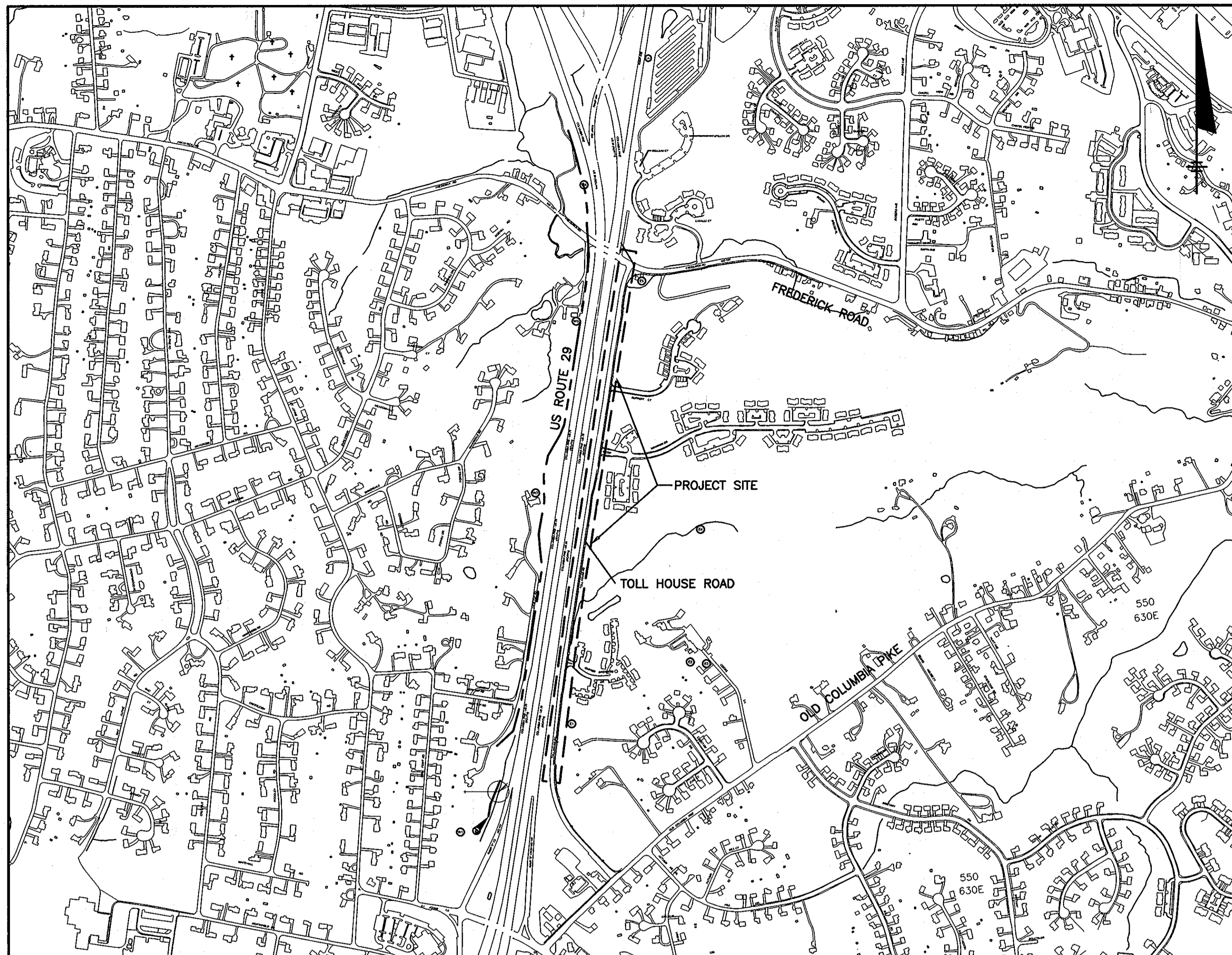


QUANTITIES					
BID ITEM NO.	ITEM	BID	AS-BUILT	MATERIAL	SUPPLIER
WATER MAINS					
A-4	48" DUCTILE IRON; PUSH ON JOINT	2,819	L.F.	2,773	US PIPE & FOUNDRY CO.
A-5	48" DUCTILE IRON; RESTRAINED JOINT - TR FLEX	944	L.F.	985	
A-6	42" DUCTILE IRON; RESTRAINED JOINT - TR FLEX	50	L.F.	40	
A-7	16" DUCTILE IRON; RESTRAINED JOINT	10	L.F.	21	
A-8	12" DUCTILE IRON; R.J.	10	L.F.	21	
A-9	8" DUCTILE IRON; RESTRAINED JOINT	10	L.F.	5	APCO VALVES
A-10	ACCESS/BLOW-OFF VALVE ASSEMBLY	1	EA.	1	
A-11	ACCESS/AIR VALVE ASSEMBLY	2	EA.	2	
A-12	48" BUTTERFLY VALVE AND APPURTENANCES	2	EA.	2	
A-13	8-INCH RESILIENT SEAT GATE VALVE	1	EA.	1	
A-14	12-INCH RESILIENT SEAT GATE VALVE	3	EA.	3	
A-15	16-INCH RESILIENT SEAT GATE VALVE	1	EA.	1	
	16"x12" TAPPING SLEEVE			1	
	12"x12" TAPPING SLEEVE			1	
A-19	12-INCH RESILIENT SEAT GATE VALVE	1	EA.		

GENERAL NOTES:

- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES, NAD 83/91.
- ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- ALL DUCTILE IRON PIPE TO BE USED ON THE PUBLIC WATER SYSTEM SHALL BE CLASS 54. DUCTILE IRON FITTINGS SHALL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND SHALL BE EXTERIOR EPOXY COATED IN ACCORDANCE WITH AWWA C116.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PITS IS INCLUDED ON THE DRAWINGS OR WITHIN THE SPECIFICATIONS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.



WATER AND SEWER CODE FOR COUNTY USE ONLY:	
WATER CODE NO.	F04
NO. OF CONNECTIONS	18
SEWER CODE NO.	N/A
NO. OF CONNECTIONS	0
DRAINAGE AREA	PATAPSCO

VICINITY MAP
SCALE: 1" = 600'

GENERAL NOTES CONT'D:

- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 AT&T.....1-800-252-1133
 BGE (CONTRACTOR SERVICES).....410-850-4620
 BGE (UNDERGROUND DAMAGE CONTROL).....410-787-9068
 BUREAU OF UTILITIES.....410-313-4900
 COLONIAL PIPELINE COMPANY.....410-795-1390
 MISS UTILITY.....1-800-257-7777
 STATE HIGHWAY ADMINISTRATION.....410-531-5533
 VERIZON.....1-800-743-0033/410-224-9210
 MCI WORLDCOM.....1-800-624-9675
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT.
- CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 4'-0" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES, UNLESS OTHERWISE NOTED.
- ALL FITTINGS ON THE 48" MAIN SHALL BE RESTRAINED JOINT, UNLESS OTHERWISE NOTED. ALL FITTINGS ON SMALLER MAINS SHALL BE RESTRAINED JOINT OR BUTTRESSED/ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING WORK. A DETAILED PLAN FOR THE SHUTDOWN OF EXISTING WATER MAINS SHALL BE SUBMITTED FOR APPROVAL BY THE COUNTY.
- EXISTING STORM DRAINS DISTURBED BY THE CONSTRUCTION SHALL BE REPLACED IN KIND AT THE SAME LINE AND GRADE AS THE EXISTING STORM DRAINS.
- ANY TREES, OUTSIDE OF EXISTING EASEMENTS, DISTURBED BY CONSTRUCTION SHALL BE REPLACED IN KIND. (3" CALIPER MINIMUM.)
- SALVAGEABLE VALVES AND APPURTENANCES TO BE REMOVED SHALL BE DELIVERED TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - BUREAU OF UTILITIES AS DIRECTED BY THE ENGINEER OR COUNTY.

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CATHODIC PROTECTION SYSTEM	18

TOLL HOUSE ROAD WATER MAIN REPLACEMENT

CAPITAL PROJECT: W-8243 CONTRACT NO.: 44-4227 HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS

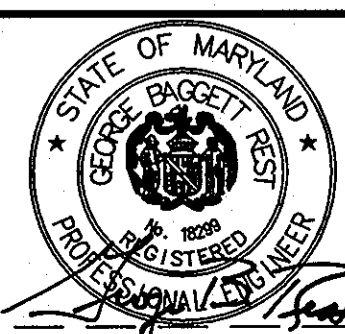
RECORD DRAWINGS

To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
 O'BRIEN & GERE ENGINEERS, INC.
 By: *[Signature]*

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>[Signature]</i> 2/26/07 Chief - Bureau of Engineering: <i>[Signature]</i> 2-27-07 Chief, Bureau of Utilities: <i>[Signature]</i> 2-26-07	
---	--

O'BRIEN & GERE ENGINEERS, INC.
 8401 Corporate Drive
 Suite 400
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737

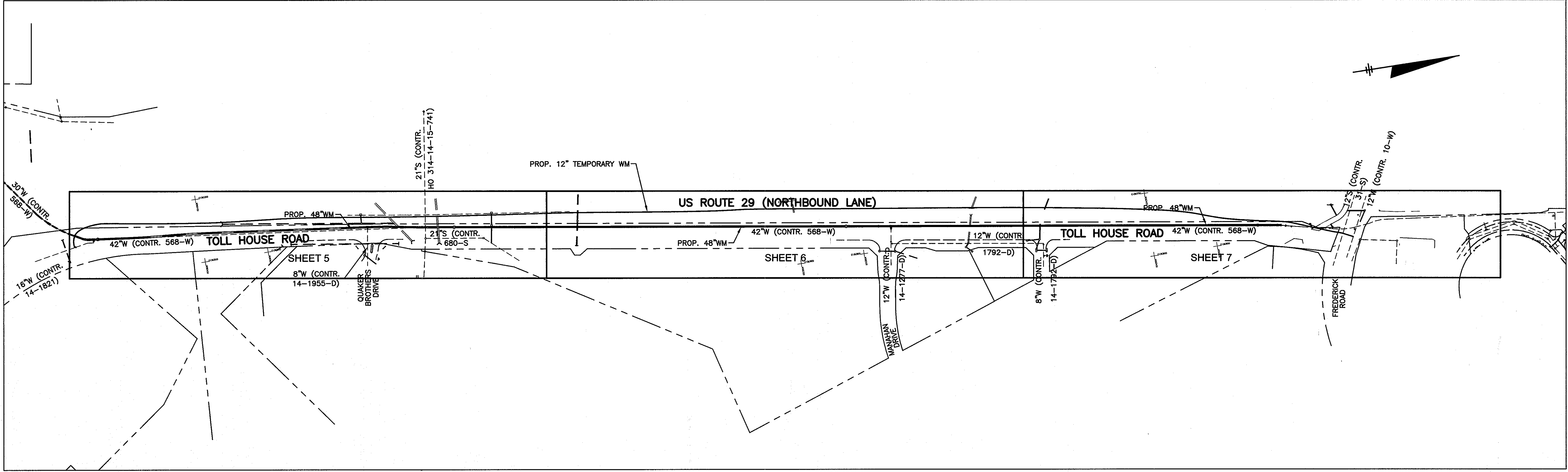


DSN. BY: GDR	DC 1	ADD PROJECT SITE; W. CODE	10/04
DRN. BY: ALH	RPW 2	AS-BUILT REVISIONS	02/07
CHK. BY: RJD			
DATE: 08/30/04	BY NO.	REVISION	DATE

