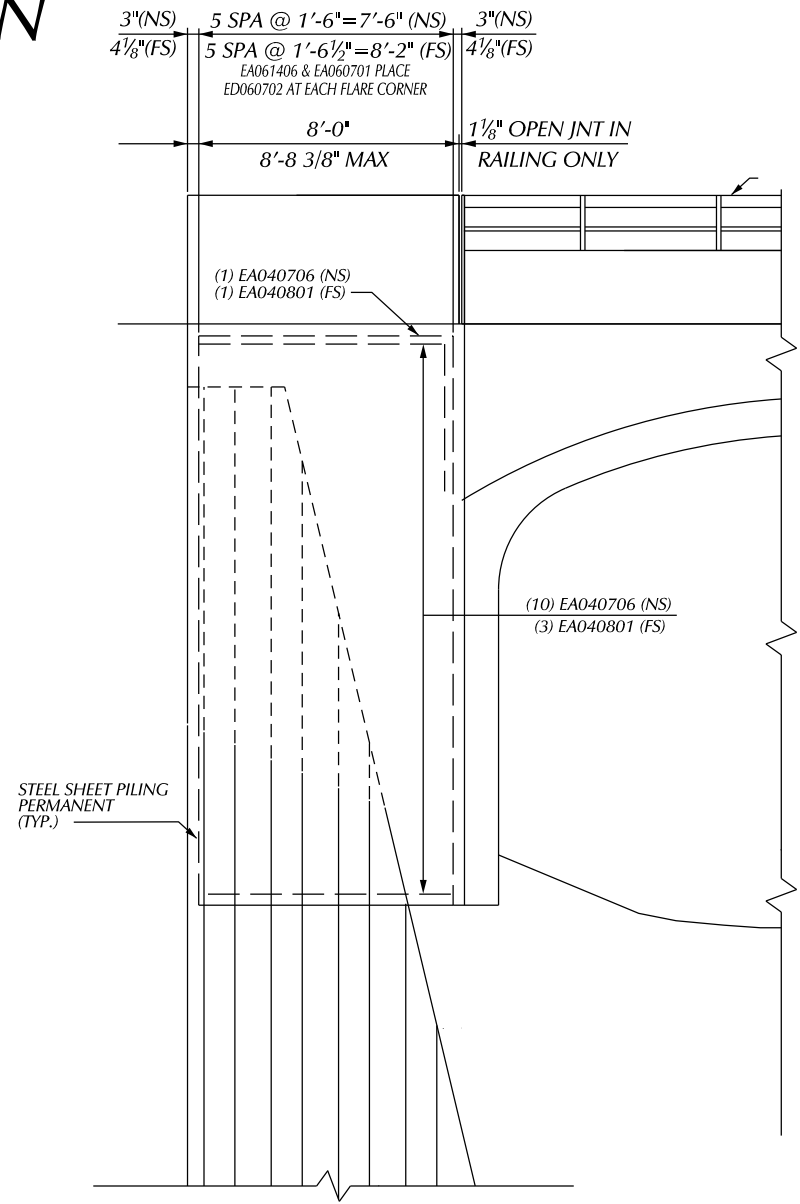
PLAN OF RETURN WALLS



ED060702 ED060700



DETAIL



ELEVATION SHEET PILE RETAINING WALL

(SOUTHEAST RETURN WALL SHOWN, OTHER RETURN WALLS ARE SIMILAR)

MIN. LAP TABLE

EA 03BEIR 1'-2"
EA 03BEIR 1'-2"
EA 03BEIR 1'-2"
EA 03BEIR 1'-2"

SUBSTRUCTURE CONCRETE QUANTITIES

POUR	AMT (CYDS)
A	4.5
B	4.5
C	4.5
D	4.5

MISCELLANEOUS QUANTITIES

810 SFT	STEEL SHEET PILING, PERMANENT
18 CYD	SUBSTRUCTURE CONC.
1,160 LB	REINFORCEMENT STEEL, EPOXY COATED

NOTES:

ALL PERMANENT STEEL SHEET PILING SHALL BE ASTM A-572, PZ-22, WHERE ALLOWED BY THE ENGINEER, SELECT ALTERNATE HOT ROLLED SHEET PILING WITH A NOMINAL SECTION MODULUS OF AT LEAST 18.1 CUBIC INCHES PER FOOT OF WALL.

