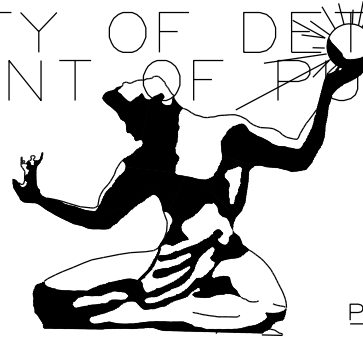


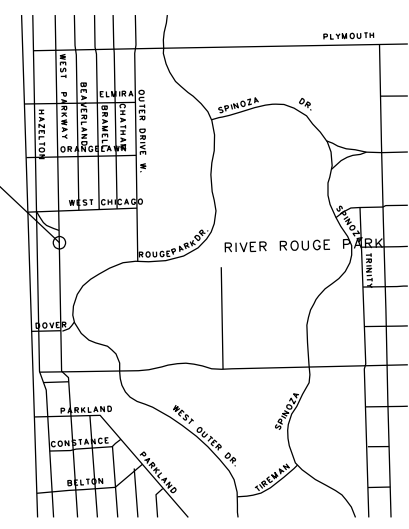
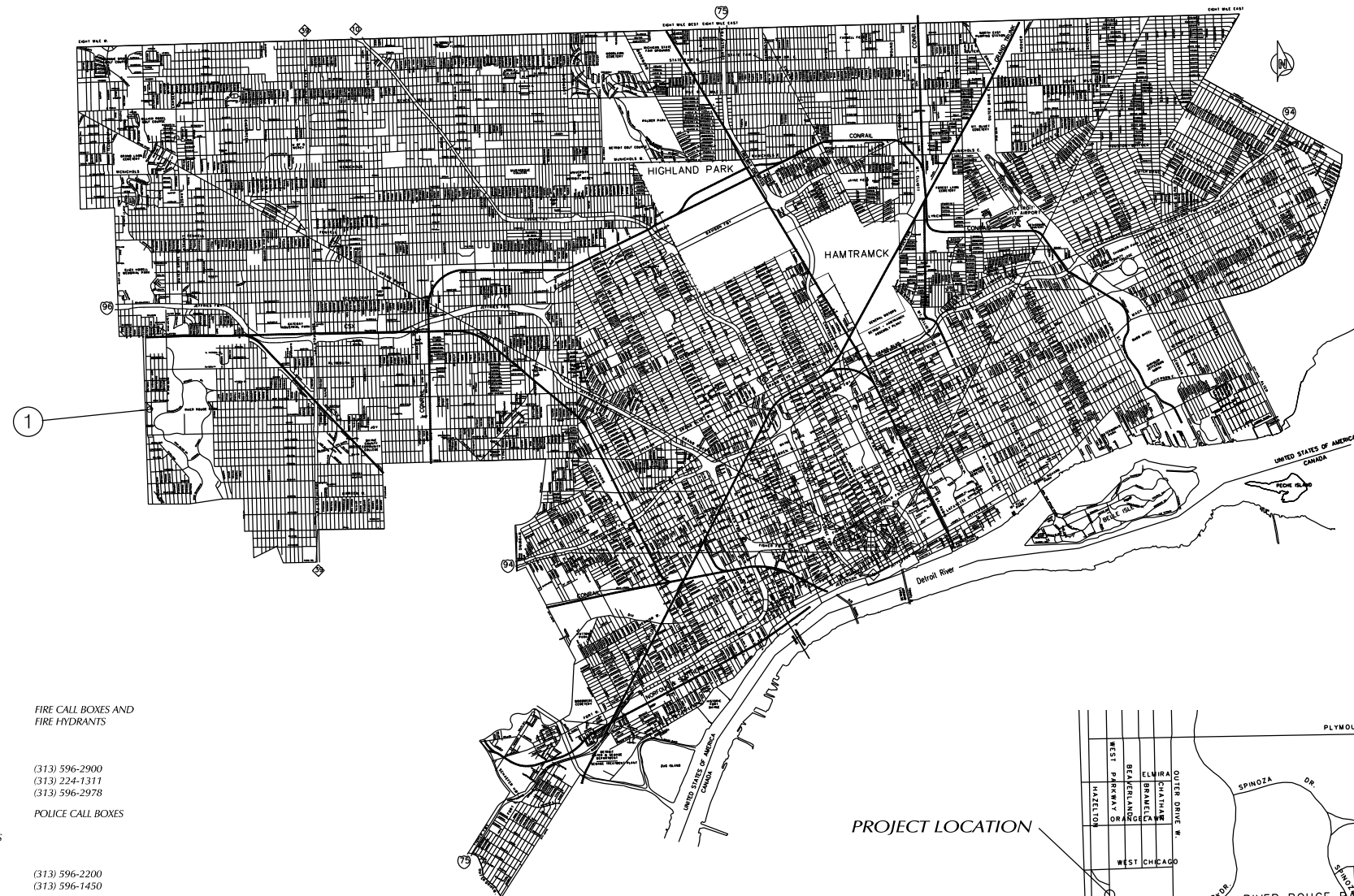
# CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS



CONTROL SECTION  
XXX XXXXX

PROJECT JOB NO.  
PW-6987

## CULVERT REPLACEMENT PROJECT REPLACEMENT OF THE W. PARKWAY CULVERT OVER ROUGE RIVER



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:  $f_y = 60,000$  PSI
- PRESTRESSED CONCRETE:  $f'c = 5,000$  PSI

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

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION	# OF SHEET
1	TITLE SHEET	1
2		1
3		1
4		1
5		1
6		1

**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

**PUBLIC UTILITIES**

<p><b>AT&amp;T</b> METRO EAST 100 S MAIN ST, SUITE 314 MT CLEMENS, MI 487043-2374 JOE SIKOKI</p> <p><b>RIGHT OF WAY- METRO WEST</b> 17631 MICHIGAN AVE., RM 301 DEARBORN, MI 48126 KEVIN LOGAN</p> <p><b>CELL</b> FAX K129152att.com MARK BRANAM Mark.branam@att.com BRADLEY HALL Bradley.x.hall@att.com DEREK BULKLEY Derek.m.bulkley@att.com</p> <p><b>NOTE:</b> AT&amp;T WILL REQUIRE FIVE TO SEVEN BUSINESS DAYS ADVANCE NOTICE PRIOR TO ADJUSTING FRAMES AND COVERS. CONTACT AT&amp;T AT (734) 523-6883.</p> <p><b>CITY OF DETROIT PUBLIC LIGHTING</b> AUTHORITY OF DETROIT 65 CADILLAC SQUARE, SUITE 3100 DETROIT, MI 48226 PHONE WEBSITE: www.pladetroit.org</p> <p><b>CITY OF DETROIT DETROIT WATER &amp; SEWERAGE DEPARTMENT</b> 6425 HUBER (CSF) A-219 DETROIT, MI 48211 DEBRA SINGLETON dsingleton@dvsd.org EMERGENCY 24 HOUR SERVICE</p>	<p><b>TELEPHONE</b></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><b>CITY OF DETROIT DETROIT FIRE DEPARTMENT FIRE MARSHAL'S DIVISION</b> 1301 THIRD STREET DETROIT, MI 48226 PHONE CHIEF OTIS B. HOLT FAX</p> <p><b>CITY OF DETROIT, DETROIT POLICE DEPARTMENT DETROIT PUBLIC SAFETY HEADQUARTERS</b> 1301 THIRD STREET DETROIT, MI 48226 PHONE FAX</p> <p><b>CITY OF DETROIT TRAFFIC ENGINEERING, D.P.W.</b> 2633 MICHIGAN AVENUE DETROIT, MI 48207 ASHOK PATEL Fax AshPat@detroitmi.gov JUBI CHACKUNKAL Jubi.Cha@detroitmi.gov KIRIT PATEL Patelki@detroitmi.gov</p> <p><b>SIGN SHOP</b> 2425 FENKELL DETROIT, MI 48238 SIGN SHOP MANAGE FAX</p> <p><b>COMCAST CABLEVISION</b> 12775 LYNDON DETROIT, MI 48227 BENE CUMMINGS FAX</p>	<p><b>FIRE CALL BOXES AND FIRE HYDRANTS</b></p> <p>(313) 596-2900 (313) 224-1311 (313) 596-2978</p> <p><b>POLICE CALL BOXES</b></p> <p>(313) 596-2200 (313) 596-1450</p> <p><b>PAVEMENT MARKINGS, SIGNS &amp; TRAFFIC SIGNALS</b></p> <p>(313) 224-1610 (313) 224-1304</p> <p>(313) 224-1315 (313) 407-4124 (313) 628-5641</p> <p><b>SIGNS REMOVALS &amp; INSTALLATIONS</b></p> <p>(313) 628-2923 (313) 628-4966</p> <p><b>TV CABLES</b></p> <p>(313) 934-2600 (313) 934-4824</p>	<p><b>DTE, GAS COMPANY</b> ONE ENERGY PLAZA-WCB1722 DETROIT, MI 48226 DAVE ORZEL orzeld@dteenergy.com</p> <p><b>DTE, ELECTRIC COMPANY</b> ONE ENERGY PLAZA ICS GROUP, 5188B DETROIT, MI 48226 ROBIN O'CONNELL FAX</p> <p><b>DTE, ENERGY/MICHIGON GAS DATA INTEGRITY GAS</b> ONE ENERGY PLAZA-WCB1836 DETROIT, MI 48226 BARBARA SAUNDERS CELL EXPOSED OR DAMAGED FACILITIES</p>	<p><b>HIGH PRESSURE GAS TRANSMISSION</b></p> <p>(313) 235-1135</p> <p><b>ELECTRIC POWER</b></p> <p>(313) 235-5632 (313) 235-9366 (313) 237-9564</p> <p><b>GAS MAINS</b></p> <p>(313) 235-5111 (313) 920-4488 (800) 477-4747</p>	<p><b>NOTE: CONTACT DTE TEN (10) WORKING DAYS PRIOR TO THE CONSTRUCTION START DATE TO COORDINATE ADJUSTMENTS FOR DETROIT EDISON MANHOLES.</b></p> <p><b>DETROIT THERMAL LLC</b> 541 MADISON DETROIT, MI 48226 TOM MONRO FAX</p> <p><b>STEAM LINES</b></p> <p>(313) 921-1922 (313) 921-1972</p> <p><b>ELECTRICITY TRANSMISSION COMPANY</b></p> <p>(248) 946-3322</p> <p><b>ALL UNDERGROUND UTILITIES</b></p> <p><b>MISS DIG</b> CALL THREE (3) WORKING DAYS BEFORE YOU DIG (800) 482-7171 OR 811</p> <p><b>WAYNE COUNTY TRAFFIC OFFICE</b> 29900 GODDARD RD. DETROIT, MI 48242 PHONE</p> <p>(734) 955-2154</p>
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DESIGNED BY LA		Date: 12/04/2017
Drawn WLW		
Checked By: ---	Approved By: ---	Job No: PW-6987
CONTRACT FOR: <b>REPLACEMENT OF THE W. PARKWAY CULVERT OVER ROUGE RIVER</b>		
LOCAL AUTHORITY APPROVAL CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERING DIVISION		
APPROVED BY: _____ DATE: _____		
PREPARED UNDER THE SUPERVISION OF		
_____ REGISTERED PROFESSIONAL ENGINEER		_____ REGISTRATION NO.
CITY OF DETROIT ORGANIZATION		
CITY ENGINEERING DIVISION, D.P.W. 2 WOODWARD AVE., SUITE 601 DETROIT MI 48216 ADDRESS		
SHEET ___ OF ___		

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 AND PLACING RIPRAP TO THE LIMITS SHOWN, ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE 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 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.