COVER SHEET
 600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

**TOLL HOUSE ROAD
WATER MAIN REPLACEMENT**
 CAPITAL PROJECT: W-8243
 CONTRACT NO.: 44-4227
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 1 OF 18



LEGEND
(PLAN AND PROFILES SHEETS)

<ul style="list-style-type: none"> --- SIDEWALK - - - PAVEMENT (EDGE) /// GRAVEL (EDGE) ==== CONCRETE (EDGE) ===== BUILDING --- CENTERLINE --- SHA THRU HIGHWAY RIGHT-OF-WAY --- PROPERTY LINE/RIGHT-OF-WAY --- GUARDRAIL --- FENCE (WOOD) --- FENCE IRON, RAIL --- FENCE(CHAINLINK) --- UNDG ELECTRIC LINE --- UNDG TELEPHONE LINE --- UNDG CABLE LINE --- UNDG FIBER OPTIC LINE --- OHU OVERHEAD UTILITIES --- SANITARY SEWER --- STORM DRAIN --- WATER MAIN --- PROPOSED WATER --- GAS --- DITCH --- STREAM --- WOODLINE --- BUSH --- RIP-RAP DITCH SB# BORING LOCATION TP# TEST PIT LOCATION BM # OREBAR FLY FLY STATION 	<ul style="list-style-type: none"> o MAIL BOX o VENT o STORM DRAIN MH o HEADWALL/ENDWALL o DROP INLET GRATE o DROP INLET o ROAD SIGN o TELE. JUNC. BOX o UTILITY POLE o LIGHT POLE o GUY WIRE o GROUND LIGHT o ELEC. TRANSFORMER o ELEC. MH o ELEC. JUNC. BOX o SPOT ELEVATION o CABLE BOX o SAN. SEW. MH o CLEAN OUT o WATER VALVE o WATER METER o WATER MAIN VALVE VAULT o IRRIGATION VALVE o FIRE HYDRANT o GAS VENT PIPE o GAS VALVE o GAS PUMP o GAS LINE MARKER o IRON PIPE FOUND o REBAR AND CAP o TRAVERSE STATION o POINT OF CONNECTION
--	--

KEY MAP
SCALE: 1" = 150'

ABBREVIATION

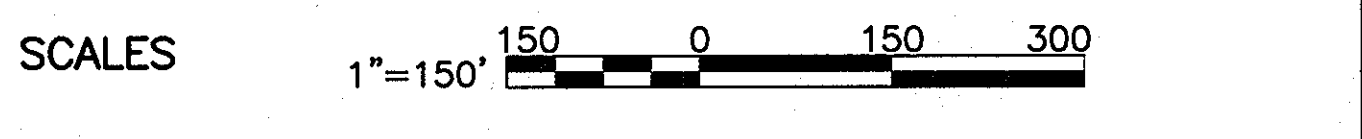
<ul style="list-style-type: none"> APPROX. ARV MH BE BFV BGE BL BLDG. BOT C&G CMP CONC. CONSTR. CONTR. DEG. DET OR DTL. DIP DR E OR ELEC ESMT EX FH FLG FMV G HB HC HCR HDP HORIZ INV JT LOD MAC MD MH MIN NO PC PCCP PED PO PROP PT PVC PVD PVI PVMT PVT R/W RAD OR R RCP RD REQD RSQV 	<ul style="list-style-type: none"> APPROXIMATE AIR RELEASE MANHOLE BURY ELEVATION BUTTERFLY VALVE BALTIMORE GAS & ELECTRIC BURY LENGTH BUILDING BOTTOM CURB AND GUTTER CORRUGATED METAL PIPE CONCRETE CONSTRUCTION CONTRACT DEGREE DETAIL DUCTILE IRON PIPE DRIVE ELECTRIC EASEMENT EXISTING FIRE HYDRANT FLANGE FLOW METER VAULT GAS HORIZONTAL BEND HOWARD COUNTY HORIZONTAL CURVE RADIUS HORIZONTAL DEFLECTION POINT HORIZONTAL INVERT JOINT LIMIT OF DISTURBANCE MACADAM MARYLAND MANHOLE MINIMUM NUMBER POINT OF CURVE PRESTRESSED CONCRETE CYLINDER PIPE PEDESTAL POST OFFICE PROPOSED POINT OF POINT OF TANGENCY PVC PIPE OR POINT OF VERTICAL CURVATURE POINT OF VERTICAL DEFLECTION POINT OF VERTICAL INTERSECTION PAVEMENT POINT OF VERTICAL TANGENCY RIGHT OF WAY RADIUS REINF. CONC. PIPE ROAD REQUIRED RESILIENT SEAT GATE VALVE 	<ul style="list-style-type: none"> S SAN SB SD SHC SHT S.S. STA STD TB RENO TBR TELE TEMP DEGREE TP TRANS UNF VB VCR VERT W W/ WHC WM 	<ul style="list-style-type: none"> SEWER SANITARY SOIL BORING STORM DRAIN SEWER HOUSE CONNECTION SHEET STAINLESS STEEL STATION STANDARD TO BE RENOVATED (FUTURE) TO BE REMOVED (FUTURE) TELEPHONE TEMPORARY TEST PIT TRANSFORMER UTILITY NOT FOUND VERTICAL BEND VERTICAL CURVE RADIUS VERTICAL WATER WITH WATER HOUSE CONNECTION WATER MAIN
--	---	---	---

LANDSCAPING

<ul style="list-style-type: none"> APP BPE CHE DEC DOG HEM HIC HOL LOC MAG MAP MUL PIN POP SPR SYC WAL WIL 	<ul style="list-style-type: none"> APPLE BRADFORD PEAR CHERRY DECIDUOUS DOGWOOD HEMLOCK HICKORY HOLLY LOCUST MAGNOLIA MAPLE MULBERRY PINE POPLAR SPRUCE SYCAMORE WALNUT WILLOW
--	--

RECORD DRAWINGS

To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
O'BRIEN & GERE ENGINEERS, INC.
By: _____



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

AS-BUILT REPLACEMENT SHEET 02/07

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 3/1/07
DIRECTOR OF PUBLIC WORKS DATE

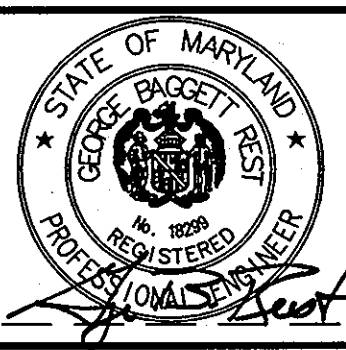
[Signature] 2/26/07
CHIEF - BUREAU OF ENGINEERING DATE

[Signature] 2-27-07
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 2-26-07
CHIEF/UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.

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(301) 731-5622
FAX: (301) 577-4737



DSN. BY: GDR	DC 1	ADD PROJECT SITE: W. CODE	10/04
DRN. BY: ALH	RPW 2	AS-BUILT REVISIONS	02/07
CHK. BY: RJJ			
DATE: 08/30/04	BY NO.	REVISION	DATE

KEY MAP, LEGEND AND ABBREVIATIONS

600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

TOLL HOUSE ROAD
WATER MAIN REPLACEMENT

CAPITAL PROJECT: W-8243
CONTRACT NO.: 44-4227
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 2 OF 18

FILE NO. 32122-002

Station		Description of Location / Restoration Type
From	To	
0+00	5+40	Description: Grassed Area, Trees, Pavement Restoration: Seeding: See Permit for additional requirements. Restore pavement.
5+40	10+25	Description: Grassed Area, Trees, Pavement & Guardrail Restoration: Seeding: See Permit for additional requirements. Restore guardrail and pavement.
10+25	11+00	Description: Grassed Area, Trees, Pavement, & Paved Shoulder Restoration: Seeding: See Permit for additional requirements. Restore pavement & paved shoulder.
11+00	16+00	Description: Grassed Area, Trees, Pavement & Paved Shoulder Restoration: Seeding: See Permit for additional requirements. Restore pavement & paved shoulder.
16+00	21+45	Description: Grassed Area, Trees, Pavement & Paved Ditch Restoration: Seeding: See Permit for additional requirements. Restore pavement & paved ditch.
21+45	22+65	Description: Grassed Area, Trees & Pavement Restoration: Seeding: See Permit for additional requirements. Restore pavement.
22+65	23+75	Description: Grassed Area, Trees, Pavement & Paved Shoulder Restoration: Seeding: See Permit for additional requirements. Restore pavement & paved shoulder.
23+75	26+70	Description: Grassed Area, Trees, Paved Shoulder, Pavement & Guardrail Restoration: Seeding: See Permit for additional requirements. Restore pavement, paved shoulder and guardrail.
26+70	28+45	Description: Grassed Area, Trees, & Pavement Restoration: Seeding: See Permit for additional requirements. Restore pavement.
28+45	28+75	Description: Grassed Area, Trees, Pavement & Guardrail Restoration: Seeding: See Permit for additional requirements. Restore pavement & guardrail.
28+75	31+90	Description: Grassed Area, Trees, Pavement, Paved Shoulder, & Guardrail Restoration: Seeding: See Permit for additional requirements. Restore pavement, paved shoulder & guardrail.
31+90	34+30	Description: Grassed Area, Trees, & Pavement Restoration: Seeding: See Permit for additional requirements. Restore pavement.
34+30	38+10	Description: Grassed Area, Trees, Pavement, Paved Shoulder, & Guardrail Restoration: Seeding: See Permit for additional requirements. Restore pavement, paved shoulder & guardrail.

