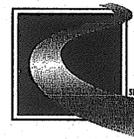


# Maryland Transportation Authority



Maryland  
Transportation  
Authority

## BALTIMORE HARBOR TUNNEL DRAINAGE SYSTEM REHABILITATION CONSTRUCTION DRAWINGS

BALTIMORE CITY, MARYLAND

CONTRACT NO.: HT2447-000-006

### INDEX OF SHEETS

SHEET NO.	DWG. NO.	DESCRIPTION
1		TITLE SHEET
2	S-1	ROADWAY DRAINAGE PLAN
3	S-2	PART PLAN AT SUMP AND SCUPPER
4	S-3	EXISTING ROADWAY PIPING SECTION AT SUMP
5	S-4	EXISTING ROADWAY PIPING TYPICAL SECTION
6	S-5	EXISTING DRAINAGE AND PIPING TYPICAL SECTION
7	S-6	ROADWAY DRAINAGE AND PIPING SECTION AT SUMP
8	S-7	PIPING CONNECTION DETAILS

### NOTE:

FOR THE CONVENIENCE AND INFORMATION OF THE CONTRACTOR, PRINTS OF PLANS OF PERTINENT STRUCTURES ARE INCLUDED WITH THIS CONTRACT. NO RESPONSIBILITY FOR THEIR ACCURACY OR COMPLETENESS IS ASSUMED BY THE MARYLAND TRANSPORTATION AUTHORITY. DIMENSIONS, DETAILS, ETC. AS SHOWN THEREON MAY NOT BE AS-BUILT. INCLUDED FOR YOUR USE ARE:

SHEET NOS. 3, 7, 8, 31, 41-3, 45, 80, AND 85 OF CONTRACT NO. PT 108

SHEET NOS. 14, 17, AND 63 OF CONTRACT NO. TFA 2-9700-50

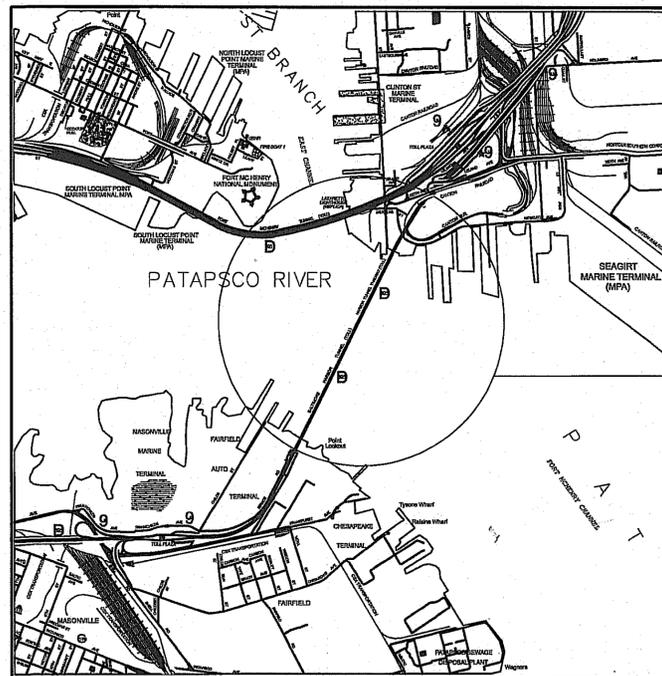
**WBCM** The Joint Venture of  
Whitney Bailey Cox & Magnani, LLC/Wallace Montgomery & Associates, LLP

WHITNEY BAILEY COX & MAGNANI, LLC  
849 Fairmount Ave Suite 100 Baltimore, MD 21286  
MAIN 410.512.4500 FAX 410.324.4100  
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SEAL:



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15302, EXPIRATION DATE: 03-08-11.



LOCATION MAP  
SCALE: N.T.S.

### STANDARDS AND SPECIFICATIONS

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATION'S "STANDARDS FOR HIGHWAY AND INCIDENTAL CONSTRUCTION", THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, JULY 2008" AND ALL REVISIONS THEREOF, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND AS SPECIFIED IN THE CONTRACT DOCUMENTS.

### COMPLETENESS OF DOCUMENTS

THE MARYLAND TRANSPORTATION AUTHORITY SHALL ONLY BE RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED DIRECTLY FROM THE MARYLAND TRANSPORTATION AUTHORITY'S CASHIER'S OFFICE. FAILURE TO ATTACH ADDENDA MAY CAUSE THE BID TO BE IRREGULAR.

### RIGHT OF WAY

RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL RIGHT OF WAY AND EASEMENT INFORMATION, SEE APPROPRIATE RIGHT OF WAY PLATS.

### UTILITIES

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE OF THE ACCURACY OF SAID LOCATIONS. NOTIFICATION TO "MISS UTILITY" AT 1 800 257-7777, SHALL BE GIVEN 48 HOURS (TWO FULL WORKING DAYS) IN ADVANCE OF WORKING IN THE AREA OF THE SPECIFIC AFFECTED UTILITY. THE NOTIFICATION TO "MISS UTILITY" IS REQUIRED WHENEVER ANY EXCAVATING OR SIMILAR WORK IS TO BE PERFORMED. BHT SUPERVISION SHALL BE COPIED ON ALL INFORMATION EXCHANGE UNTIL WORK IS COMPLETE.