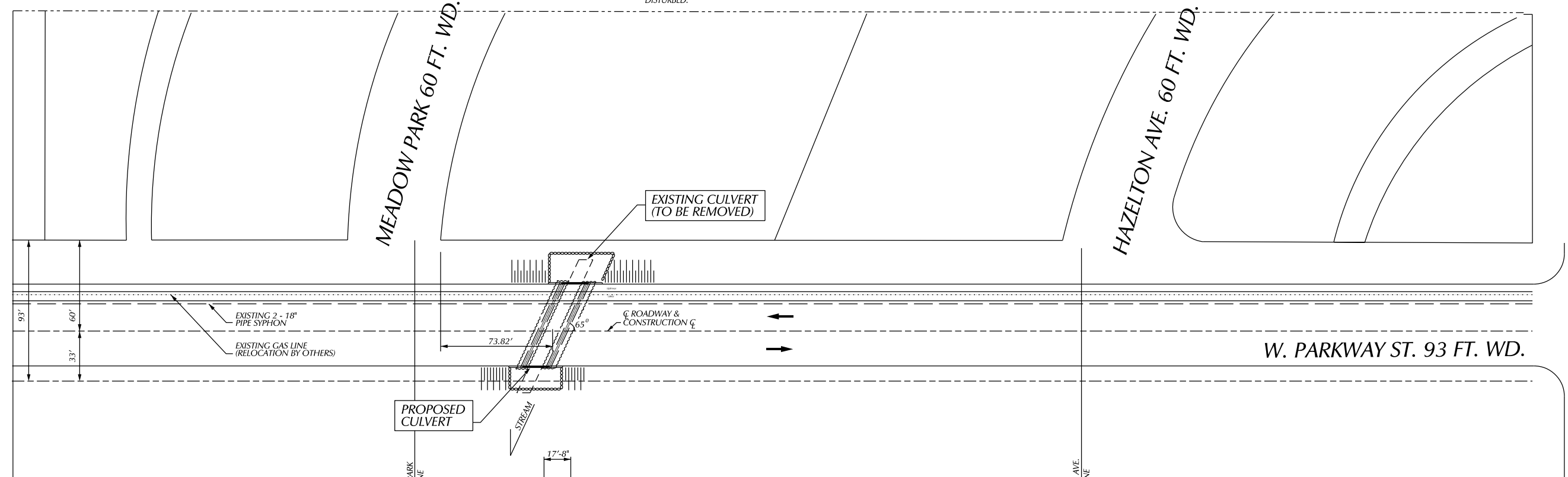
IMMEDIATELY AFTER THE CONSTRUCTION OF A CULVERT SLOPE IS COMPLETED, SLOPE PROTECTION AND SEEDING OR SODDING SHALL BE PLACED ON THE ADJACENT EMBANKMENT SLOPES.

PLANS REFER TO THE NAVD88 DATUM.

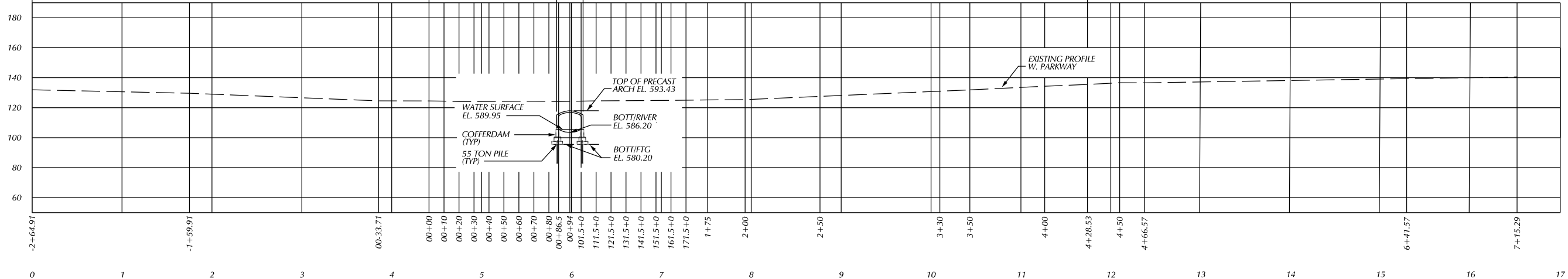
THE SURVEY INFORMATION ON THIS PROJECT WAS ACQUIRED BY THE CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS, CITY ENGINEER DIVISION SURVEYOR.

SCALE	HORIZONTAL	BOOK NO.	PG.	LEVEL DATE	CONTRACTOR
	VERTICAL				
					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'

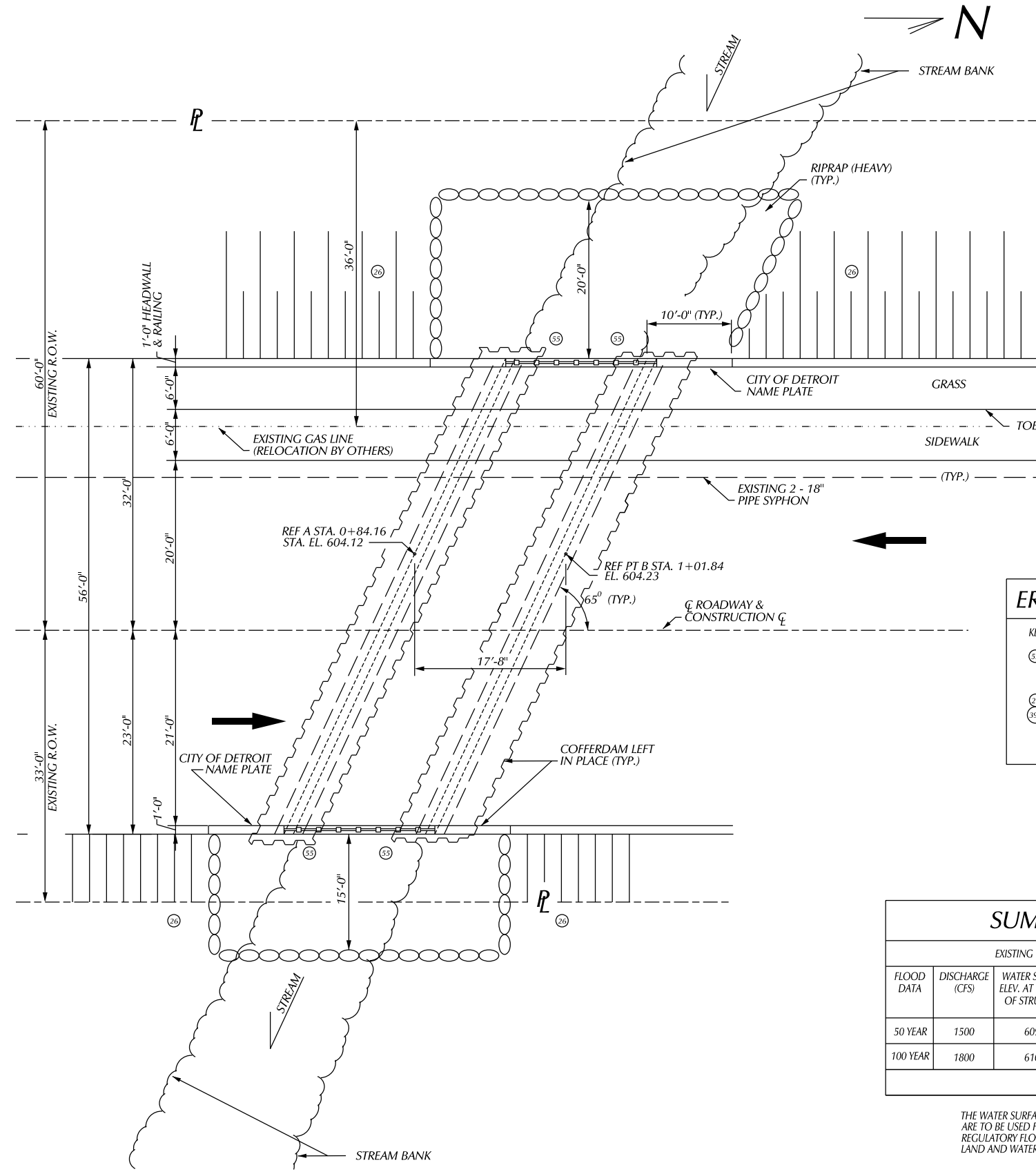
BY	CHECKED BY	APPROVED
PLAN		
GRADE		
ESTIMATE		
DESCRIPTION	DR	CHK
REVISIONS	DATE	DATE

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

**WEST PARKWAY CULVERT OVER ROUGE RIVER**

**GENERAL PLAN OF SITE**

SHEET OF SHEETS
CONTRACT NO.
ASSIGNMENT NO.
DATE



### MISCELLANEOUS QUANTITIES

1 LS	MONITORING VIBRATIONS (STRUCTURES)
1 LS	MONITORING VIBRATIONS (SANITARY SEWERS)
1 LS	STRUCTURES, REM (B01 OF 63021)
1 LS	STRUCTURES, REM *
4 CYD	EXCAVATION, FDN **
1570 CYD	BACKFILL, STRUCTURE, CIP
569 CYD	EMBANKMENT, CIP
610 CYD	NON HAZ CONTAMINATED MATERIAL HANDLING AND DISPOSAL, LM
400 TON	RIPRAP, HEAVY, SPECIAL
1 LS	CONFFERDAMS, LEFT IN PLACE
150 SYD	CONC. SURFACE COATING

\* 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, SPECIAL".

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 ABUTMENT A AND 12.6 AT ABUTMENT B. THESE DEPTHS ARE BASED ON A 100 YEAR RUNOFF EVENT.

THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS \_\_\_ SQUARE MILES.

BROKEN CONCRETE SHALL NOT BE USED AS RIPRAP.

THE TREMIE SEAL DESIGN WAS BASED ON A WATER SURFACE AT EL. 589.95.

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 (C01 OF 63821).

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
	500 FT	TURBIDITY CURTAIN (SHALLOW)
26	100 FT	EROSION CONTROL, SILT FENCE
39A	4 EA	EROSION CONTROL, INLET PROTECTION, FABRIC DROP
	1 LS	SEDIMENTATION CONTROL

### SUMMARY OF HYDRAULIC ANALYSIS

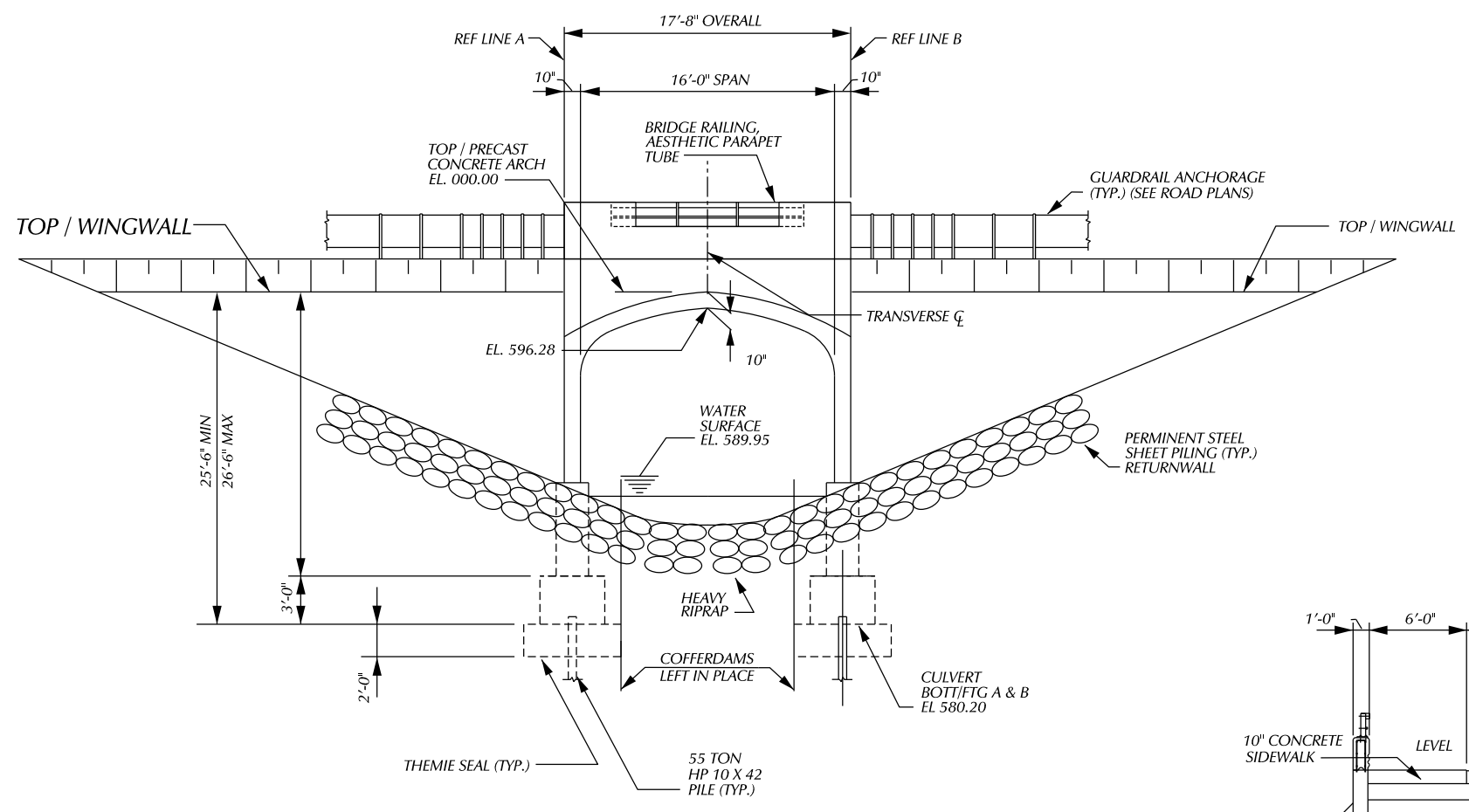
FLOOD DATA	EXISTING			PROPOSED			
	DISCHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS 3 U/S OF PROPOSED STRUCTURE
50 YEAR	1500	609.2	13.3	606	9.9	1321	3.2
100 YEAR	1800	610.2	13.8	607.8	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 FLOORPLAN. THE ELEVATIONS MAY NOT BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