Station	Item	NORTHING	EASTING
0 + 06.9	CONNECTION POINT	580048.96	1363354.65
0 + 29.9	42"-5.625 DEG. HB	580070.08	1363363.87
0 + 48.6	48"x42" REDUCER	580087.90	1363369.72
0 + 56.1	48"-11.25 DEG. HB	580095.00	1363372.05
0 + 62.1	48" BFV	580100.96	1363372.77
0 + 68.2	48"-5.625 DEG. VB	573607.08	1357899.16
0 + 76.0	48"x16" OUTLET	580114.75	1363374.44
0 + 88.7	AIR RELEASE/ACCESS MH	580127.27	1363375.96
1 + 72.4	48"-5.625 DEG. VB	580210.42	1363386.04
11 + 72.6	BLOW-OFF/ACCESS MH	581203.08	1363508.69
24 + 42.8	AIR RELEASE/ACCESS MH	582457.78	1363705.82
25 + 84.0	48"x12" OUTLET	582597.35	1363727.57
28 + 18.1	48"-45 DEG. VB	582828.71	1363763.62
28 + 27.6	48"-45 DEG. VB	582838.05	1363765.08
28 + 38.8	BLOW-OFF/ACCESS MH	582849.16	1363766.81
28 + 48.1	48"-45 DEG. VB	582858.26	1363768.23
28 + 54.3	48"-45 DEG. VB	582864.40	1363769.18
37 + 97.7	48" BFV	583796.62	1363914.44
38 + 03.3	48"-5.625 DEG. HB	583802.14	1363915.30
38 + 10.6	48"x42" REDUCER	583809.22	1363917.16
38 + 18.2	CONNECTION POINT	583816.13	1363920.78

UTILITY POLE IDENTIFICATION SCHEDULE			
ID	BGE NO.	VERIZON NO.	COMMENT
UP01	551169		POLE WILL NOT BE DISTURBED

Lot Number	Owner Name	Legal Description	Premises Address
P1	Ruygrok Alexander and Ruygrok Terry E T/E	Lot 1 10.239 A 4090 Old Columbia Road Joseph H Clark	4090 Old Columbia Pike Ellicott City, 21043
P2	Salah Frank A	Lot 21 1.036 A 4099 Choctaw Drive Kew Waydin	4099 Choctaw Drive Ellicott City 21043
P3	Keywadin Joint Venture	Lot 37 3.479 A Choctaw Drive Kew Waydin	Choctaw Drive Ellicott City, 21043
P4	Howard County Maryland	Lot 2 4.45 A OPSP Toll House Road SE The Bluffs Elct Mills	Toll House Road Ellicott City, 21043
P5	Howard County Maryland Department of Recreation and Parks	P/O Lot 2 4.4255 A Manahan Dr. Toll House S1	W Manhan Dr. Ellicott City, 21043
P6	Howard County Maryland	Lot 2 4.45 A OPSP Toll House Road SE The Bluffs Elct Mills	Toll House Road Ellicott City, 21043
P7	Howard Co. Dept Rec and Parks	Lot 48 .5390 A OPSP Toll House Road Ruppert Property	Toll House Road Ellicott City, 21043
P8	Howard County Maryland	Lot 47 .1185 A OPSP Ruppert Ct. Ruppert Property	Ruppert Ct. Ellicott City, 21043
P9	Howard Co. Dept Rec and Parks	Lot 46 2.1013 A OPSP Ruppert Ct. Ruppert Property	Ruppert Ct. Ellicott City, 21043
P10	Lee Chong S	Lot 41 .7507 A 8879 Frederick Road Ruppert Property	8879 Frederick Road Ellicott City, 21043

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 2/26/07
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2-27-07
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 2-26-07
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.

8401 Corporate Drive
Suite 400
Landover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: GDR	DC 1	ADD PROJECT SITE; W. CODE	10/04
DRN. BY: ALH	RPW 2	AS-BUILT REVISIONS	02/07
CHK. BY: RJD			
DATE: 08/30/04	BY NO.	REVISION	DATE

SCHEDULES AND TABLES

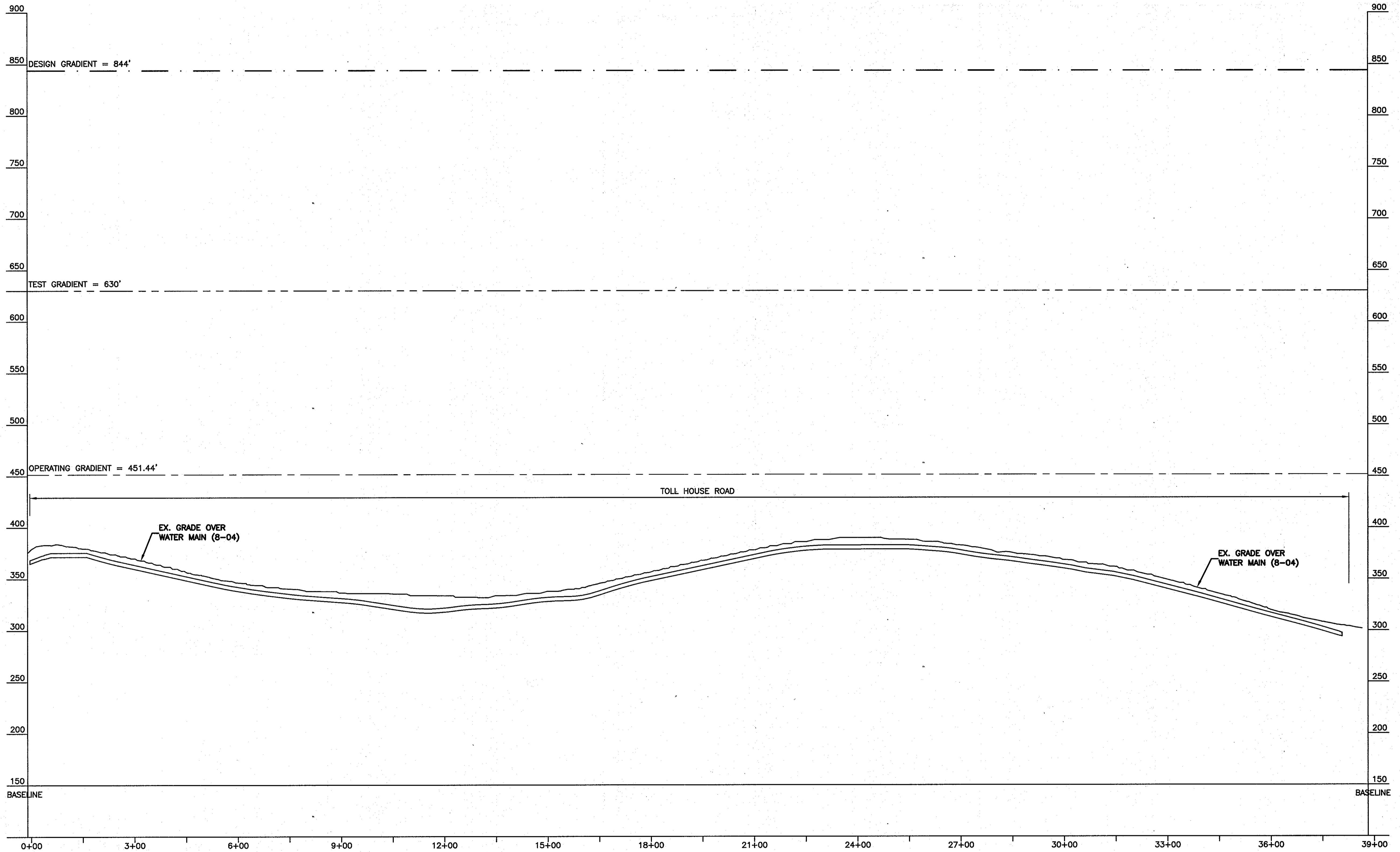
600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

RECORD DRAWINGS
To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
O'BRIEN & GERE ENGINEERS, INC.
By: *[Signature]*

AS-BUILT REPLACEMENT SHEET 02/07

TOLL HOUSE ROAD
WATER MAIN REPLACEMENT
CAPITAL PROJECT: W-8243
CONTRACT NO.: 44-4227
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 3 OF 18



RECORD DRAWINGS
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 By: *[Signature]*



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HYDRAULIC PROFILE
 HORIZ. SCALE: 1"=150'
 VERT. SCALE: 1"=50'

AS-BUILT REPLACEMENT SHEET 02/07

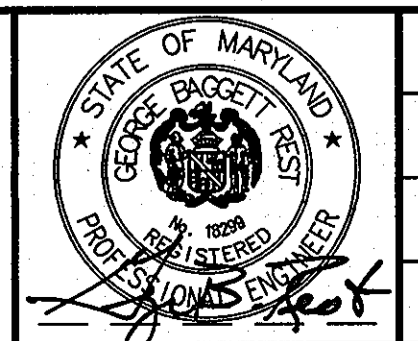
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 2/16/07
 DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2-21-07
 CHIEF, BUREAU OF UTILITIES DATE