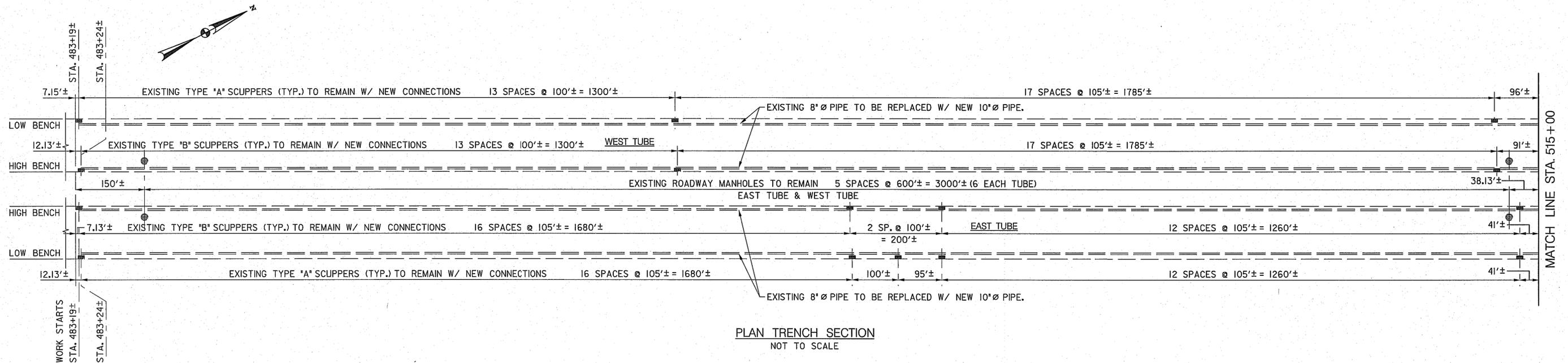
### EROSION AND SEDIMENT CONTROL

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE APPLIED TO ALL ERODIBLE MATERIALS EXPOSED BY ANY ACTIVITY ON THE PROJECT. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH THE CONSTRUCTION AT PERMANENT DRAINAGE FACILITIES SUCH AS PIPES, CULVERTS, HEADWALLS, DITCH PAVING, FLUMES, ETC. WHICH SHALL BE CONSTRUCTED PRIOR TO OR AS SOON AS PRACTICABLE AFTER THE GRADING OPERATION IS BEGUN. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL PROVISIONS OF SECTION 308 OF THE SPECIFICATIONS.

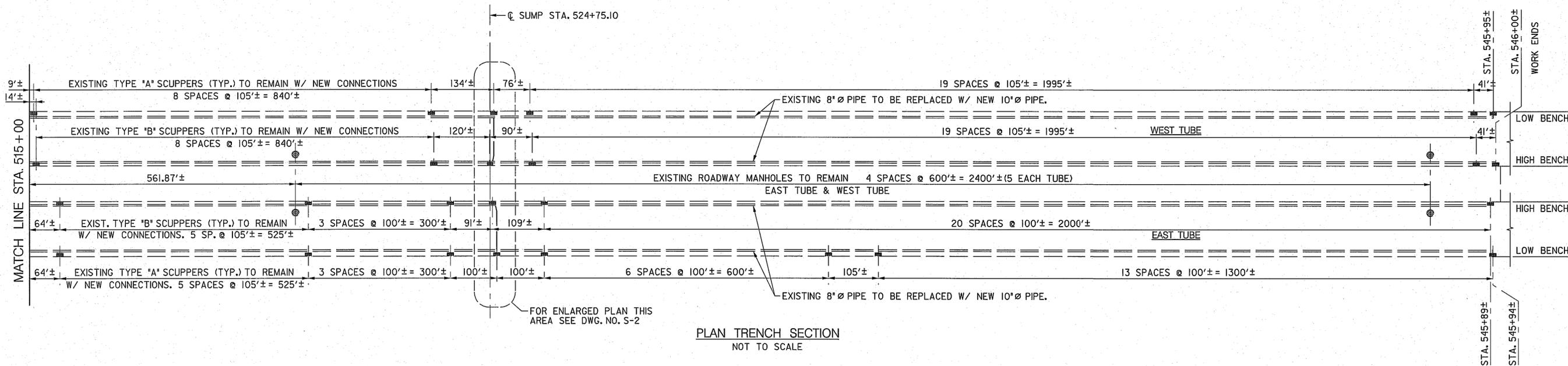
SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION.

MARYLAND TRANSPORTATION AUTHORITY	
RECOMMENDED FOR APPROVAL	4/1/10 DATE
DIRECTOR OF ENGINEERING OFFICE OF ENGINEERING AND CONSTRUCTION	4/1/10 DATE
APPROVED CHIEF ENGINEER OFFICE OF ENGINEERING AND CONSTRUCTION	4/1/10 DATE
APPROVED EXECUTIVE SECRETARY	4/1/10 DATE