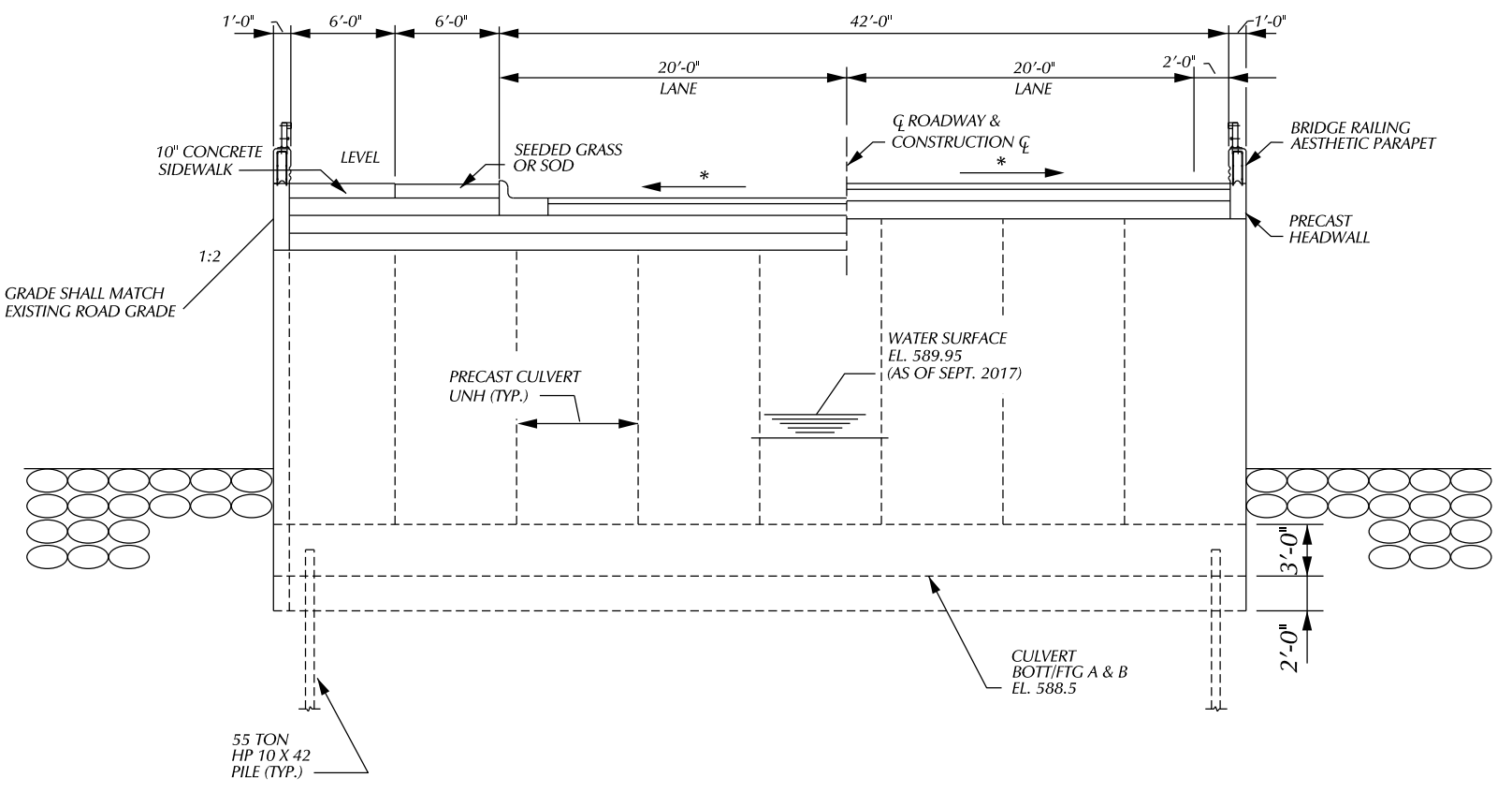
PLAN

DESCRIPTION		DR	CHK	DATE	BY	CHECKED BY	APPROVED:	CITY OF DETROIT CITY ENGINEERING DIVISION - D.P.W. BUREAUS OF STREETS AND HIGHWAYS FOR	WEST PARKWAY CULVERT OVER ROUGE RIVER  GENERAL PLAN OF STRUCTURE	SHEET	OF	SHEETS	
REVISIONS										CONTRACT			
										NO.			
										ASSIGNMENT			
								NO.					
								DATE					



**ELEVATION**

NOTE: \* - GRADE SHALL MATCH EXISTING ROAD GRADE



**SECTION A - A**

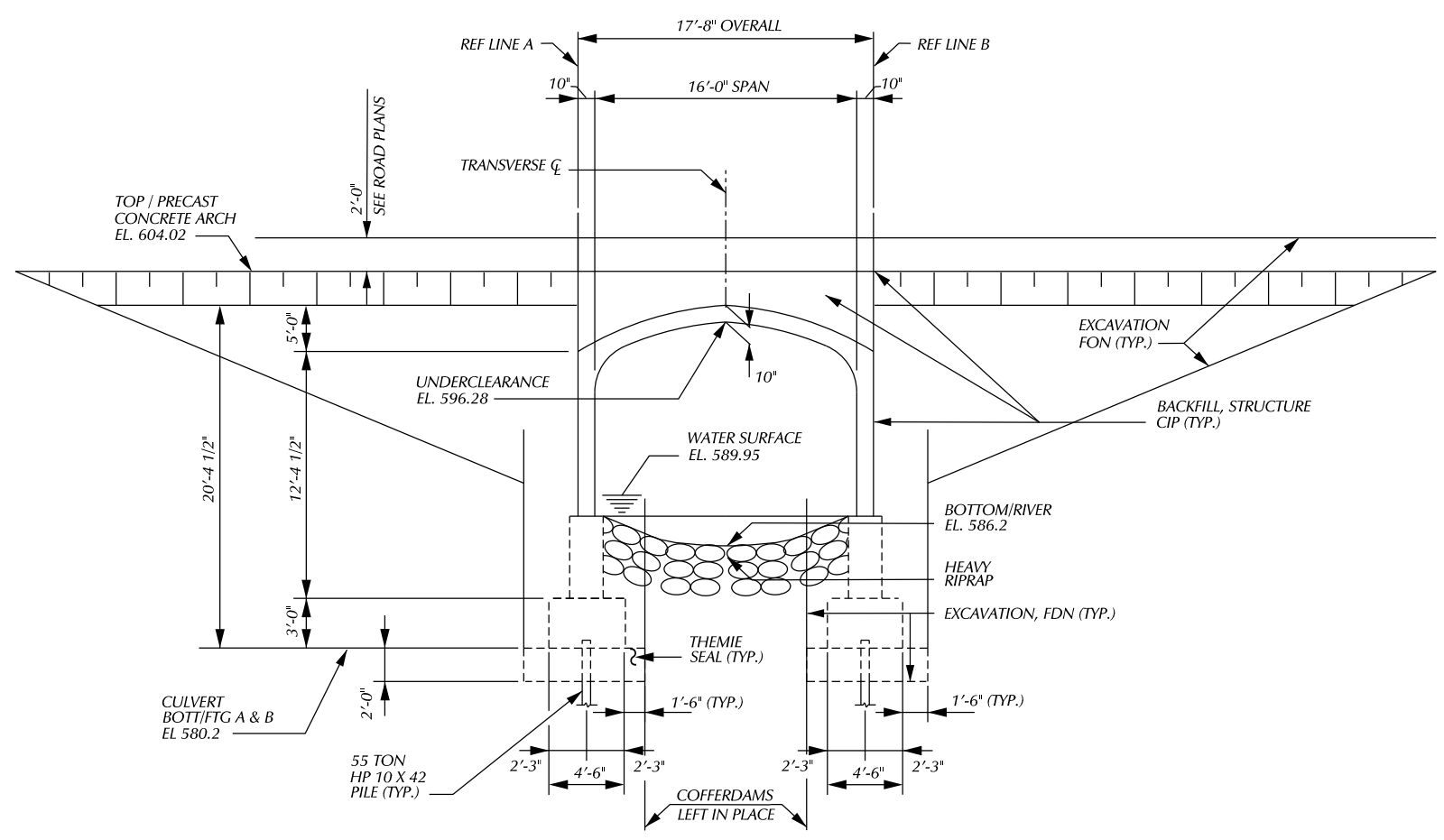
DESCRIPTION	DATE	BY	CHECKED BY	APPROVED
PLAN				
GRADE				
ESTIMATE				
FINAL				
REVISIONS				