[Signature] 2-26-07
 CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE ENGINEERS, INC.
 8401 Corporate Drive
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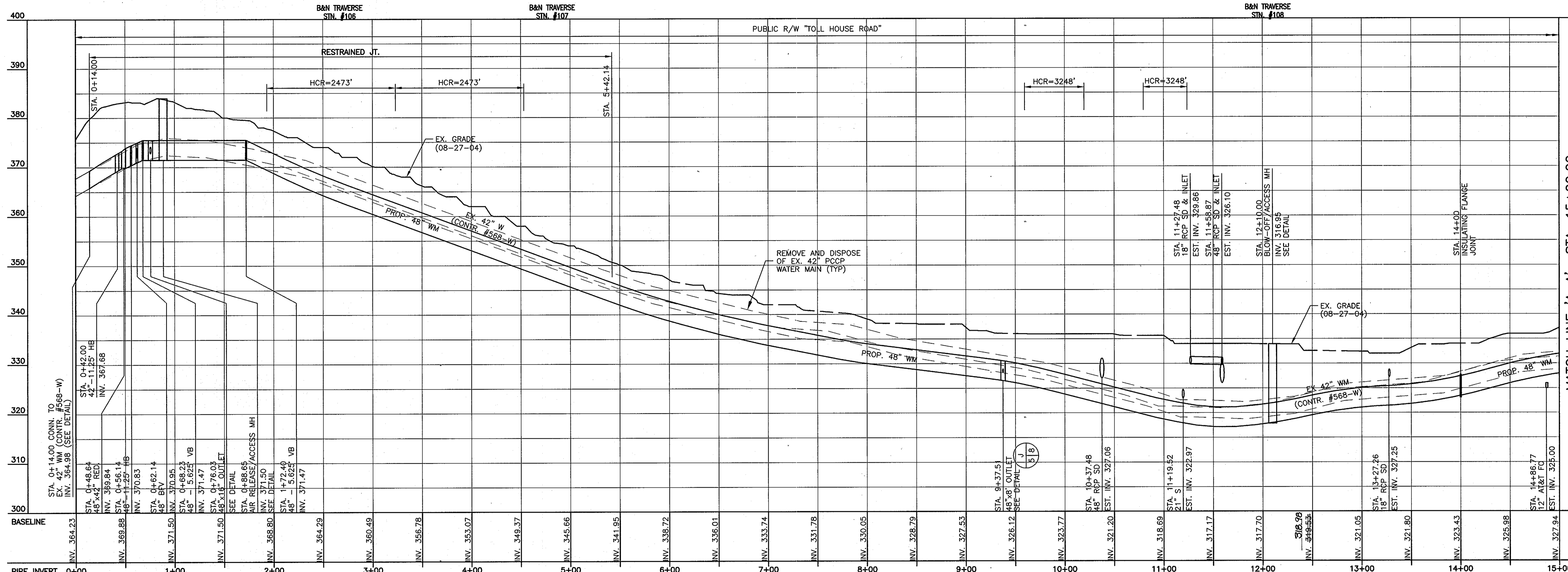
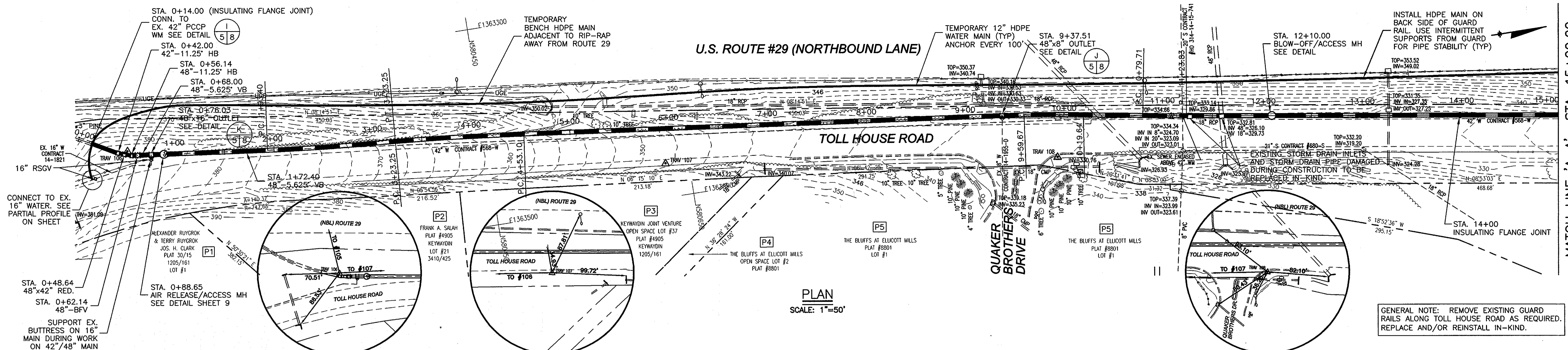
DSN. BY: GDR	DC 1	ADD PROJECT SITE; W. CODE	10/04
DRN. BY: ALH	RPW 2	AS-BUILT REVISIONS	02/07
CHK. BY: RJD			
DATE: 08/30/04	BY NO.	REVISION	DATE

HYDRAULIC PROFILE

600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

TOLL HOUSE ROAD WATER MAIN REPLACEMENT
 CAPITAL PROJECT: W-8243
 CONTRACT NO.: 44-4227
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 4 OF 18



RECORD DRAWINGS
 To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
 O'BRIEN & GERE ENGINEERS, INC.
 By: *[Signature]*

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

3/1/07
 DIRECTOR OF PUBLIC WORKS

2-27-07
 CHIEF, BUREAU OF UTILITIES

2/26/07
 CHIEF, UTILITY DESIGN DIVISION

O'BRIEN & GERE ENGINEERS, INC.
 8401 Corporate Drive
 Suite 400
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737

STATE OF MARYLAND
 GEORGE BAGGETT, JR.
 REGISTERED PROFESSIONAL ENGINEER

DC 1 ADD PROJECT SITE: W. CODE 10/04
 RPW 2 AS-BUILT REVISIONS 02/07

48"Ø WATER MAIN
 PLAN AND PROFILE
 STA. 0+00.0 TO STA. 15+00.0

TOLL HOUSE ROAD
 WATER MAIN REPLACEMENT
 CAPITAL PROJECT: W-8243
 CONTRACT NO.: 44-4227
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 5 OF 18

SEE SHEET 16 OF 18 FOR CATHODIC PROTECTION

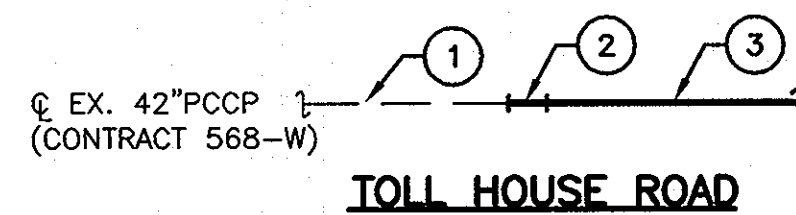
AS-BUILT REPLACEMENT SHEET 02/07

600' SCALE MAP NO. W&S 24_30_BLOCK NO.

MATCH LINE 'A-A' STA. 15+00.00 FOR CONTINUATION SEE SHEET 6

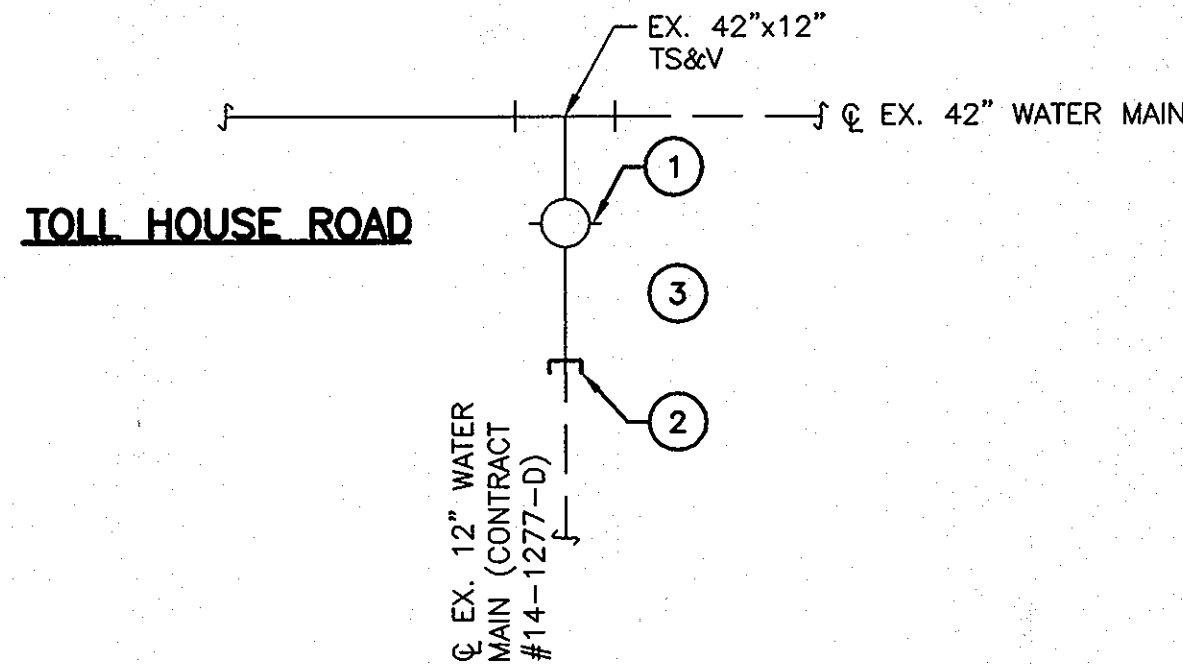
MATCH LINE 'A-A' STA. 15+00.00 FOR CONTINUATION SEE SHEET 6

FILE NO. 32122-005



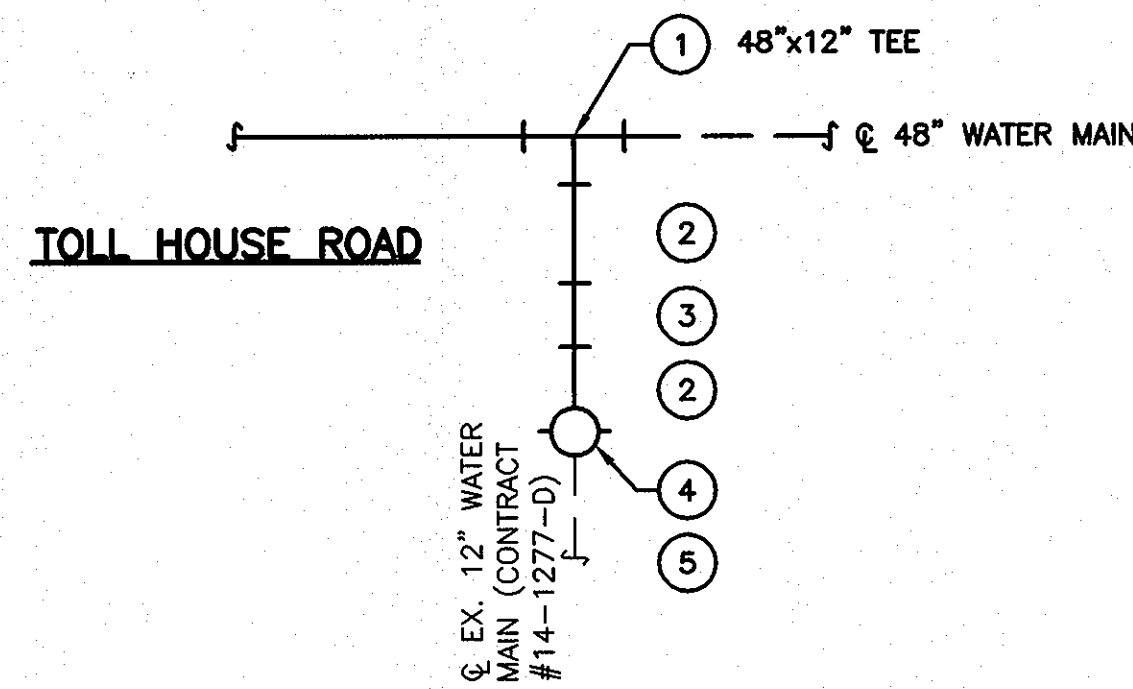
CONNECTIONS AT STATIONS 0+06.86 & 38+18.24