HT2447-000-006



PLAN TRENCH SECTION  
NOT TO SCALE



PLAN TRENCH SECTION  
NOT TO SCALE

**CONSTRUCTION NOTES:**

1. IN ORDER TO MAINTAIN CAPACITY OF CONTAINING SPILLS ON THE ROADWAY, REMOVAL OF EXISTING PIPES AND INSTALLATION OF NEW PIPES SHALL START AT THE SUMP BACKWARD AND SHALL BE PERFORMED ALTERNATELY BETWEEN SCUPPERS.
2. TEMPORARY CONNECTIONS SHALL BE PROVIDED BETWEEN THE NEW PIPES AND EXISTING PIPES UNTIL PERMANENT CONNECTIONS HAVE BEEN INSTALLED.
3. REMOVAL AND INSTALLATION OF PIPES SHALL BE CARRIED OUT ONLY ON ONE SIDE IN EACH BORE UNTIL AT LEAST ONE SECTION OF PIPES AND CONNECTIONS HAS BECOME FULLY OPERATIONAL.
4. THE CONTRACTOR SHALL DEVELOP A FLOW CHART FOR THE WORK DETAILING INTENDED SEQUENCE OF REMOVAL AND INSTALLATION FOR APPROVAL.
5. ALL NEW 10" PIPE AND ASSOCIATED MATERIALS MUST BE STOCKPILED AT LOCATION AND READY FOR USE PRIOR TO REMOVING EXISTING 8" PIPE.
6. SINCE THE FRESH AIR DUCT SYSTEM IS CONSIDERED A CONFINED SPACE, THE CONTRACTOR SHALL TAKE APPROPRIATE STEPS TO PERFORM WORK IN THE AREA, AND COORDINATE WITH THE RISK MANAGEMENT AND THE FACILITY ADMINISTRATOR FOR ACCESS.
7. THE OPERATION WILL NEED TO BE COORDINATED WITH BHT MAINTENANCE SUPERVISOR FROM MDTA.
8. MATERIAL ACCESS SHALL BE THROUGH EXISTING ROADWAY MANHOLES AND/OR DOORWAYS.

**NOTES:**

1. PROVIDE CLEANOUT IN 10" PIPE AT EACH ROADWAY MANHOLE.
2. PROVIDE CLEANOUT AT EACH SCUPPER.
3. STATION MARKS ARE FROM EXISTING PLANS.
4. NEW 10" PIPES SHALL BE INSTALLED PER SPECIFICATIONS.



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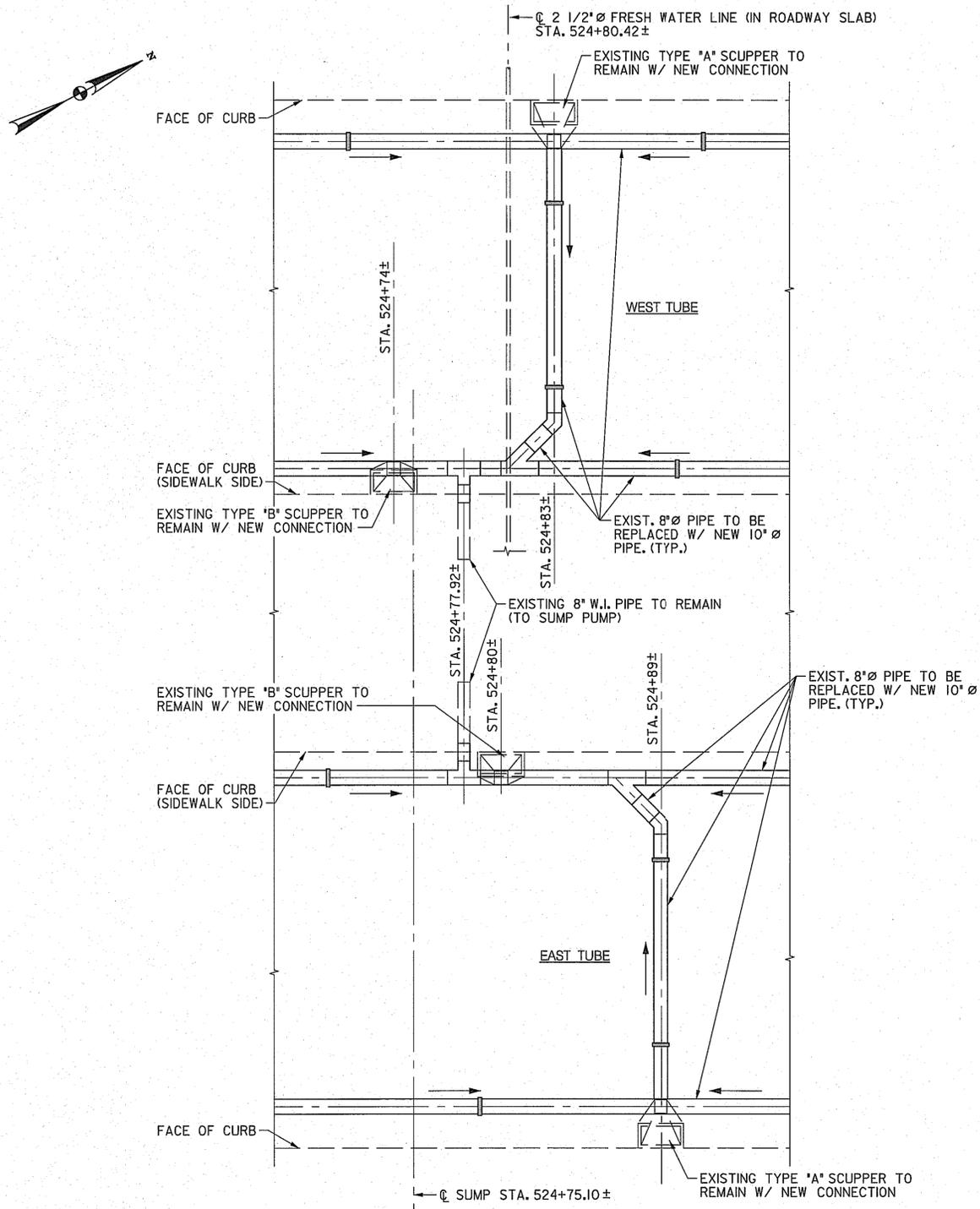
Maryland Transportation Authority  
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