ALL LABOR AND MATERIALS REQUIRED FOR CONSTRUCTION OF THE PERMANENT STEEL SHEET PILING REQUIRED FOR CONSTRUCTION OF THE PERMANENT STEEL SHEET PILING WITH TIE NOT BE PAID FOR SEPARATELY, BUT INCLUDED IN THE PAVEMENT FOR "STEEL SHEET PILING, PERMANENT".

TIE RODS SHALL BE PLACED AND TIGHTENED BEFORE CASTING THE CONCRETE FACING.

THE USE OF VIBRATORY HAMMERS FOR INSTALLING SHEET PILING SHALL NOT BE ALLOWED.

TOP ROW OF SHEAR STUDS SHALL BE 3" BELOW THE TOP OF SHEETING AND ADDITIONAL ROWS SHALL BE SPACED VERTICALLY AT 1'-6" MAX. BOTTOM ROW OF STUDS SHALL BE 3" ABOVE THE BOTTOM OF CONCRETE ELEVATION.

SHEAR STUDS SHALL NOT BE PAID SEPARATELY BUT ARE INCLUDED IN PAYMENT FOR "STEEL SHEET PILING, PERMANENT".

INSTALL RAILING REINFORCEMENT PRIOR TO POURING CONCRETE CAP ON RETAINING WALL PRIOR TO POURING CONCRETE CAP ON RETAINING WALL.

THE CONTRACTOR SHALL PROVIDE & INSTALL A MAT OF 6X6-D6XD6 WELDED WIRE FABRIC IN THE FRONT FACE OF SHEET PILING CAP WHERE STANDARD REINFORCEMENT IS NOT SHOWN. THE COST TO PROVIDE AND INSTALL THE WIRE FABRIC IS INCLUDED IN "STEEL SHEET PILING, PERMANENT". PROVIDE A MINIMUM OF 2" OF CLEAR COVER ON ALL SIDES.

PRIOR TO DRIVING PERMANENT SHEETING, THE CONTRACTOR SHALL ANCHOR L 6"x6"x1/2" ANGLES TO THE PEDESTAL WALL, CULVERT AND HEADWALL TO USE AS A DRIVING GUIDE FOR THE SHEET PILING. ANGLES SHALL BE ATTACHED UTILIZING EITHER 3/8" ADHESIVE ANCHORED OR 3/4" EXPANSION ANCHORED BOLTS CHOSEN FROM THE QUALIFIED PRODUCT LIST.

AFTER DRIVING PILING, ATTACHED WEB OF PILING TO OUTSTANDING LEG OF ANGLES WITH 1/2" HIGH STRENGTH BOLTS. ALL WORK AND MATERIALS FOR ANGLES AND CONNECTORS ARE INCLUDED IN "STEEL SHEET PILING, PERMANENT".

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.030 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WALL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEM "SUBSTRUCTURE CONC".

EPOXY COATED STEEL REINFORCEMENT

BAR	NO. REQ'D	TOTAL WT
EA040706	26	130
EA040801	26	141
EA060706	4	45
EA060801	4	49
EA061406	20	436
EA060700	20	210
EA060702	4	43
	OVERRUN	106

PLAN	BY	CHECKED BY	APPROVED
GRADE			
ESTIMATE			
DESCRIPTION	DR	CHK	DATE
REVISIONS			

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

SHEET PILE WALL DETAILS

SHEET 36 OF 39 SHEETS

CONTRACT NO. PW-6987

ASSIGNMENT NO.

DATE 01/24/2018