- 1 EXISTING 42" PCCP PIPE. UNCOVER ONLY THE PORTION OF THE PIPE SUFFICIENT FOR INSTALLATION OF THE PIPE ADAPTER. KEEP CONCRETE PIPE DAMPENED WHEN UNCOVERED.
- 2 DISASSEMBLE THE 42" PCCP AT THE JOINT AT STA. 0+06.86 AND INSTALL AN ADAPTOR AS SHOWN IN THE STANDARD JOINT x FLANGE ADAPTER DETAIL, THIS SHEET.
- 3 NEW 42" PIPE FROM THE ADAPTER TO THE NEW REDUCER. BEGIN WITH 3' SPOOL PIECE CONNECTED TO THE PIPE.
- 4 REPEAT CONNECTION AT STATION 38+18.24 AS IT IS SIMILAR.



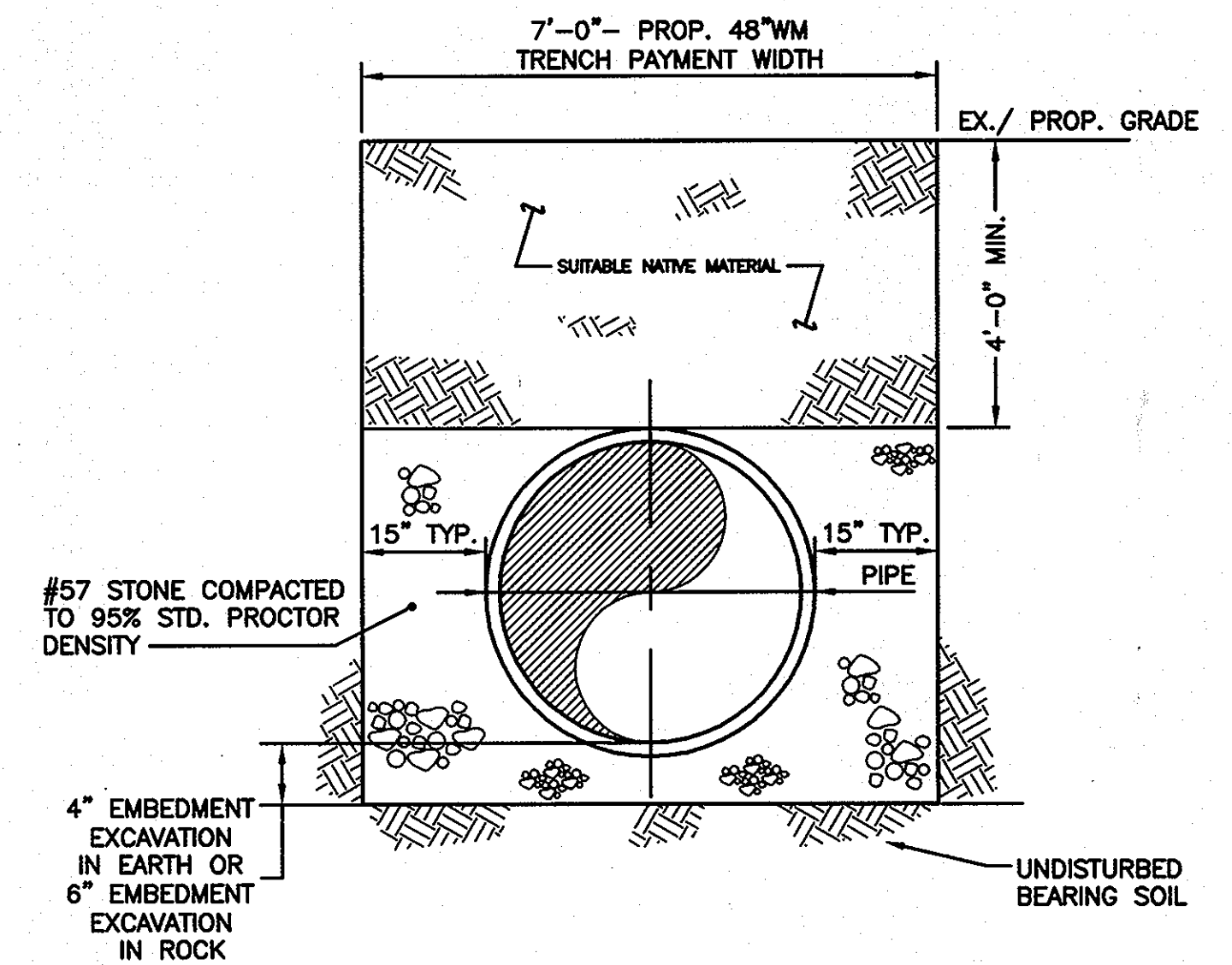
EXISTING CONNECTION AT STATION 25+84.50

- 1 REMOVE EX. 12" VALVE AND PIPE.
- 2 CAP EXISTING 12" MAIN AND PROVIDE TEMPORARY THRUST RESTRAINT.
- 3 CONTRACTOR SHALL TEST PIT EX. 12" WATER MAIN TO VERIFY LOCATION AND ELEVATION. INFORMATION ON ELEVATION SHALL BE PROVIDED TO THE ENGINEER PRIOR TO COMMENCING WORK ON REPLACEMENT AND RECONNECTION OF THE 12" MAIN.
- 4 CONNECTION TO 8" W (CONTR. 14-1955-D) AT STA. 9+37.51 SIMILAR.



PROPOSED CONNECTION AT STATION 25+84.50

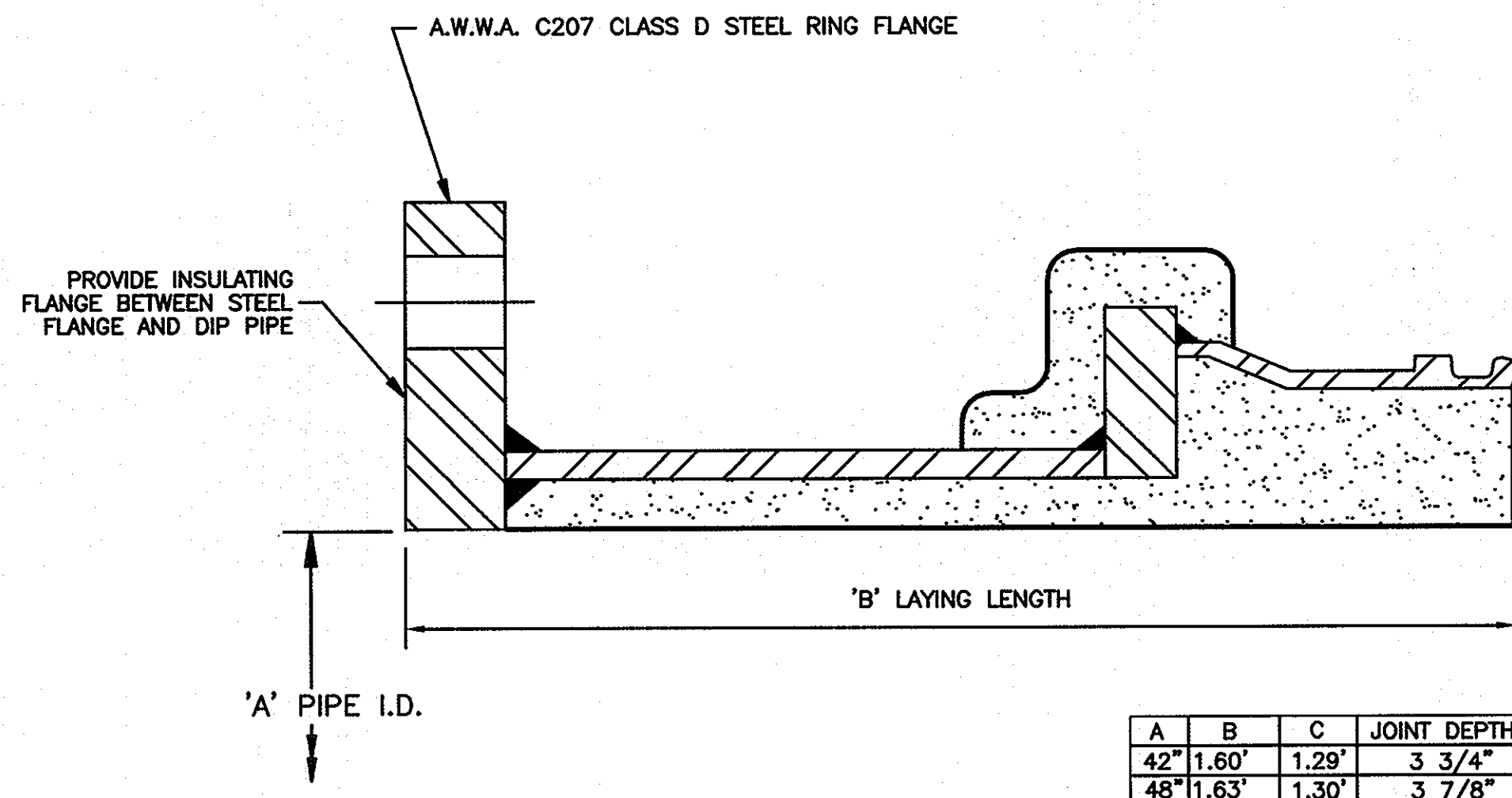
- 1 ROTATE TEE AS REQUIRED.
- 2 12" SPOOL PIECE.
- 3 12"-45° VERTICAL BEND.
- 4 12" RESILIENT SEAT GATE VALVE.
- 5 REMOVE TEMPORARY CAP AND CONNECT TO EXISTING MAIN.
- 6 CONNECTION TO 8" W (CONTR. 14-1955-D) SIMILAR.
- 7 INSTALL RESTRAINED MECHANICAL COUPLING AS REQUIRED TO FACILITATE CONNECTION.