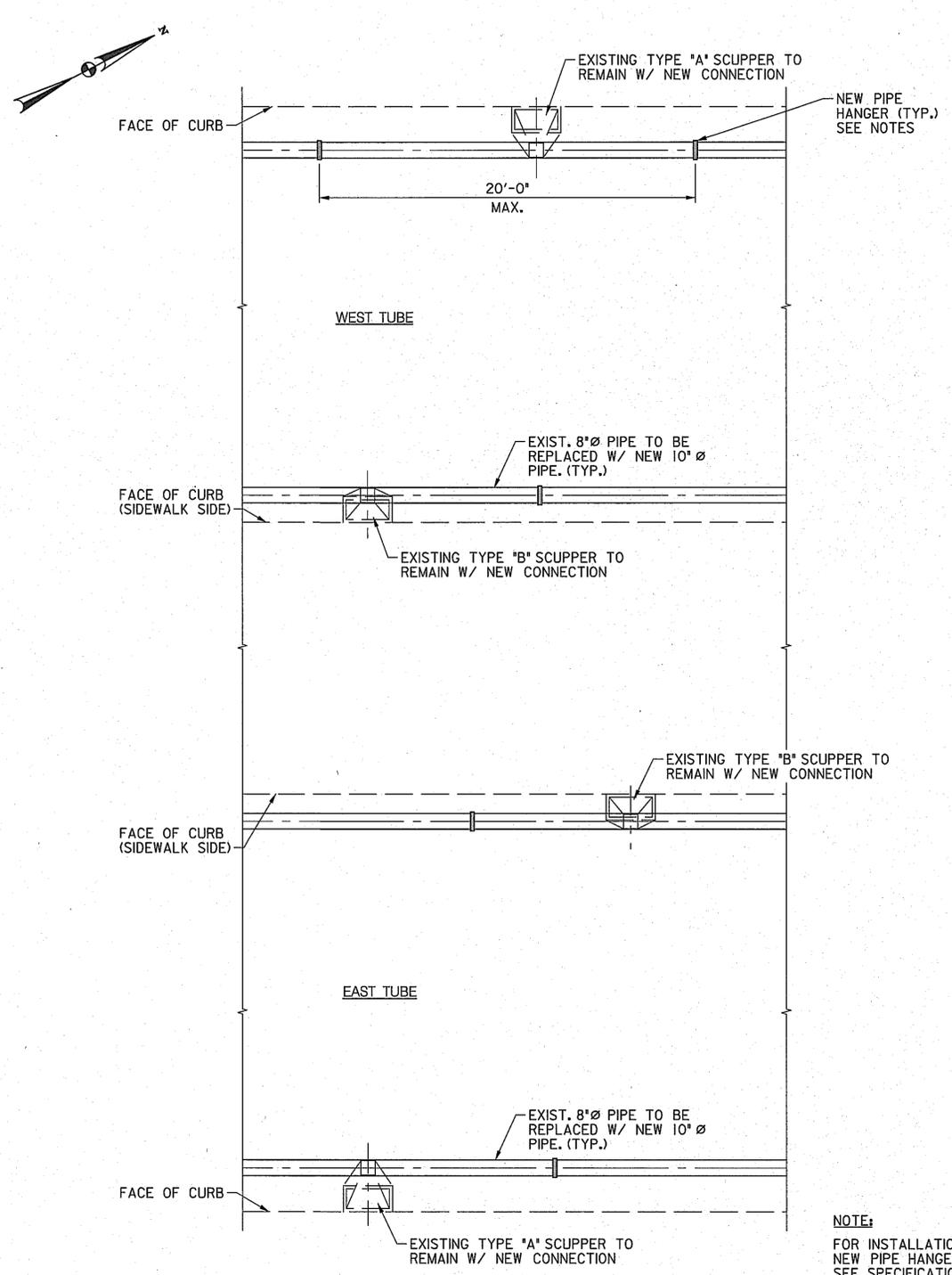
**BALTIMORE HARBOR TUNNEL DRAINAGE SYSTEM REHABILITATION**  
**ROADWAY DRAINAGE PLAN**  
MARYLAND TRANSPORTATION AUTHORITY - BALTIMORE HARBOR TUNNEL  
BALTIMORE, MARYLAND

DESIGNED BY S.L. DRAWN BY P.J.S./S.E. CHECKED BY R.C.B.  
CONST. REVIEW BY   DATE MAY, 2010 SCALE AS NOTED

CONTRACT NO.  
HT-2447-000-006  
DRAWING NO.  
**S-1**  
SHEET NO.  
2 OF 7



PART PLAN @ SUMP (STA. 524+75.10)  
SCALE: 1/4" = 1'-0"



PART PLAN @ SCUPPER (TYP.)  
SCALE: 1/4" = 1'-0"