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

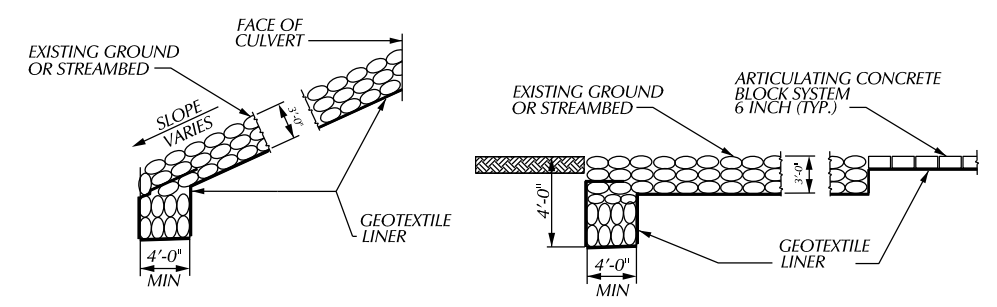
WEST PARKWAY CULVERT OVER ROUGE RIVER

GENERAL PLAN OF STRUCTURE

SHEET	OF	SHEETS
CONTRACT	NO.	
ASSIGNMENT	NO.	
DATE		



**CULVERT SECTION**



**TOE HEADER**

**END HEADER**

**RIPRAP HEADER DETAILS**

RIPRAP SHALL BE BURIED BELOW TOP OF EXISTING SLOPE

PLAN	BY	CHECKED BY	APPROVED:
GRADE			CHANCE OF STREETS
ESTIMATE			
DESCRIPTION	DR	CHK	APP
REVISIONS	DATE	BY	REASON

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

**WEST PARKWAY CULVERT OVER ROUGE RIVER**

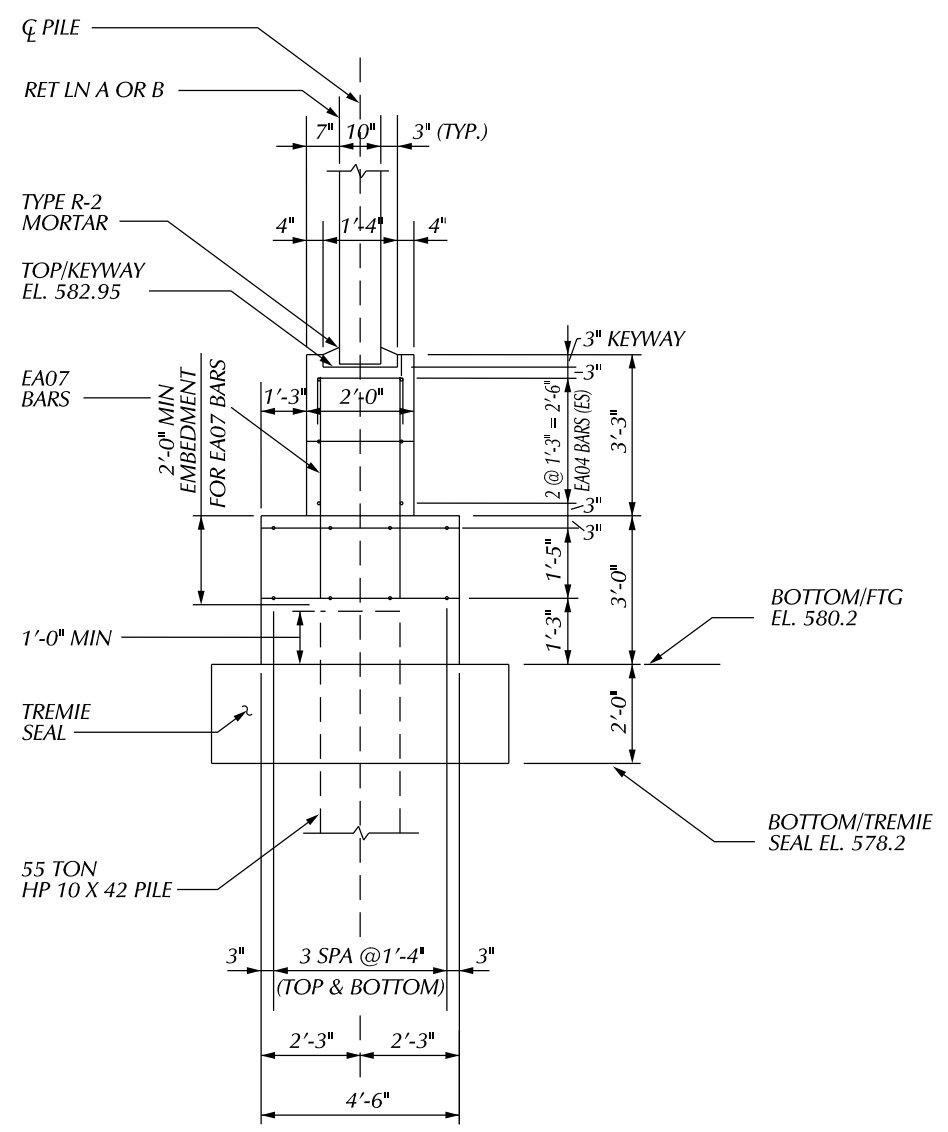
**GENERAL PLAN OF STRUCTURE**

SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		

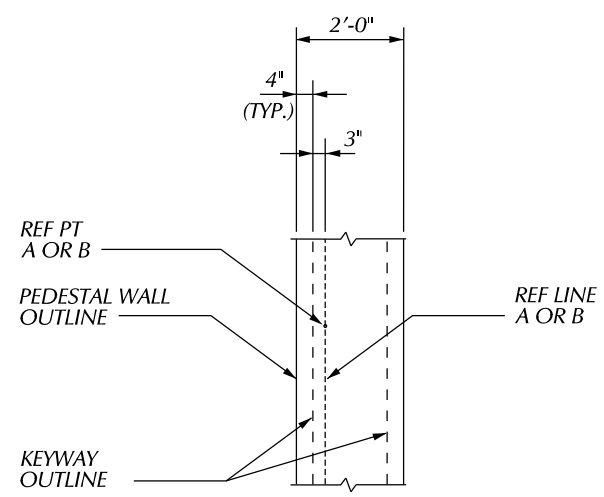
SCALE	HORIZONTAL	BOOK NO.	PG.	LEVEL
	VERTICAL	PAVING COMPLETED		DATE

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

BENCH MARKS ELEV



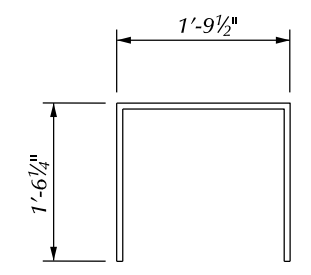
SECTION THRU PEDESTAL WALL



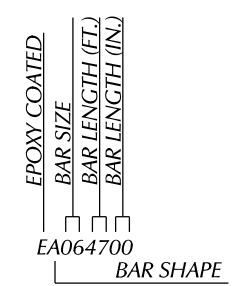
DETAIL A

**EPOXY COATED STEEL REINFORCEMENT**

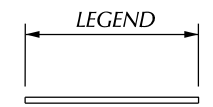
BAR	NO. REQ'D	TOTAL WT FTG A	TOTAL WT FTG B



ED060410



BAR LEGEND



EA BAR

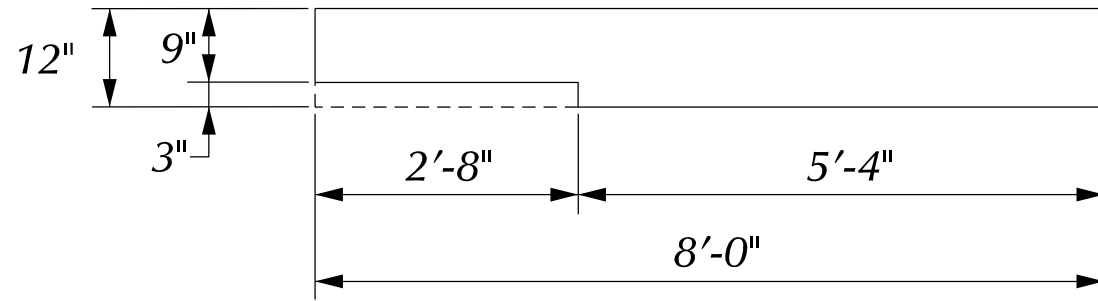
		BY	CHECKED BY	APPROVED:
DESCRIPTION	DR	CHK	APV	DATE
REVISIONS				

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

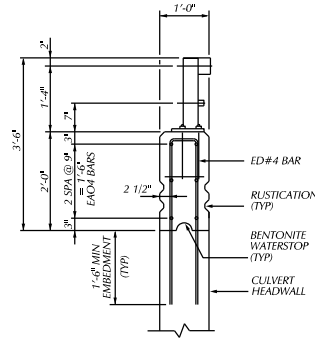
WEST PARKWAY CULVERT OVER ROUGE RIVER

CULVERT SUBSTRUCTURE DETAILS

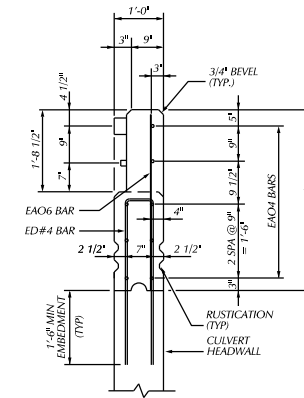
SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		



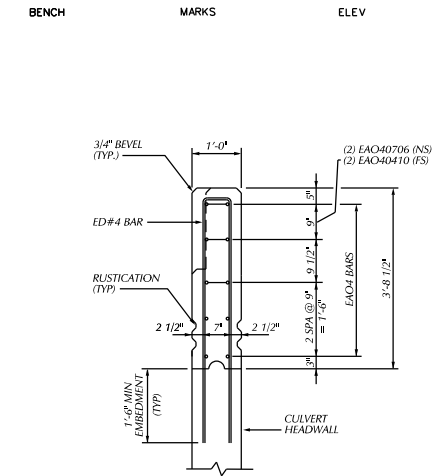
**PLAN - CULVERT END WALL**



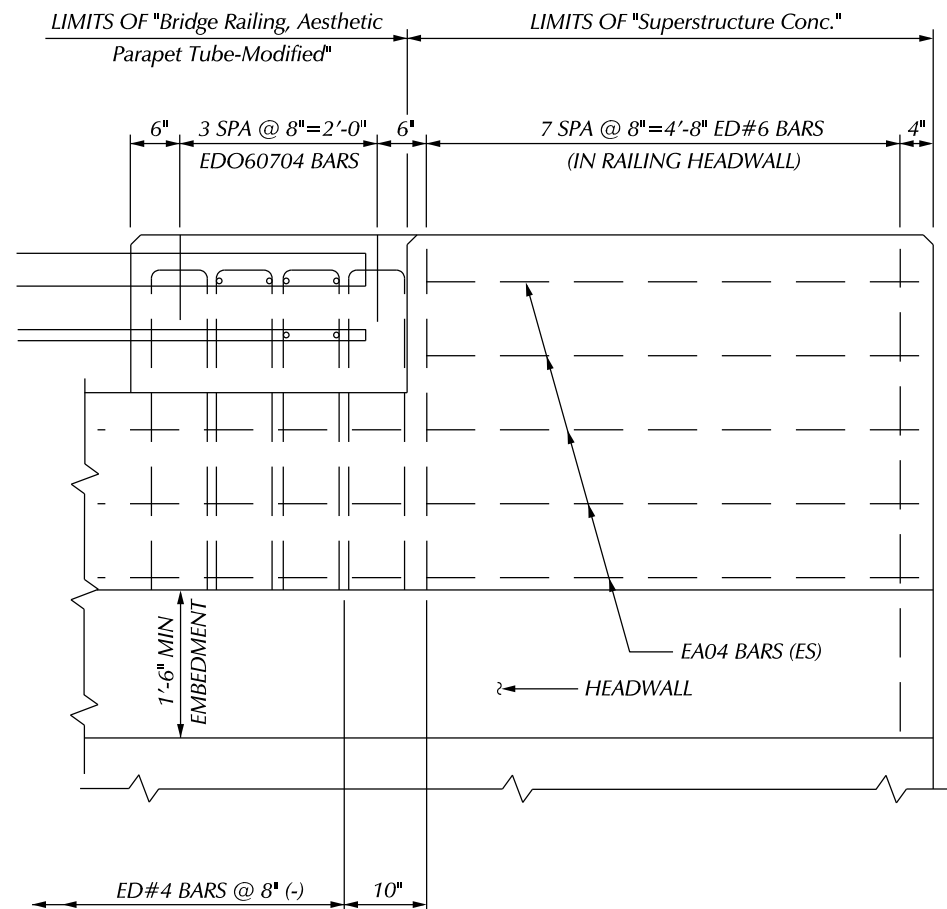
**TYPICAL CULVERT RAILING SECTION**



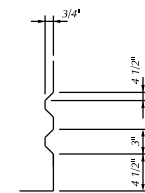
**SECTION AT CULVERT END WALL (TUBE CONNECTION AREA)**