TYPICAL PIPE TRENCH - DETAIL
N.T.S.

DETAIL NOTES:

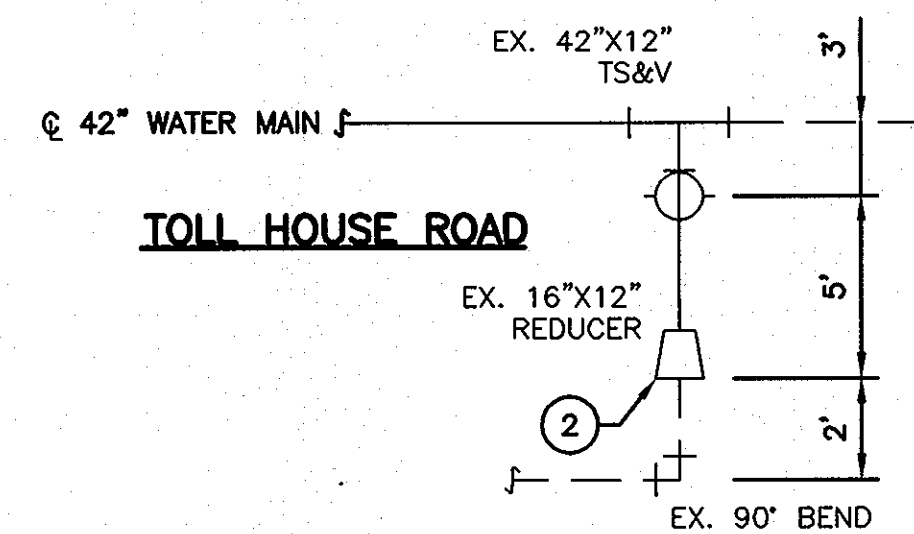
1. TRENCH SHALL BE COMPACTED TO 95% STD. PROCTOR DENSITY, 8" LAYERS MAXIMUM.



NOTES:

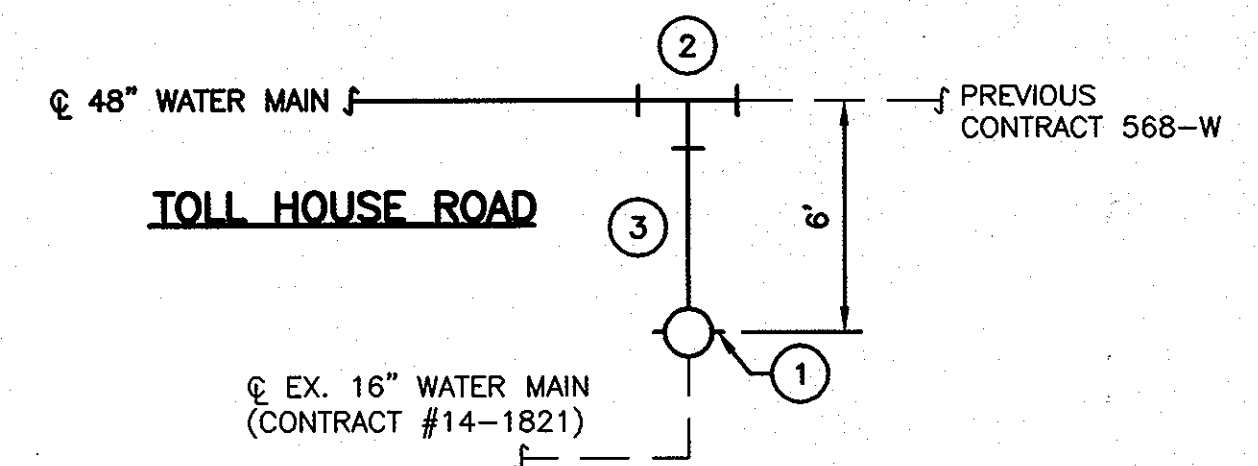
- 1) MESH AND MORTAR AS SHOWN.
- 2) ALL EXPOSED STEEL (EXCEPT FLANGE FACE AND BOLT HOLES) PAINTED WITH 12 MILS DFT HIGH SOLIDS EPOXY COATING.
- 3) FLANGE FACE AND BOLT HOLES PAINTED WITH ZINC RICH PAINT.

STANDARD JOINT x FLANGE ADAPTER DETAIL
N.T.S.



CONNECTION AT STATION 0+76.03

- 1 REMOVE EX. 12" VALVE AND PIPE.
- 2 REMOVE EX. 16"x12" REDUCER.



CONNECTION AT STATION 0+76.03

- 1 NEW 16" RESILIENT SEAT VALVE. CONTRACTOR SHALL CAP AND PROVIDE TEMPORARY MEANS OF RESTRAINT PRIOR TO CONNECTION TO 48" MAIN. IF NECESSARY ADJUST LOCATION OF VALVE TO ALLOW FOR PROPER CONNECTION.
- 2 NEW 48"x16" TEE. MATCH CENTER LINES (HORIZ. & VERT.) OF 16" OUTLET TO EXISTING 16" WATER MAIN.
- 3 16" PIPE CONNECTION BETWEEN EXISTING 16" VALVE AND 48"x16" TEE.

RECORD DRAWINGS

To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
O'BRIEN & GERE ENGINEERS, INC.
By: *[Signature]*

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

AS-BUILT REPLACEMENT SHEET 02/07

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

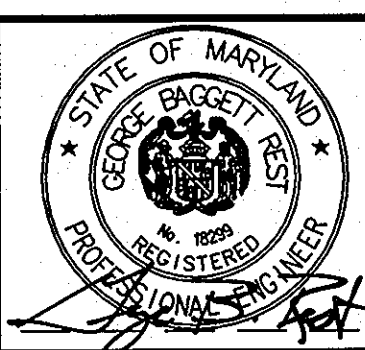
[Signature] 2/16/07
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2-22-07
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 2-26-07
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE ENGINEERS, INC.

8401 Corporate Drive
Suite 400
Landover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: GDR	DC 1	ADD PROJECT SITE; W. CODE	10/04
DRN. BY: ALH	RPW 2	AS-BUILT REVISIONS	02/07
CHK. BY: RJD			
DATE: 08/30/04			
BY NO.	REVISION	DATE	