- LEGEND:**
- INDICATES PIPE FLOW DIRECTION
  - INDICATES NEW PIPE HANGER

**NOTE:**  
FOR INSTALLATION OF  
NEW PIPE HANGERS,  
SEE SPECIFICATIONS.



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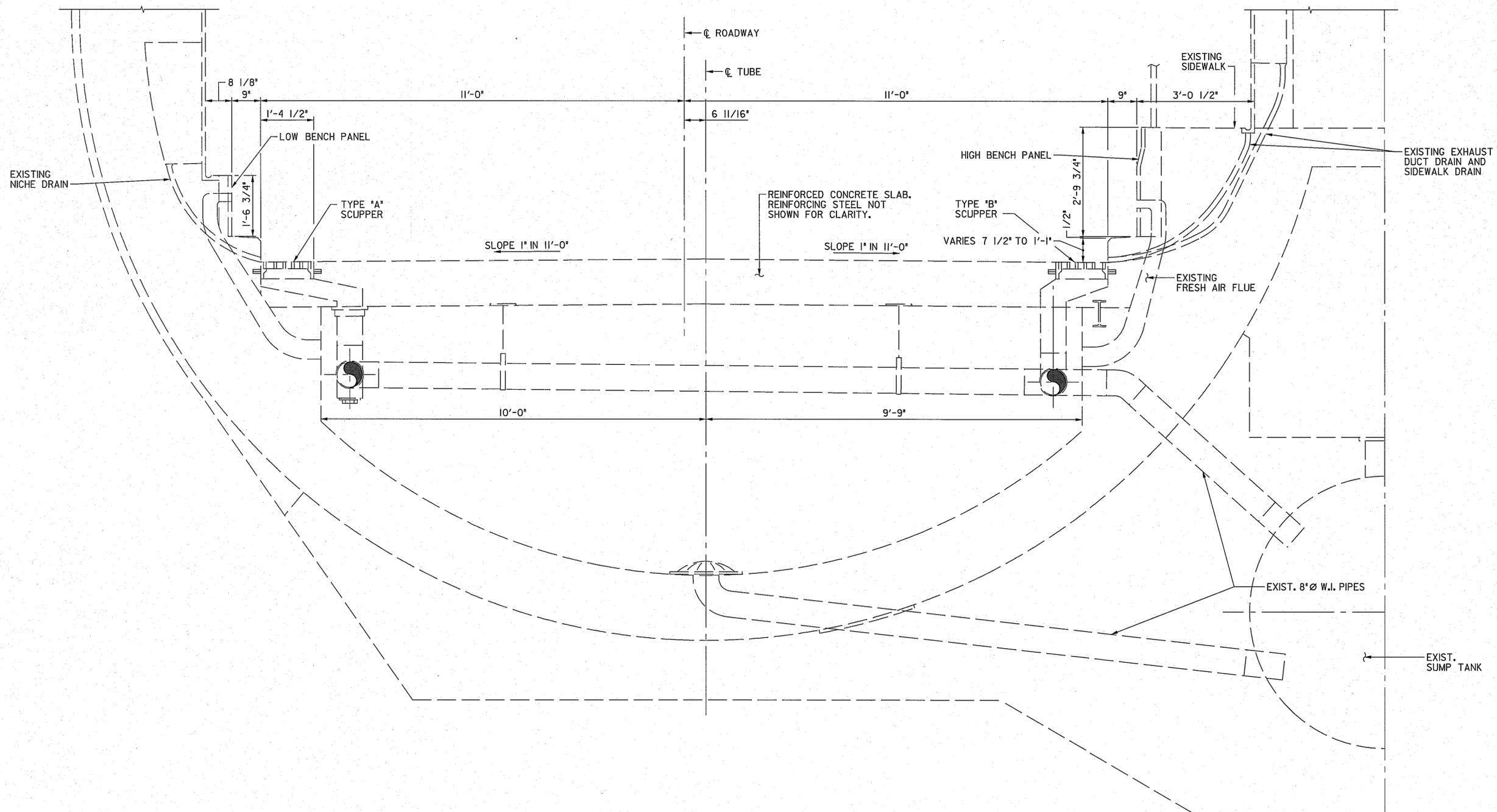
Maryland Transportation Authority  
ENGINEERING DIVISION

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

**BALTIMORE HARBOR TUNNEL DRAINAGE  
SYSTEM REHABILITATION**  
PART PLAN AT SUMP AND SCUPPER  
MARYLAND TRANSPORTATION AUTHORITY - BALTIMORE HARBOR TUNNEL  
BALTIMORE, MARYLAND

DESIGNED BY S.E./S.L. DRAWN BY P.J.S./S.E. CHECKED BY R.C.B.  
CONST. REVIEW BY DATE MAY, 2010 SCALE AS NOTED

CONTRACT NO. HT-2447-000-006  
DRAWING NO. S-2  
SHEET NO. 3 OF 7



EXISTING INTERIOR TUNNEL DETAILS LOWER HALF

SCALE: 3/4" = 1'-0"  
 WEST TUBE AS SHOWN,  
 EAST TUBE OPPOSITE HAND.

- NOTES:**
- EXISTING PVC PIPES WILL BE REPLACED BY 10" PIPES PER SPECIFICATIONS.
  - TEXTS AND DIMENSIONS ARE FROM EXISTING PLANS PRODUCED BY MDTA.