**SECTION AT CULVERT END WALL (FULL CONCRETE AREA)**



**PLAN - CULVERT END WALL DETAIL**



**RUSTICATION DETAIL (SHOWING RUSTICATION)**

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

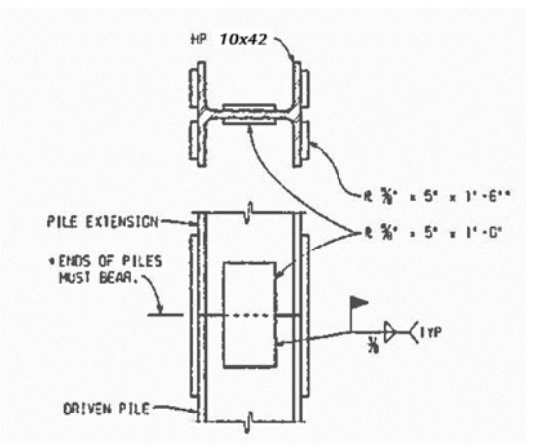
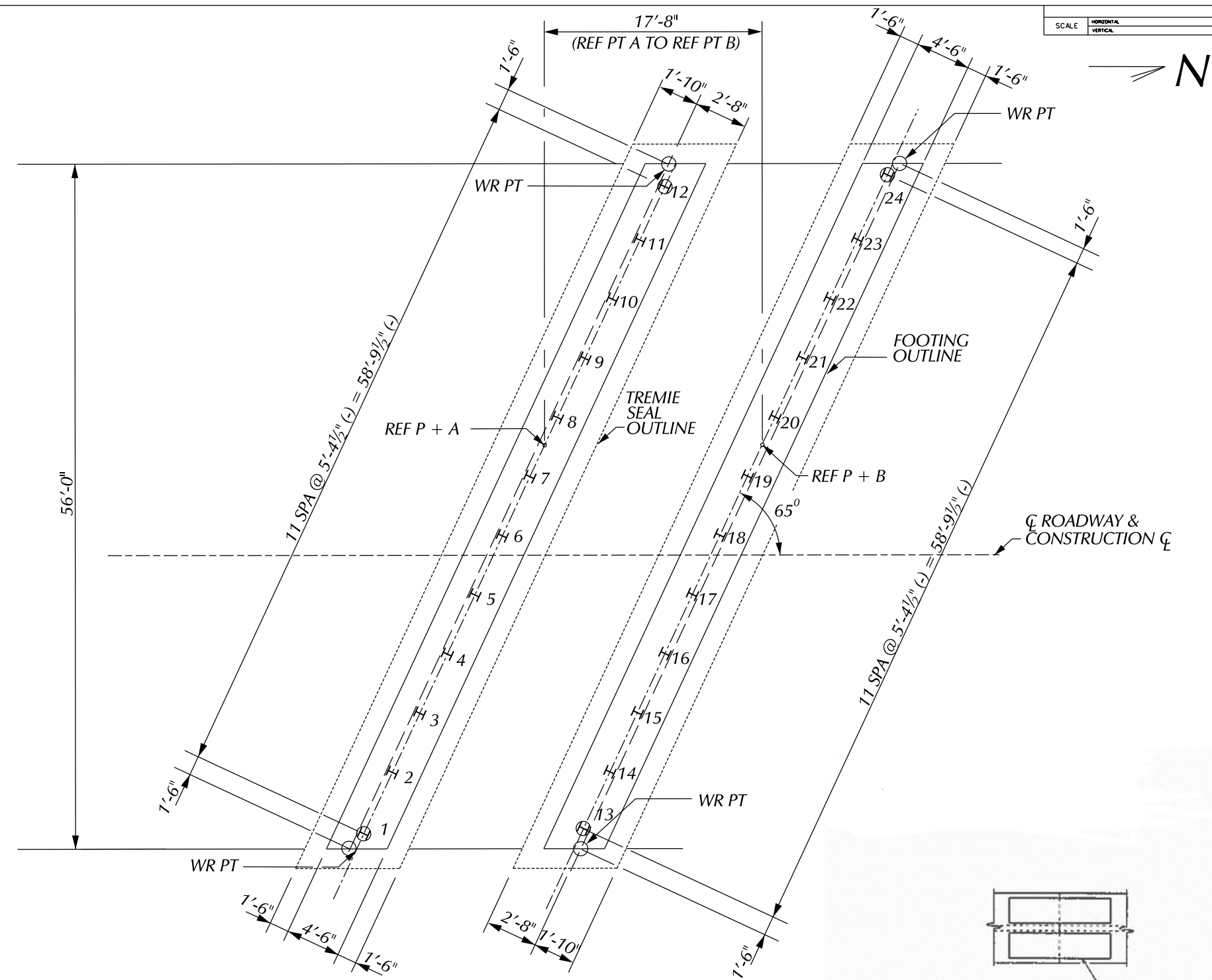
CITY OF DETROIT  
CITY ENGINEERING DIVISION - D.P.W.  
BUREAUS OF STREETS AND HIGHWAYS  
FOR

WEST PARKWAY CULVERT OVER ROUGE RIVER

CULVERT RAILING DETAILS

SHEET	OF	SHEETS
CONTRACT NO.		
ASSIGNMENT NO.		
DATE		

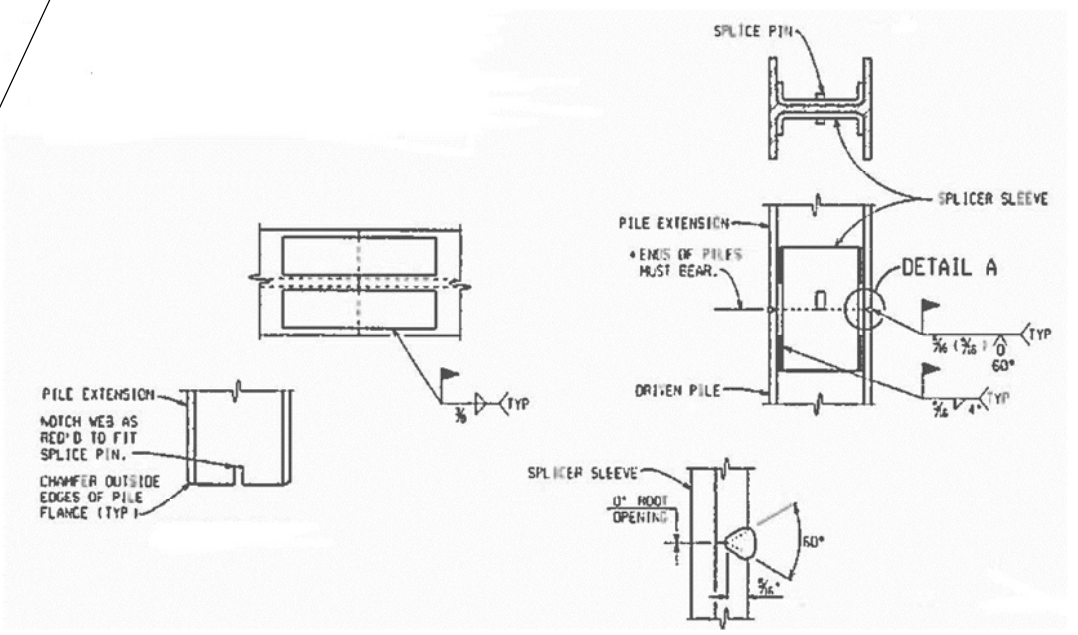
BENCH MARKS ELEV



**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 EACH LFT	TOTAL LFT	CUT-OFF ELEV.
FTG A	TEST	2	50	100	669.00
	VERTICAL	22	40	720	669.00
FTG B	TEST	2	50	100	669.00
	VERTICAL	22	40	720	669.00
TOTAL				1640	

MISCELLANEOUS QUANTITIES	
1 LS	PILE DRIVING EQUIPMENT, FURN
1640 FT	PILE STEEL, FURN AND DRIVEN, 10 INCH
4 EA	TEST PILE STEEL 10 INCH



**ALTERNATE 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.

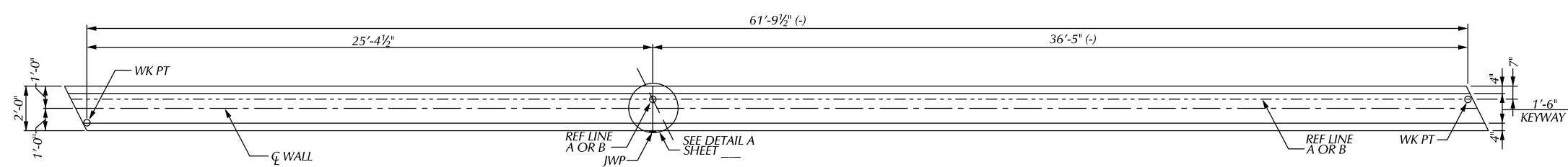
**NOTES:**  
 H - DENOTES VERTICAL PILES.  
 ⊕ - DENOTES VERTICAL TEST PILES.  
 ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 55 TONS.  
 STEEL PILES SHALL BE HP 10 X 42.  
 ESTIMATED PILE PENETRATIONS HAVE BEEN DETERMINED BY USE OF THE STATIC FORMULA.  
 THE PILE DRIVING FORMULAS IN THE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

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 ROUGE RIVER	SHEET OF SHEETS
CULVERT H PILE DETAILS	CONTRACT NO.
	ASSIGNMENT NO.
	DATE

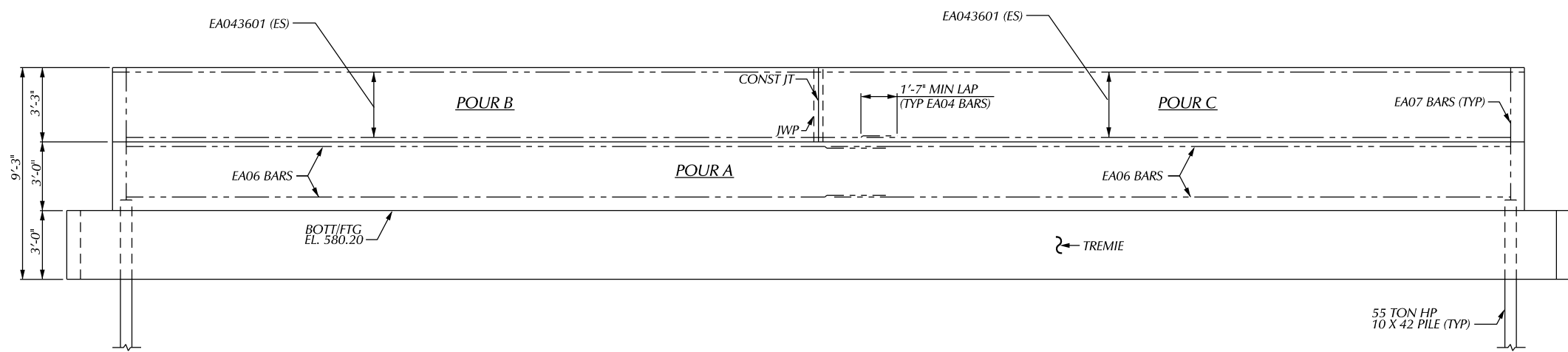




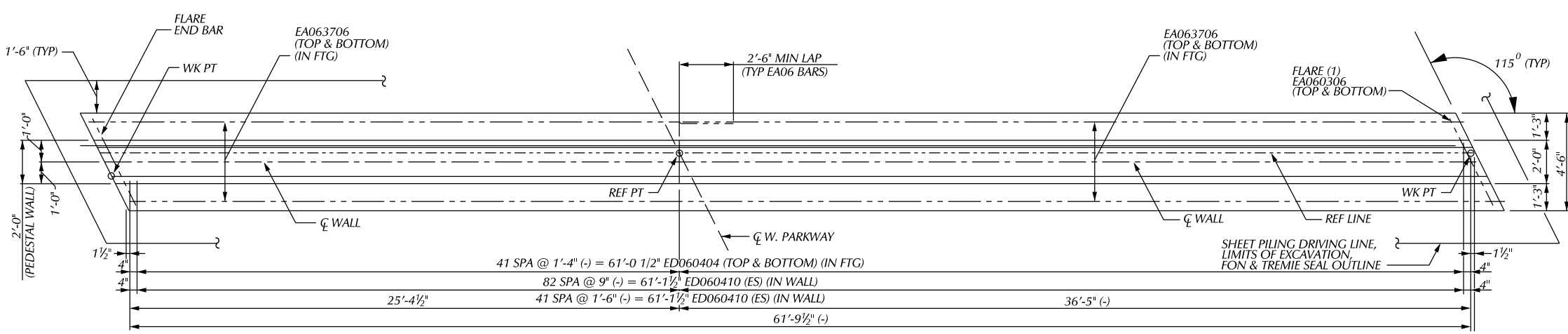
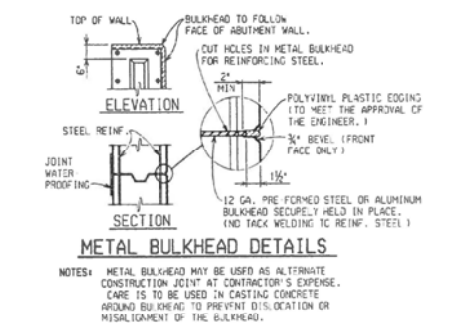
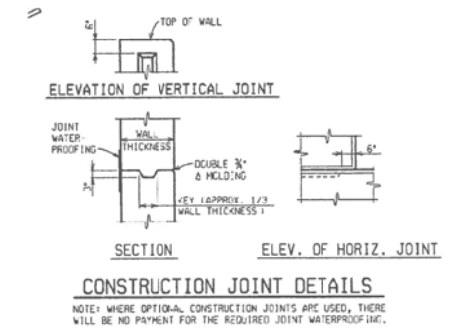
**PLAN OF PEDESTAL WALL**