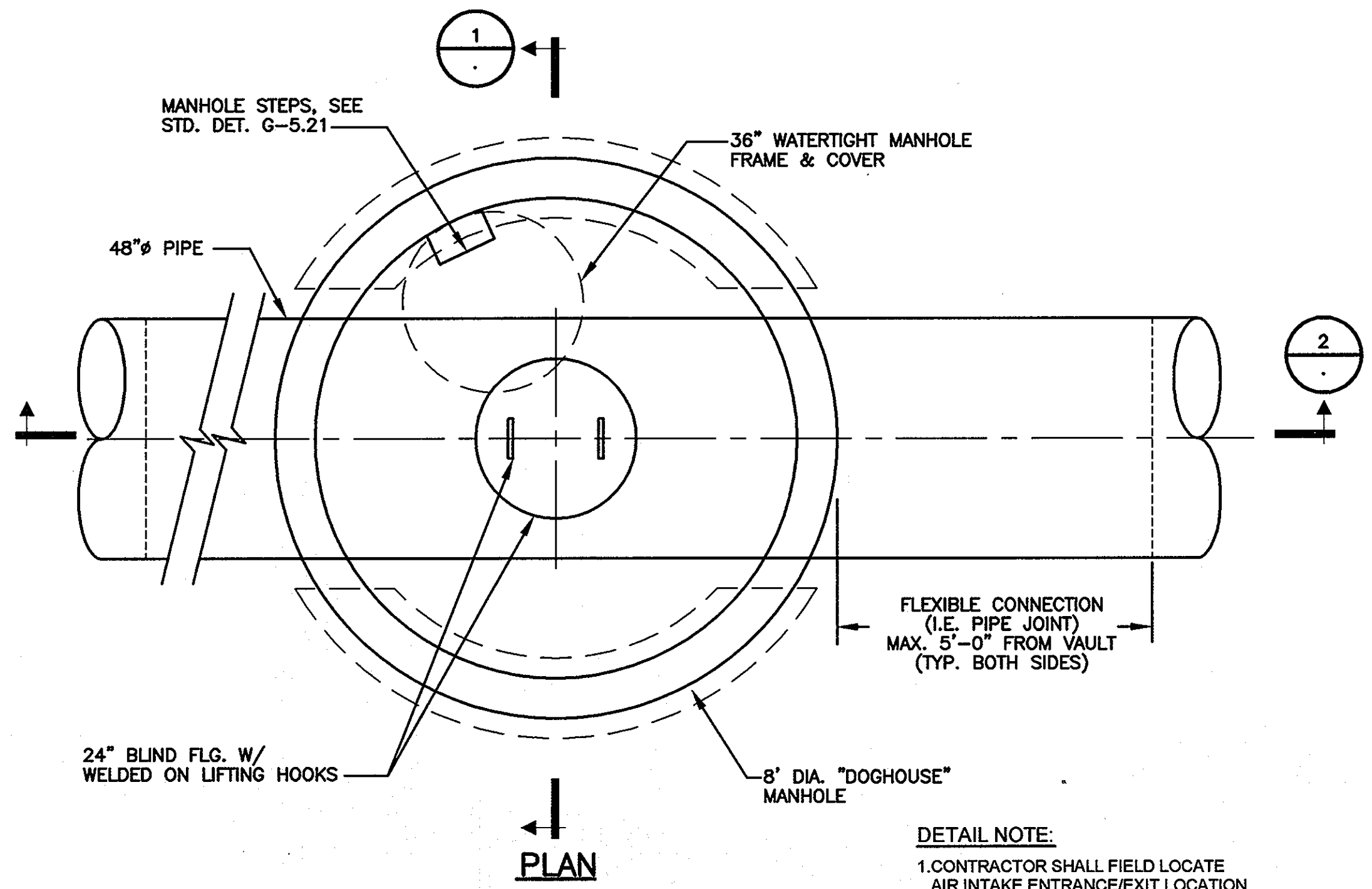
DETAILS

600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

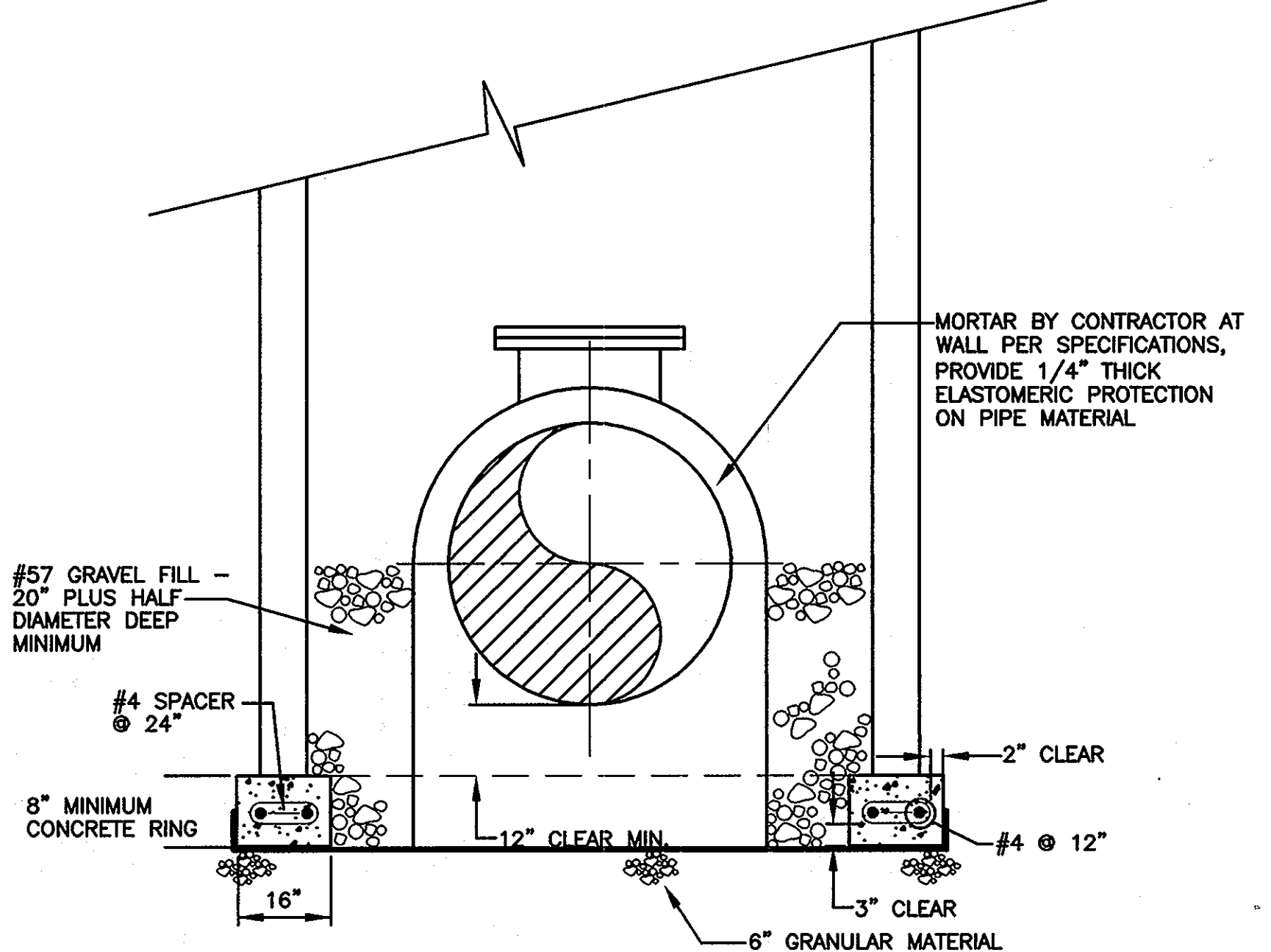
TOLL HOUSE ROAD WATER MAIN REPLACEMENT

CAPITAL PROJECT: W-8243
CONTRACT NO.: 44-4227
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 8 OF 18
FILE NO. 32122-008

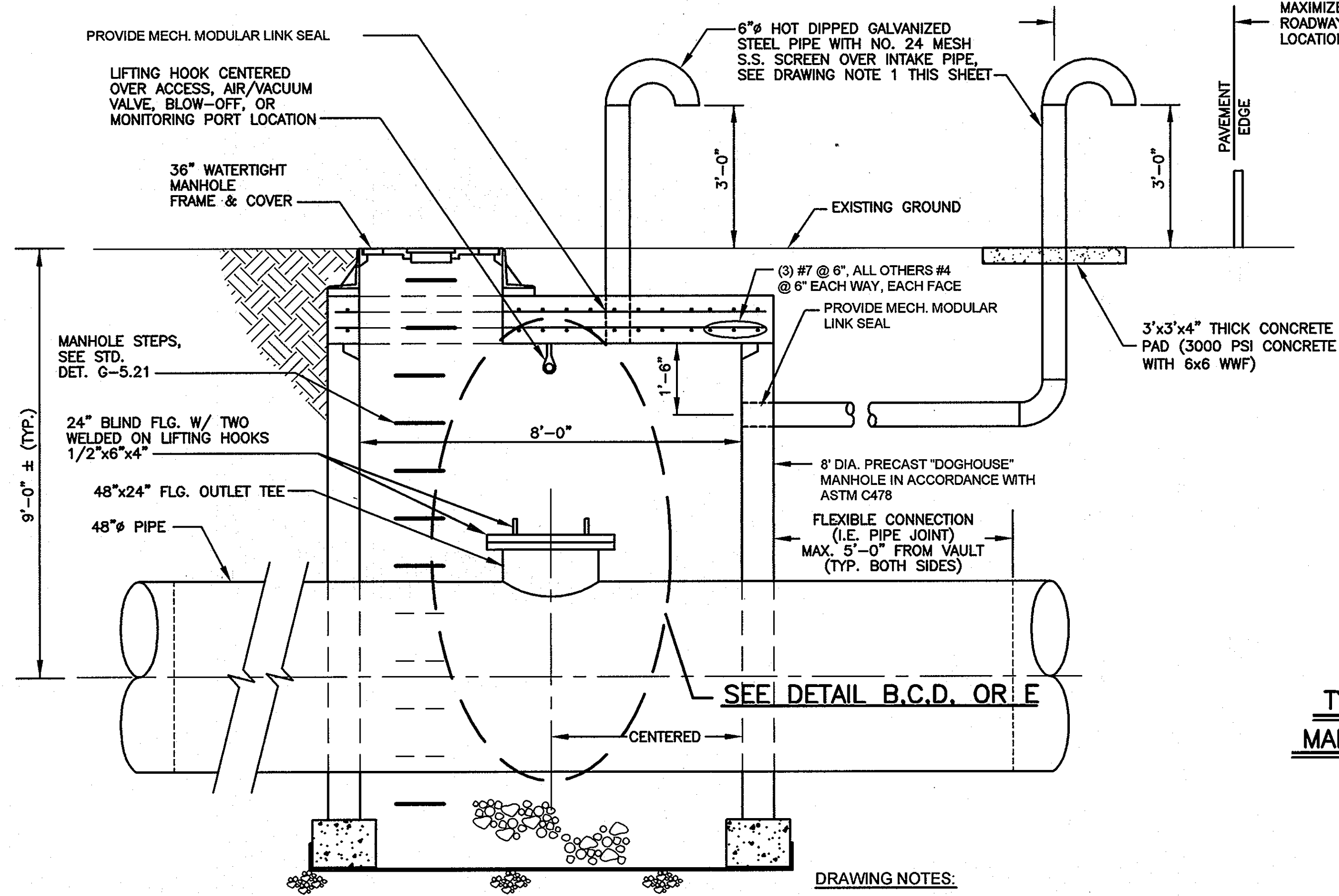


TYPICAL ACCESS MANHOLE - DETAIL
SCALE: 1/2"=1'-0"