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

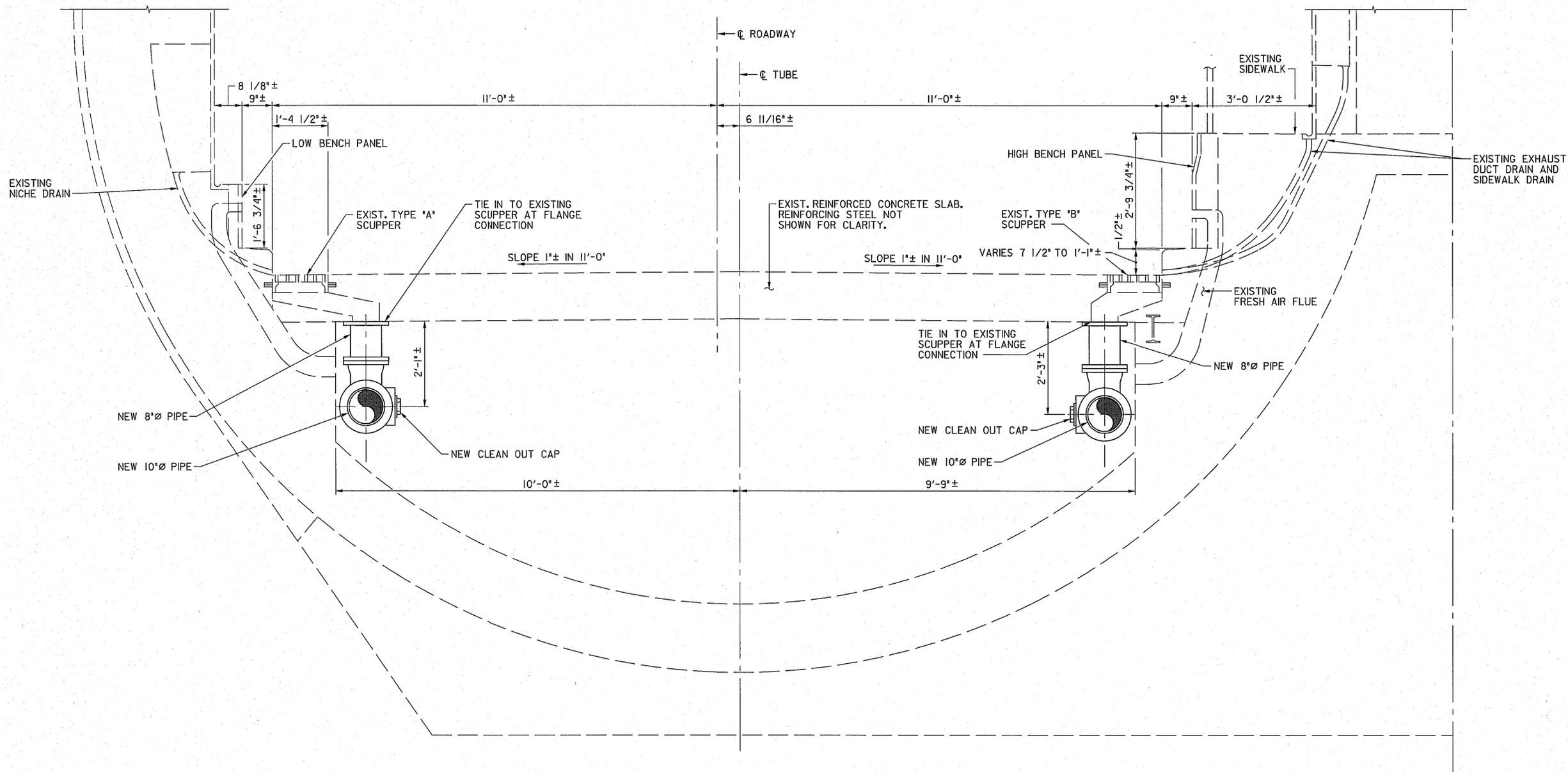
**BALTIMORE HARBOR TUNNEL DRAINAGE SYSTEM REHABILITATION**  
**EXISTING ROADWAY DRAINAGE AND PIPING SECTIONS**  
 MARYLAND TRANSPORTATION AUTHORITY - BALTIMORE HARBOR TUNNEL  
 BALTIMORE, MARYLAND

DESIGNED BY S.E./S.L. DRAWN BY P.J.S./S.E. CHECKED BY R.C.B.  
 CONST. REVIEW BY \_\_\_\_\_ DATE MAY, 2010 SCALE AS NOTED

CONTRACT NO.  
 HT-2447-000-006

DRAWING NO.  
 S-3

SHEET NO.  
 4 OF 7



PROPOSED TYPICAL SECTION  
SCALE: 3/4" = 1'-0"

WEST TUBE AS SHOWN,  
EAST TUBE OPPOSITE HAND.

- NOTES:
1. DIMENSIONS ARE PER EXISTING PLANS. CONTRACTOR SHOULD FIELD VERIFY.
  2. FOR INSTALLATION OF NEW PIPE HANGERS, SEE SPECIFICATIONS.