MISCELLANEOUS QUANTITIES			
WALL A	WALL B	TOTAL	
36	36	158 CYD	CONC. GRADE T
—	—	171 CYD	SUBSTRUCTURE CONC.
—	—	14610 LB	REINFORCEMENT STEEL, EPOXY COATED
28	28	56 SFT	JOINT WATERPROOFING

SUBSTRUCTURE CONCRETE QUANTITIES		
POUR	FTG A	FTG B
A	32.2	32.2
B	18	18
C	17.3	17.3
D	18	18



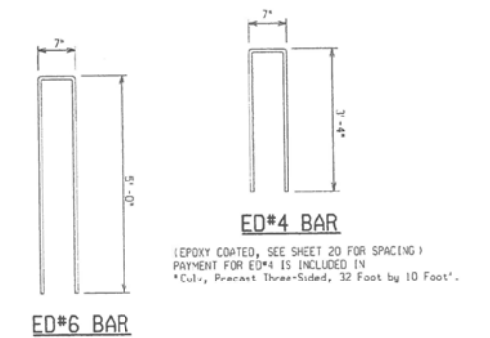
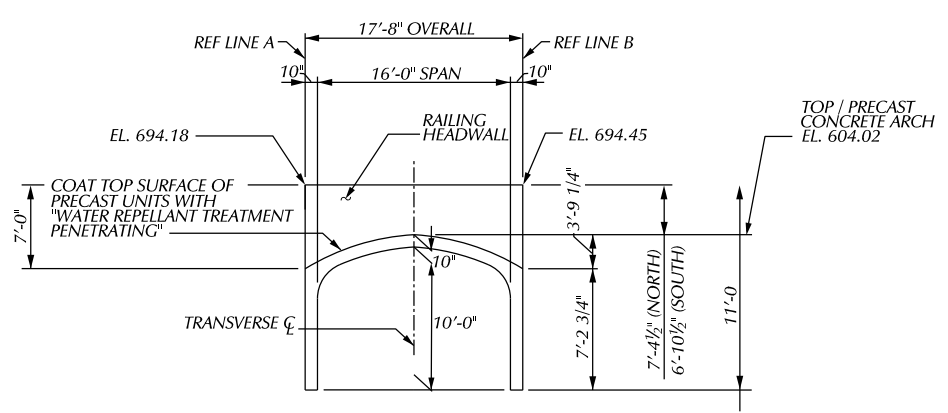
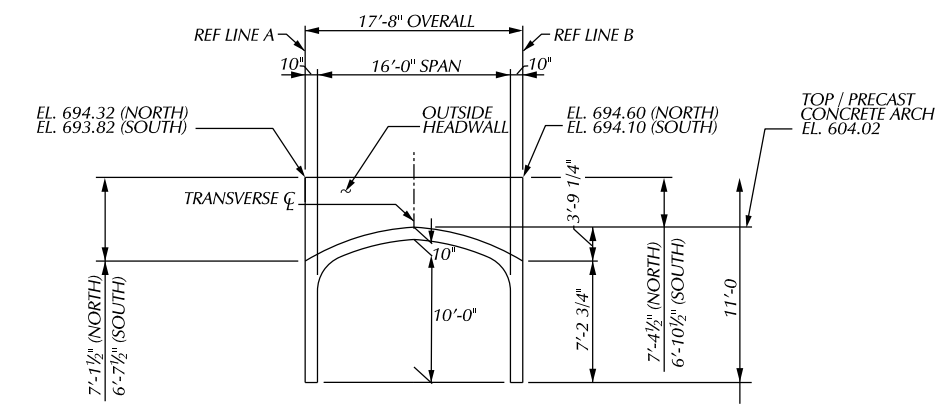
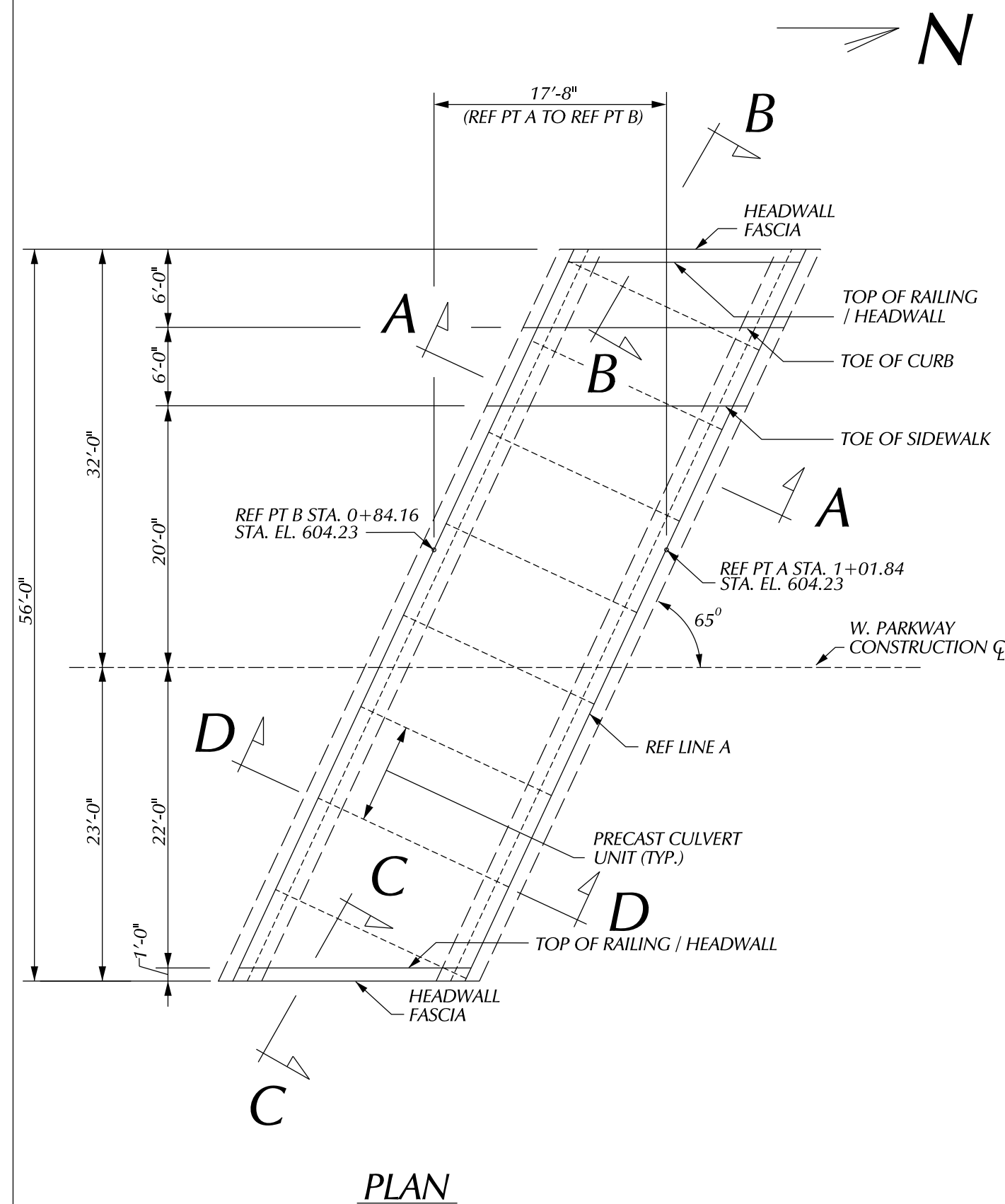
**ELEVATION - PEDESTAL WALL**



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

**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".

<table border="1"> <tr> <td>DESCRIPTION</td> <td>DATE</td> <td>BY</td> <td>CHECKED BY</td> <td>APPROVED</td> </tr> <tr> <td>REVISIONS</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		DESCRIPTION	DATE	BY	CHECKED BY	APPROVED	REVISIONS					<table border="1"> <tr> <td>PLAN</td> <td>BY</td> <td>CHECKED BY</td> <td>APPROVED</td> </tr> <tr> <td>GRADE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ESTIMATE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FINAL</td> <td>****</td> <td>****</td> <td></td> </tr> </table>	PLAN	BY	CHECKED BY	APPROVED	GRADE				ESTIMATE				FINAL	****	****		<p>CITY OF DETROIT          CITY ENGINEERING DIVISION - D.P.W.          BUREAUS OF STREETS AND HIGHWAYS          FOR</p>	<p>WEST PARKWAY CULVERT OVER ROUGE RIVER</p> <p>CULVERT SUBSTRUCTURE DETAILS</p>	<p>SHEET ____ OF ____ SHEETS</p> <p>CONTRACT NO.</p> <p>ASSIGNMENT NO.</p> <p>DATE</p>
DESCRIPTION	DATE	BY	CHECKED BY	APPROVED																											
REVISIONS																															
PLAN	BY	CHECKED BY	APPROVED																												
GRADE																															
ESTIMATE																															
FINAL	****	****																													



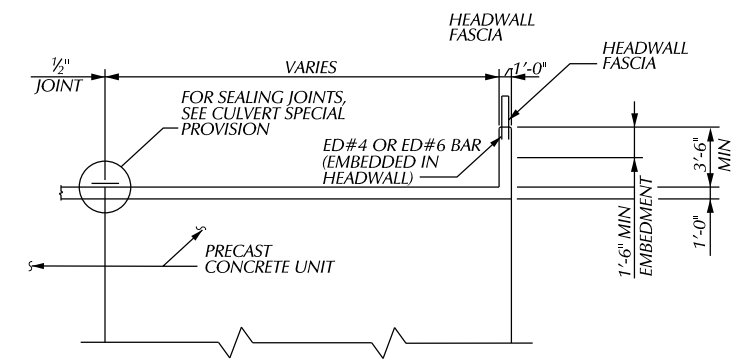
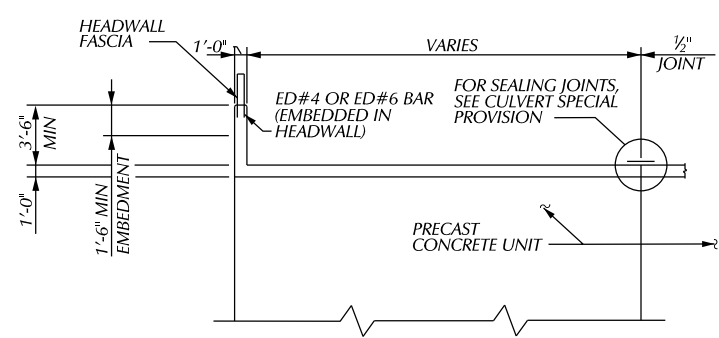
**MISCELLANEOUS QUANTITIES**

___ FT	CULV, PRECAST THREE-SIDED OR ARCH, ___ FOOT BY ___ FOOT
___ SYD	WATER REPELLANT TREATMENT, PENETRATING

**NOTES:**

DESIGN ALL CULVERT / HEADWALL CONNECTIONS FOR TRAFFIC LOADS.

PAYMENT FOR TEXTURING ON HEADWALLS SHALL BE INCLUDED IN, \*CULV, PRECAST THREE-SIDED, \_\_\_ FOOT BY \_\_\_ FOOT. SEE SPECIAL PROVISION FOR TEXTURING CONCRETE. THE FORM LINERS FOR THE HEADWALL MUST BE THE SAME AS THOSE USED ON THE SHEET PILING WALLS.



DESCRIPTION	DR	CHK	DATE	DATE
REVISIONS				

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

**WEST PARKWAY CULVERT OVER ROUGE RIVER**

**CONCRETE ARCH DETAILS**

SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		

DATE	REVISIONS
	OLD MAP 3-30-15
6-25-58	Added Note 'X' 6-12-58 J.E. QUANTITY CHANGE FOR ALLEY RETURN REMOVAL SEE SHEET 22 FOR QUANTITIES

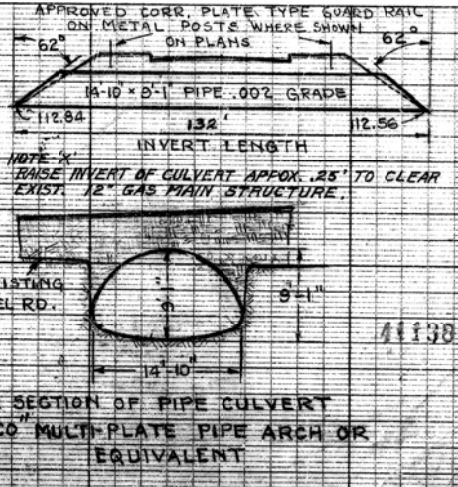
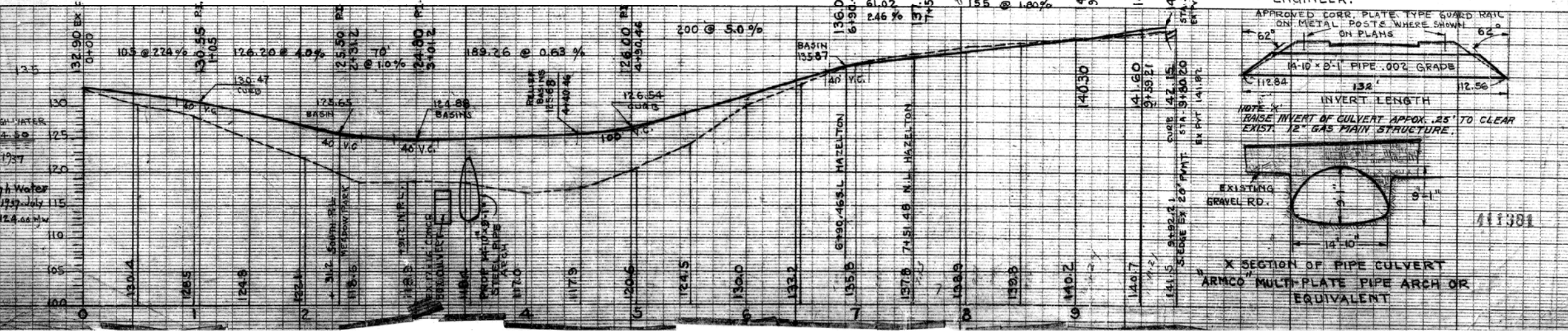
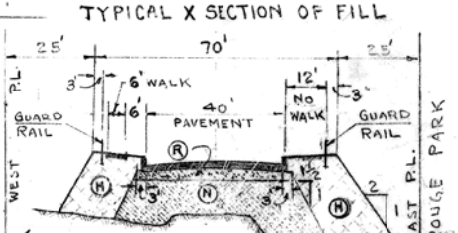
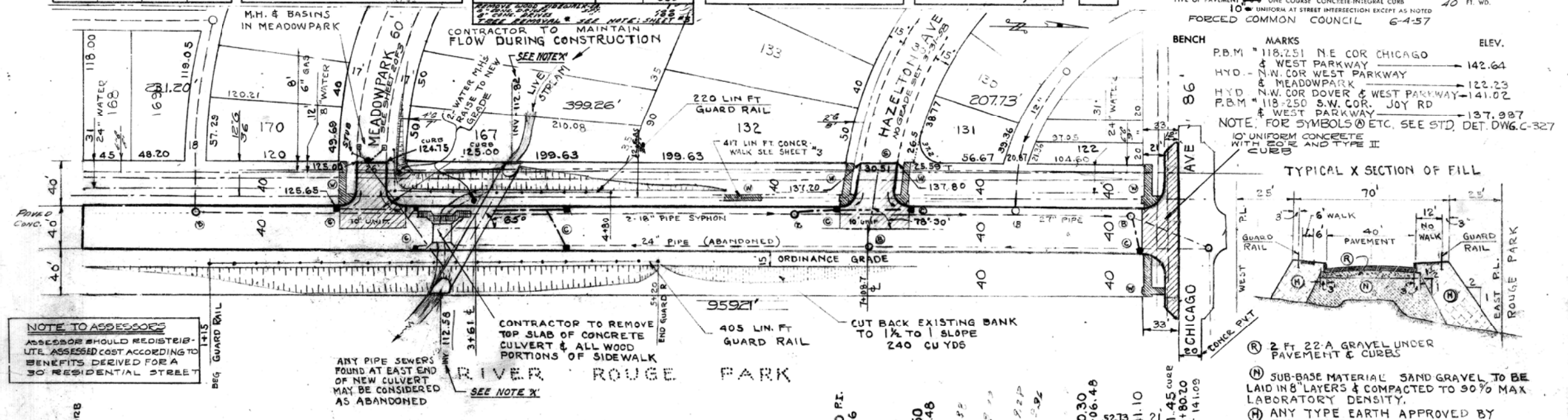
QUANTITIES	ESTIMATED
EXCAVATION CU. YDS.	761 713
NEW CURB LIN. FT.	105
PAVING 10'-8" 10 SQ. YDS.	4008 269
2" 10" UNIF. 30 YD	598
2" 18" UNIF. 25 YD	218
TEST CORES EA.	5
SIDEWALK 4" CONC. 30 FT.	2836
MANHOLES CONSTRUCT	10
CONSTR. CONC. RECONSTRUCT	10
ADJUST	
CONSTRUCT	
SEWER-12" LIN. FT.	500

LOT NO.	CITY
2039.62	1019.81
232.88	116.44
TOTAL	1136.25

INDEX NO.	INDEXED
77	
117	

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 **959.21' S. OF S.L. CHICAGO**  
 TO **33 N. OF S.L. CHICAGO**  
 TYPE OF PAVEMENT **10'-8" 10** ONE COURSE CONCRETE INTEGRAL CURB  
**10'** UNIFORM AT STREET INTERSECTION EXCEPT AS NOTED  
 FORCED COMMON COUNCIL 6-4-57



**EXISTING**  
**FOR INFORMATION ONLY**  
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DATE	REVISIONS
OLD MAP	3-20-63
	Added Sec. AA 6-12-58 J.E.

SUPPLEMENTARY DETAILS			
C-325	C-324	C-323	C-928
C-326A	C-325	C-329	C-1608
C-327	C-326	C-329A	C-1783
C-390	C-387	C-329B	

**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 SQ. YDS.		
TEST CORES		
SIDEWALK		
MANHOLES	ADJUST	
	CONSTRUCT	
ASINS	ADJUST	
	CONSTRUCT	
SEWER-12"	CONSTRUCT	
	LIN. FT.	

REVISION NO. FCC	REVISION DATE 6-4-57
ASSIGNMENT NO.	GROUP NO.
BOOK NO.	LEVEL DATE
LOTS 21	LENGTH
CITY 21	LENGTH
TOTAL	LENGTH
DATE OF DRAWING	

MADE BY	CHECKED BY
PLANNED BY	
DESIGNED BY	
ESTIMATE	
SEWER APPROVED	
FINAL CHECK	
APPROVED	
CITY ENGINEER	

CONTRACT NO. P.W. 3249 F

**STREET PAVING PLAN**  
CITY OF DETROIT

DEPARTMENT OF PUBLIC WORKS - CITY ENGINEERS OFFICE

NAME OF STREET WEST PARKWAY

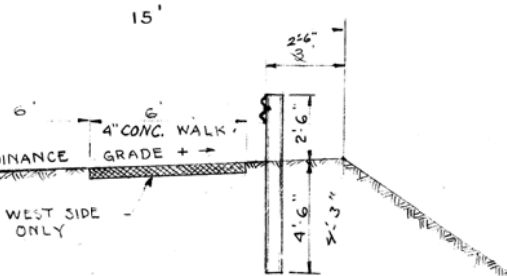
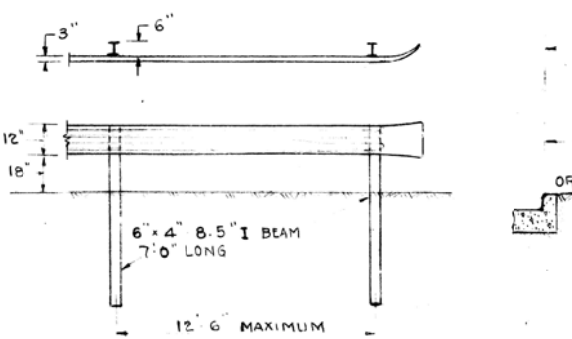
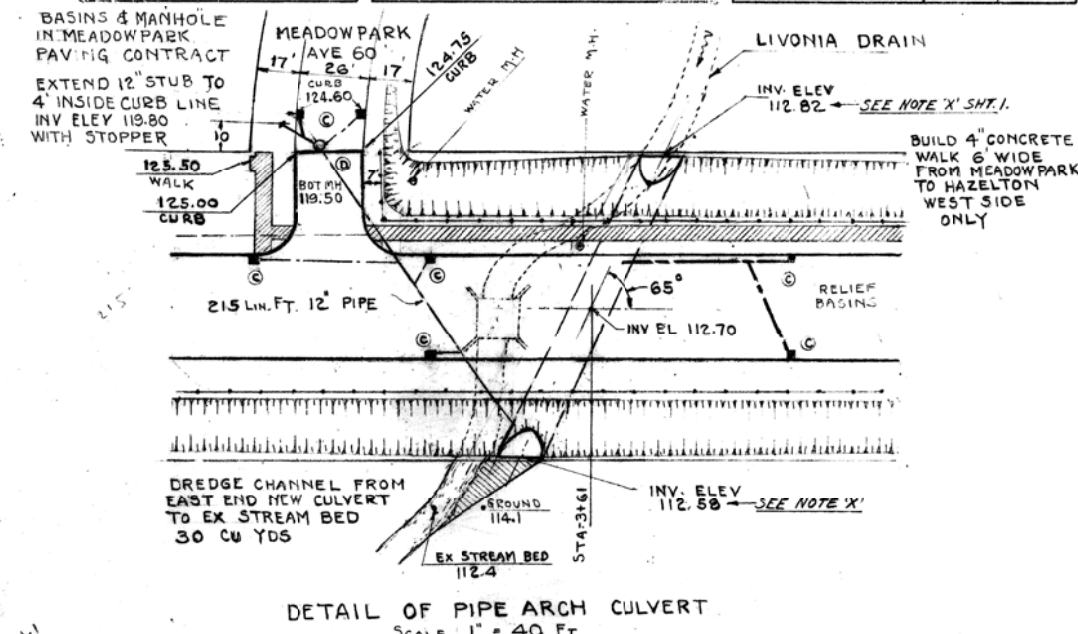
FROM 959.2' S OF S.L. CHICAGO