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ADDENDUMS & REVISIONS			
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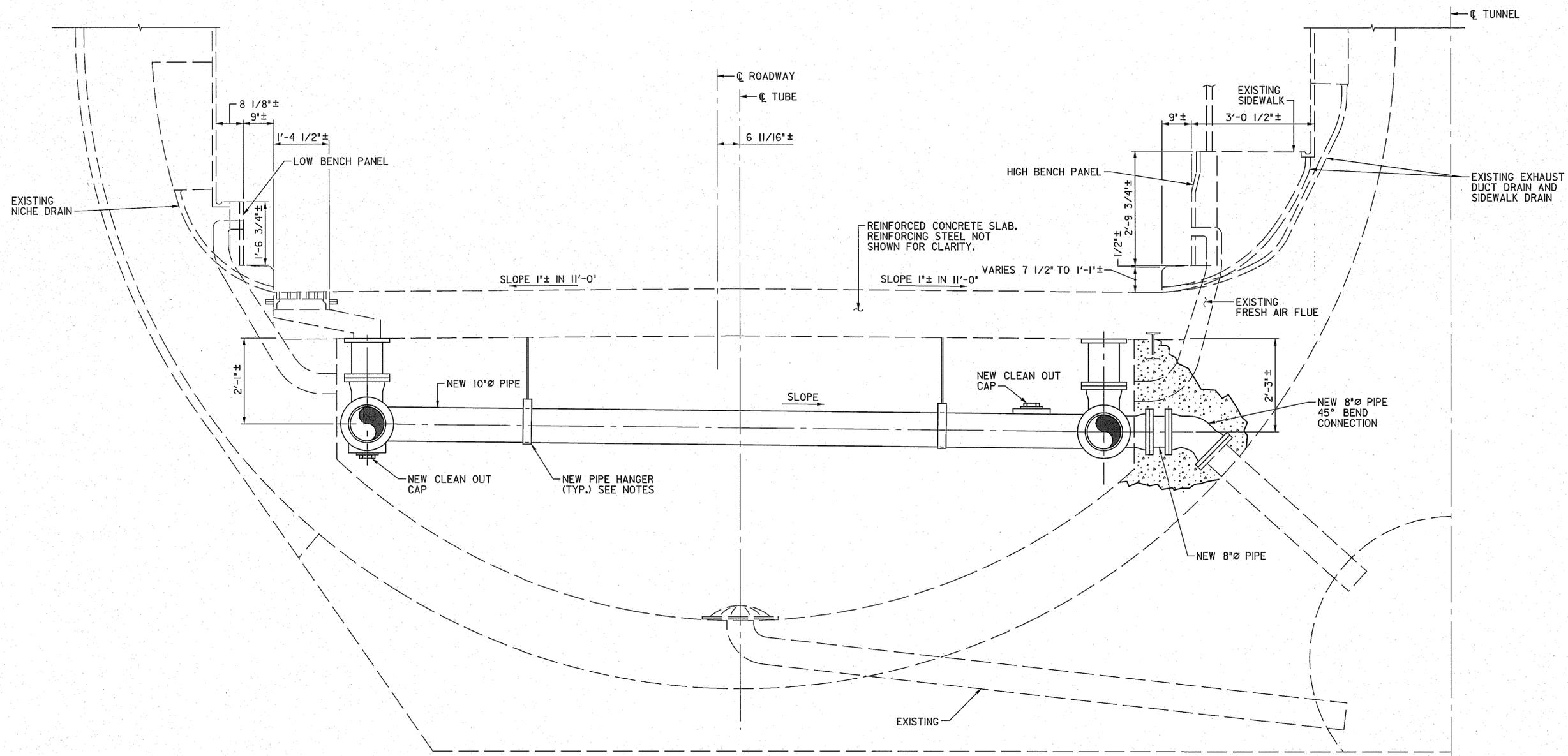
BALTIMORE HARBOR TUNNEL DRAINAGE  
SYSTEM REHABILITATION  
ROADWAY DRAINAGE AND PIPING TYPICAL SECTION  
MARYLAND TRANSPORTATION AUTHORITY - BALTIMORE HARBOR TUNNEL  
BALTIMORE, MARYLAND

CONTRACT NO.  
HT-2447-000-006

DRAWING NO.  
S-4

DESIGNED BY S.E./S.L. DRAWN BY P.J.S./S.E. CHECKED BY R.C.B.  
CONST. REVIEW BY   DATE MAY, 2010 SCALE AS NOTED

SHEET NO.  
5 OF 7



SECTION AT SUMP  
 WEST TUBE AS SHOWN  
 EAST TUBE OPPOSITE HAND

- NOTES:
1. DIMENSIONS ARE PER EXISTING PLANS. CONTRACTOR SHOULD FIELD VERIFY.
  2. FOR INSTALLATION OF NEW PIPE HANGERS, SEE SPECIFICATIONS.

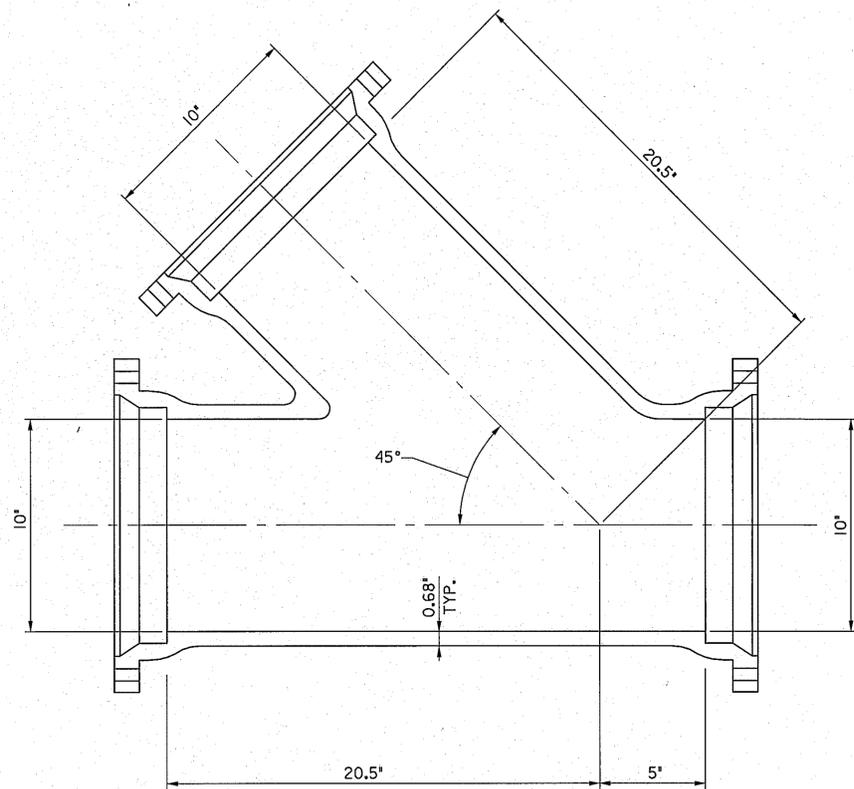


ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

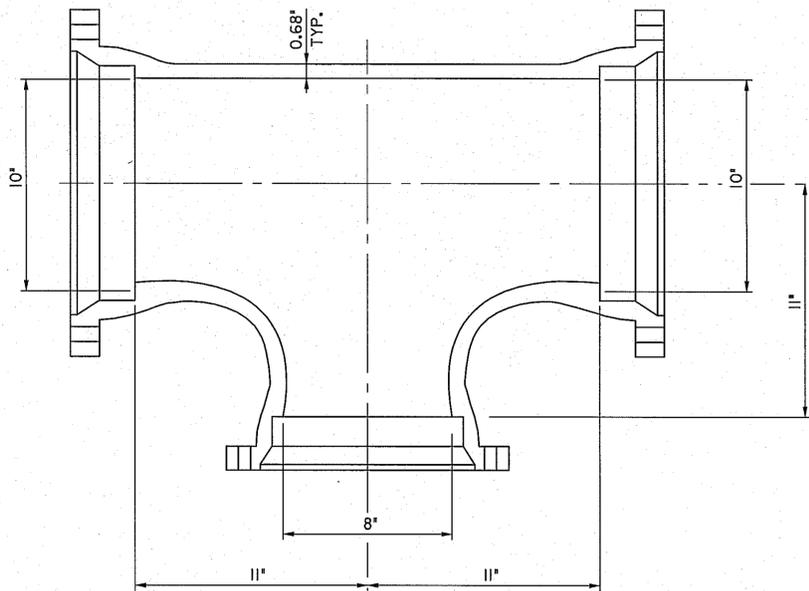
**BALTIMORE HARBOR TUNNEL DRAINAGE SYSTEM REHABILITATION**  
**ROADWAY DRAINAGE AND PIPING SECTION AT PUMP**  
 MARYLAND TRANSPORTATION AUTHORITY - BALTIMORE HARBOR TUNNEL  
 BALTIMORE, MARYLAND

DESIGNED BY S.L./S.E.    DRAWN BY P.J.S./S.E.    CHECKED BY R.C.B.  
 CONST. REVIEW BY \_\_\_\_\_    DATE MAY, 2010    SCALE AS NOTED

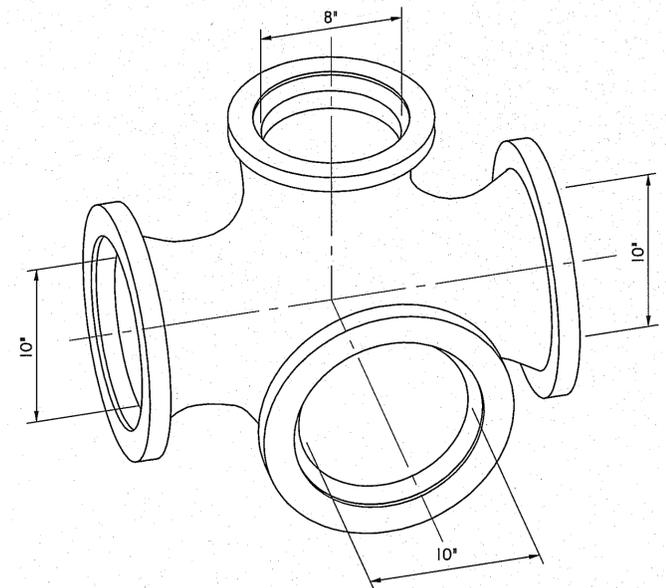
CONTRACT NO. HT-2447-000-006
DRAWING NO. S-5
SHEET NO. 6 OF 7



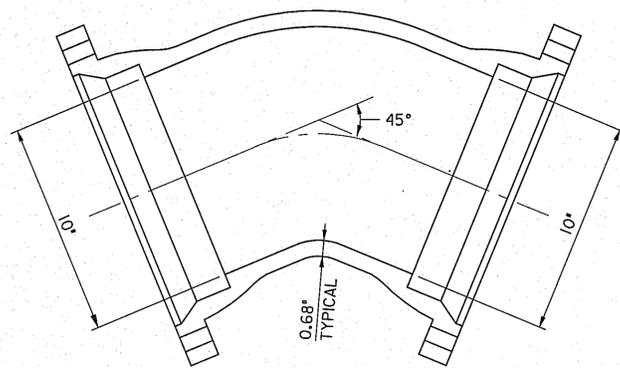
WYE BRANCHES CONNECTION DETAIL  
SCALE: 3" = 1'-0"



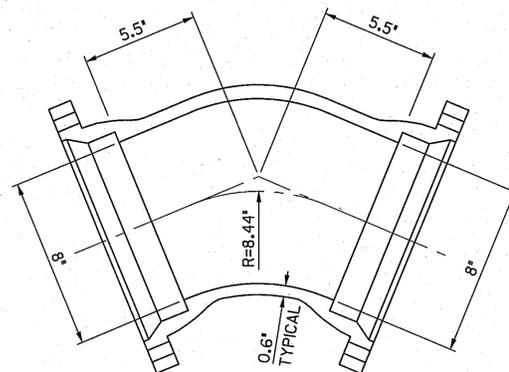
CROSS CONNECTION DETAIL-1  
SCALE: 3" = 1'-0"



CROSS CONNECTION DETAIL-2  
SCALE: 3" = 1'-0"



45° BEND CONNECTION DETAIL  
SCALE: 3" = 1'-0"



45° BEND CONNECTION DETAIL  
SCALE: 3" = 1'-0"



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

**BALTIMORE HARBOR TUNNEL DRAINAGE  
SYSTEM REHABILITATION**

**PIPING CONNECTION DETAILS**

MARYLAND TRANSPORTATION AUTHORITY - BALTIMORE HARBOR TUNNEL  
BALTIMORE, MARYLAND

DESIGNED BY <u>S.L./S.E.</u>	DRAWN BY <u>S.E.</u>	CHECKED BY <u>R.C.B.</u>
CONST. REVIEW BY _____	DATE <u>MAY, 2010</u>	SCALE <u>AS NOTED</u>

CONTRACT NO.  
HT-2447-000-006

DRAWING NO.  
S-6

SHEET NO.  
7 OF 7