TO 33' N OF S.L. CHICAGO

TYPE OF PAVEMENT 8 & 8 ONE COURSE CONCRETE INTEGRAL CURB  
8" UNIFORM AT STREET INTERSECTION EXCEPT AS NOTED

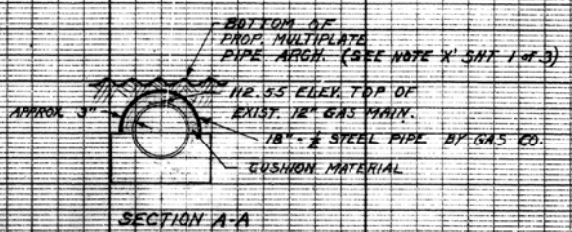
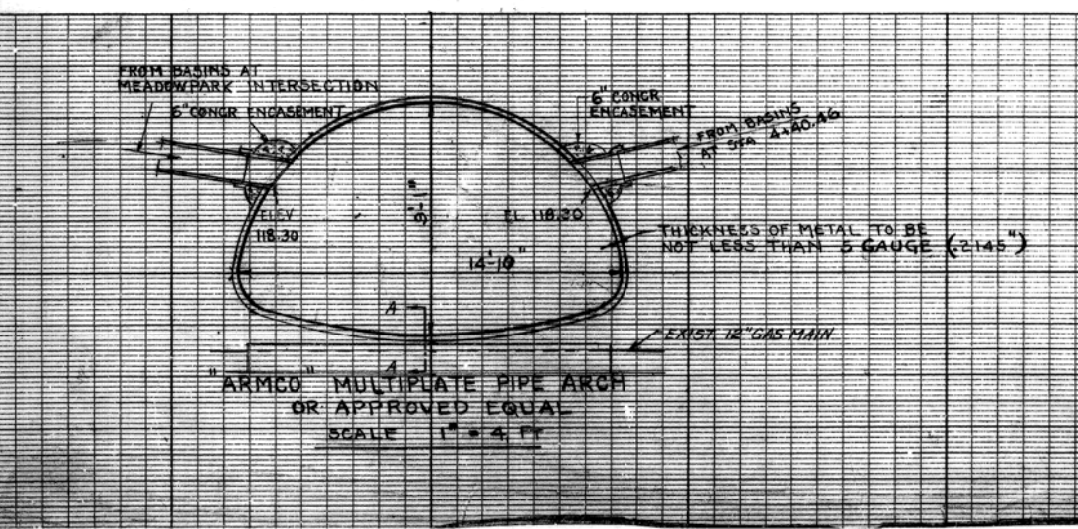
FORCED COMMON COUNCIL 6-4-57

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	10" OAK	1
2127	10" OAK	1
2135	12" OAK	1
2177	8" ASH	1
2185	8" ASH	1
3122	8" ASH	1
3125	8" ASH	1
3126	8" ASH	1
3127	8" ASH	1
3128	8" ASH	1
3129	8" ASH	1
3130	8" ASH	1
3131	8" ASH	1
3132	8" ASH	1
3133	8" ASH	1
3134	8" ASH	1
3135	8" ASH	1
3136	8" ASH	1
3137	8" ASH	1
3138	8" ASH	1
3139	8" ASH	1
3140	8" ASH	1
3141	8" ASH	1
3142	8" ASH	1
3143	8" ASH	1
3144	8" ASH	1
3145	8" ASH	1
3146	8" ASH	1
3147	8" ASH	1
3148	8" ASH	1
3149	8" ASH	1
3150	8" ASH	1
3151	8" ASH	1
3152	8" ASH	1
3153	8" ASH	1
3154	8" ASH	1
3155	8" ASH	1
3156	8" ASH	1
3157	8" ASH	1
3158	8" ASH	1
3159	8" ASH	1
3160	8" ASH	1
3161	8" ASH	1
3162	8" ASH	1
3163	8" ASH	1
3164	8" ASH	1
3165	8" ASH	1
3166	8" ASH	1
3167	8" ASH	1
3168	8" ASH	1
3169	8" ASH	1
3170	8" ASH	1
3171	8" ASH	1
3172	8" ASH	1
3173	8" ASH	1
3174	8" ASH	1
3175	8" ASH	1
3176	8" ASH	1
3177	8" ASH	1
3178	8" ASH	1
3179	8" ASH	1
3180	8" ASH	1
3181	8" ASH	1
3182	8" ASH	1
3183	8" ASH	1
3184	8" ASH	1
3185	8" ASH	1
3186	8" ASH	1
3187	8" ASH	1
3188	8" ASH	1
3189	8" ASH	1
3190	8" ASH	1
3191	8" ASH	1
3192	8" ASH	1
3193	8" ASH	1
3194	8" ASH	1
3195	8" ASH	1
3196	8" ASH	1
3197	8" ASH	1
3198	8" ASH	1
3199	8" ASH	1
3200	8" ASH	1



411392

EXISTING

FOR INFORMATION ONLY

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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

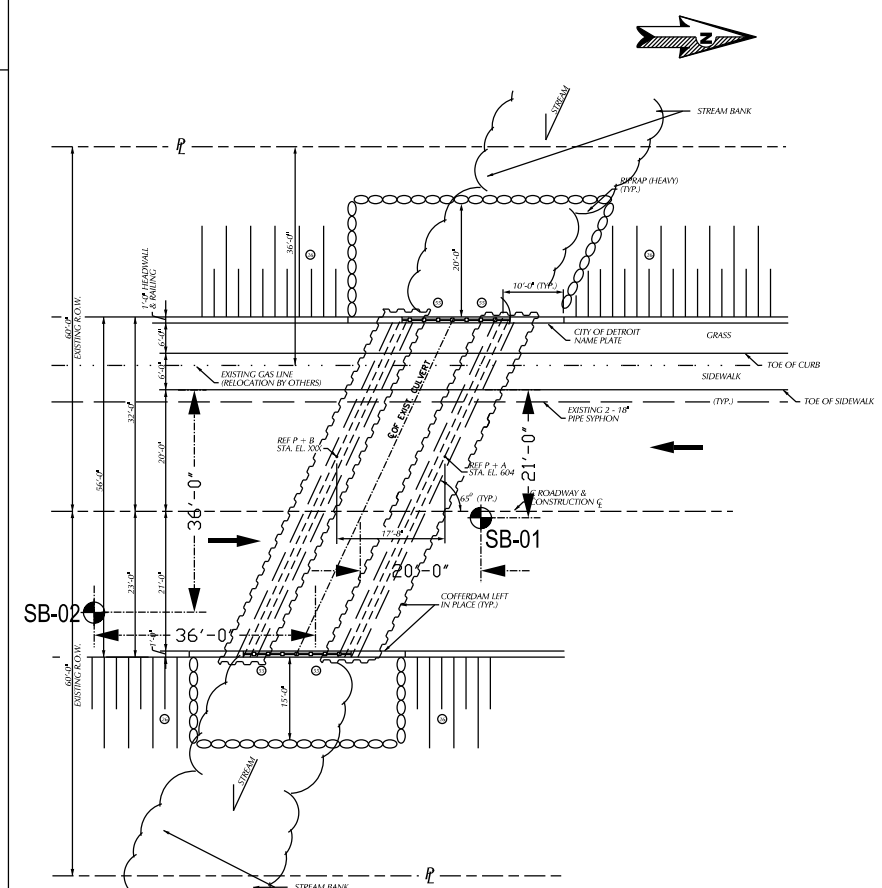
DEPTH (FT)	SOIL DESCRIPTION	PP	UCS	MC	DD
605.00	7.5 INCHES OF PORTLAND CEMENT CONCRETE				
604.40					
604.40 - 602.50	FILL - DENSE POORLY GRADED FINE TO COARSE SAND, WITH GRAVEL, TRACE SILT, BROWN, MOIST (SP)				
602.50					
602.50 - 600.00	FILL - DENSE POORLY GRADED FINE SAND, WITH SILT, TRACE GRAVEL, BROWN, MOIST (SP-SM)				
600.00					
600.00 - 599.50	FILL - SILTY FINE SAND, TRACE GRAVEL, DARK GRAY, MOIST (SM) (FIELD ENGINEER NOTED STRONG FOREIGN ODOR)				
599.50					
599.50 - 597.50	<b>WATER TABLE AT 8' UPON COMPLETION</b> ALTERNATING LAYERS OF SANDY LEAN CLAY AND CLAYEY FINE SAND, FEW GRAVEL, DARK GRAY, (CL) (SC) (OCCASIONAL ORGANIC SEAMS AND WOOD PIECES ABOVE 8 FEET) (FIELD ENGINEER NOTED STRONG FOREIGN ODOR)				
597.50					
597.50 - 594.00	VERY STIFF LEAN CLAY, TRACE SAND, TRACE GRAVEL, GRAY (CL)	6000*		24.2	
594.00					
594.00 - 592.50	VERY LOOSE SANDY SILT, TRACE GRAVEL, GRAY, MOIST (ML)				
592.50					
592.50 - 589.00					
589.00					
589.00 - 585.00	STIFF TO VERY STIFF SANDY LEAN CLAY, TRACE GRAVEL, OCCASIONAL SAND PARTINGS, GRAY (CL)	3550	23.3		100
585.00					
585.00 - 580.00					
580.00					
580.00 - 579.00					
579.00					
579.00 - 575.00					
575.00					
575.00 - 573.00	HARD LEAN CLAY, FEW SAND, TRACE GRAVEL, GRAY (CL)	9000*		11.5	
573.00					
573.00 - 570.00					
570.00					
570.00 - 567.00					
567.00					
567.00 - 566.25	EXTREMELY DENSE FINE GRAVEL, WITH SAND, TRACE SILT, GRAY, WET (GP)	9000*		11.2	

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

DEPTH (FT)	SOIL DESCRIPTION	PP	UCS	MC	DD
605.00	8 INCHES OF PORTLAND CEMENT CONCRETE				
604.30					
604.30 - 602.50	FILL - MEDIUM DENSE POORLY GRADED FINE TO COARSE SAND, WITH GRAVEL, BROWN, MOIST (SP)				
602.50					
602.50 - 600.00	FILL - DENSE SILTY FINE SAND, TRACE GRAVEL, BROWN AND DARK BROWN, MOIST (SM)				
600.00					
600.00 - 599.50					
599.50					
599.50 - 597.50	<b>WATER TABLE AT 6.5' UPON COMPLETION</b>				
597.50					
597.50 - 595.00	FILL - MEDIUM DENSE POORLY GRADED FINE SAND, WITH SILT, TRACE GRAVEL, BROWN, MOIST (SP-SM)				
595.00					
595.00 - 594.00					
594.00					
594.00 - 592.50	FILL - MEDIUM DENSE SILTY FINE TO COARSE SAND, WITH GRAVEL, BROWN, WET (SM)				
592.50					
592.50 - 590.00	VERY SOFT LEAN CLAY, TRACE SAND, FREQUENTLY SILTY FINE SAND SEAMS, GRAY (CL)				
590.00					
590.00 - 589.00					
589.00					
589.00 - 585.00	STIFF LEAN CLAY, TRACE SAND, TRACE GRAVEL, GRAY (CL)				
585.00					
585.00 - 583.00					
583.00					
583.00 - 580.00	STIFF SANDY LEAN CLAY, TRACE GRAVEL, OCCASIONAL SILTY FINE SAND SEAMS, GRAY (CL)				
580.00					
580.00 - 578.00					
578.00					
578.00 - 575.00	HARD LEAN CLAY, TRACE SAND, TRACE GRAVEL, GRAY (CL)				
575.00					
575.00 - 573.00					
573.00					
573.00 - 570.00	EXTREMELY DENSE SANDY SILT, FEW GRAVEL, TRACE CLAY, GRAY, WET (ML)				
570.00					
570.00 - 568.00					
568.00					
568.00 - 566.50	POORLY GRADED FINE TO MEDIUM SAND, TRACE SILT, TRACE GRAVEL, BROWN, WET (SP)				

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

ISSUED FOR:  
 DATE:  
 BY:

JOB NO.:

SHEET.:

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

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