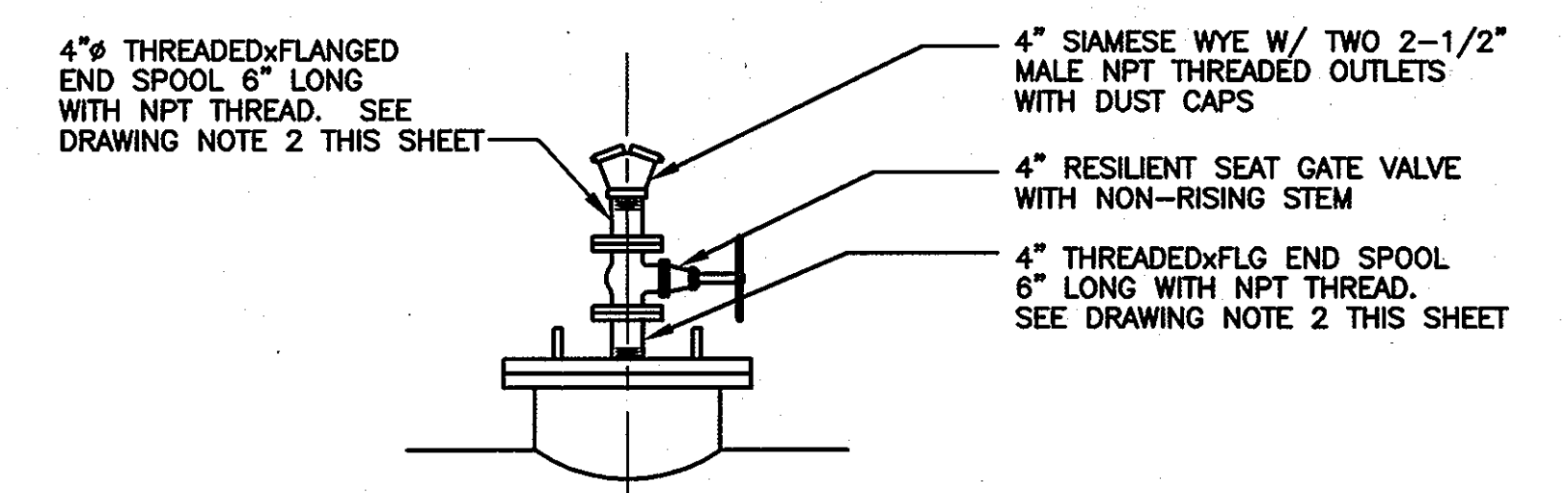
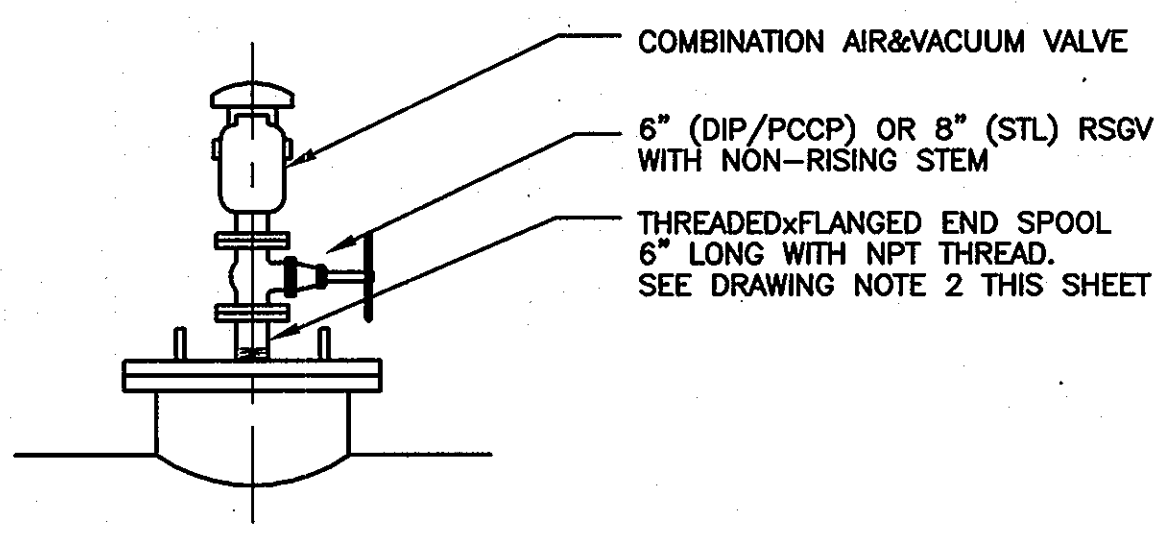


SECTION
SCALE: 1/2"=1'-0"

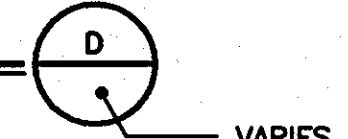
DETAIL NOTE:
1. CONTRACTOR SHALL FIELD LOCATE AIR INTAKE ENTRANCE/EXIT LOCATION AS DIRECTED BY ENGINEER.



TYPICAL AIR VALVE/ACCESS MANHOLE ASSEMBLY - DETAIL
SCALE: 1/2"=1'-0"

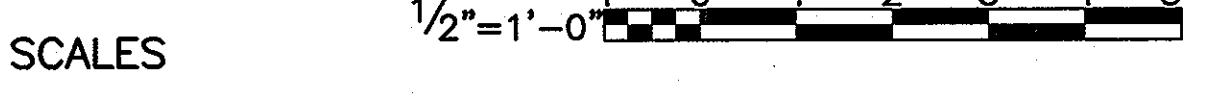


TYPICAL BLOW-OFF/ACCESS MANHOLE ASSEMBLY - DETAIL
SCALE: 1/2"=1'-0"



- DRAWING NOTES:**
- FOR AIR VALVE MANHOLES WITHIN PAVED SURFACES (TOLL HOUSE ROAD), PROVIDE OFFSET FOR INTAKE PIPING AS SHOWN.
 - COAT EXPOSED STEEL FITTINGS WITH 2 COATS OF ROYSTON R-28 MASTIC, PER MANUFACTURERS RECOMMENDATIONS.

SECTION 2
SCALE: 1/2"=1'-0"



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RECORD DRAWINGS
To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
O'BRIEN & GERE ENGINEERS, INC.
By: *[Signature]*

AS-BUILT REPLACEMENT SHEET 02/07

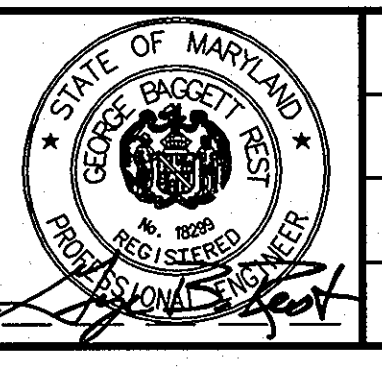
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 3/1/07
DIRECTOR OF PUBLIC WORKS

[Signature] 2/27/07
CHIEF, BUREAU OF UTILITIES

[Signature] 2/26/07
CHIEF, UTILITY DESIGN DIVISION

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CHK. BY: RJJ			
DATE: 08/30/04	BY NO.	REVISION	DATE

TYPICAL ACCESS, AIR VALVE, BLOW-OFF AND MONITORING MANHOLE DETAILS

600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

TOLL HOUSE ROAD WATER MAIN REPLACEMENT
CAPITAL PROJECT: W-8243
CONTRACT NO.: 44-4227
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 9 OF 18

DETAIL 22 - SILT FENCE

Construction Specifications

- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A - STANDARD INLET PROTECTION

Construction Specifications

- Excavate completely around the inlet to a depth of 18" below the notch elevation.
- Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
- Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
- Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
- Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
- If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
- The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

GENERAL SEDIMENT CONTROL NOTES:

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THE PLAN AND ARE TO BE IN CONFORMANCE WITH THE "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL" AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, e.g., TEMPORARY DIVERSION DIKES AND ALL SLOPES GREATER THAN 3:1 AND (b) 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL FOR PERMANENT SEEDINGS (SEC. 51) AND (SEC. 54), TEMPORARY SEEDINGS (SEC. 50) AND MULCHING (SEC. 53). TEMPORARY STABILIZATION WITH MULCH CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:
 - TOTAL AREA OF SITE = 5.52 AC.
 - AREA TO BE PAVED = 0.83 AC.
 - AREA TO BE VEGETATIVELY STABILIZED = 1.39 AC.
 - TOTAL CUT = 11,504 CU. YD.
 - TOTAL FILL = 11,504 CU. YD.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN OPERATING CONDITION.
- CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE CONDITIONS, WHICH MAY AFFECT THE WORK.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID DAMAGE TO EXISTING TREES.
- CONTRACTOR SHALL NOT ALLOW SOIL TO ENTER EXISTING STORM DRAINS OR BE TRACKED ONTO EXISTING ROADWAYS.
- TEMPORARY HANDLING OF EXCESSIVE STORMWATER SHALL BE IN ACCORDANCE WITH DETAIL 1.4 ON THIS SHEET.
- AT ALL CONSTRUCTION ACCESS POINTS, CONTRACTOR SHALL INSTALL A STABILIZED CONSTRUCTION ENTRANCE AS REQUIRED.

TOPSOIL AND SEEDING NOTES:

- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF GROUND, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- TOPSOIL APPLICATION
 - WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
 - GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.
 - TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
- TEMPORARY SEEDING SCHEDULE

SEED MIXTURE (FOR HARDINESS ZONE 6b)				FERTILIZER RATE (10-20-20)	LIME RATE
SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
BARLEY OR RYE PLUS FOXTAIL MILLET	150	3/1-10/15	1-INCH	600 tons/ac (15 lb/1000 sf)	2 tons/ac (100 lb/1000 sf)
- PERMANENT SEEDING SCHEDULE

SEED MIXTURE (FOR HARDINESS ZONE 6b)				FERTILIZER RATE (10-20-20)			LIME RATE	
No.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
7	TALL FESCUE (85%)	110	3/1-8/14	1-INCH				
7	WEeping LOVEGRASS (2%) PLUS	3	3/1-8/14	1/4-1/2 INCHES	90 lb/ac (2.0 lb/1000 sf)	175 lb/ac (4.0 lb/1000 sf)	175 lb/ac (4.0 lb/1000 sf)	2 tons/ac (100 lb/1000 sf)
7	SERECIA LESPEDEZA (15%)	20	3/1-8/14	1-INCH				

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

Construction Specification

- Length - minimum of 50' (#30' for single residence lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2' to 3') or reclaimed or recycled concrete equivalent shall be placed at least 6' deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6' of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6' minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1.4 - DIVERSION PIPE

NOTES:

- SEDIMENT-LADEN WATER FROM THE CONSTRUCTION AREA MUST BE PUMPED THROUGH A FILTER BAG AND RELEASED TOWARDS A STABLE, WELL VEGETATED AREA.
- THE DIVERSION PIPE SHOULD HAVE A MINIMUM CAPACITY SUFFICIENT TO CONVEY THE 2-YEAR FLOW FOR PROJECTS WITH A DURATION OF TWO WEEKS OR GREATER. FOR PROJECTS OF SHORTER DURATION, THE CAPACITY OF THE PIPE CAN BE REDUCED ACCORDINGLY.
- THE HEIGHT OF THE SANDBAG/STONE DIVERSION SHOULD BE A FUNCTION OF THE DURATION OF THE PROJECT IN THE STREAM REACH. FOR PROJECTS WITH A DURATION LESS THAN 2 WEEKS, THE HEIGHT OF THE DIVERSION SHOULD BE ONE HALF THE STREAMBANK HEIGHT, MEASURED FROM THE CHANNEL BED, PLUS 1-FOOT OR BANKFULL HEIGHT, WHICHEVER IS GREATER. FOR PROJECTS OF LONGER DURATION, THE TOP OF THE SANDBAG OR STONE DIVERSION SHOULD CORRESPOND TO BANKFULL HEIGHT. FOR DIVERSION STRUCTURES UTILIZING SANDBAGS, THE STREAM BED SHOULD BE HAND PREPARED PRIOR TO PLACEMENT OF THE BASE LAYER OF SANDBAGS IN ORDER TO ENSURE A WATER TIGHT FIT. ADDITIONALLY, IT MAY BE NECESSARY TO PREPARE THE BANK IN A SIMILAR FASHION.
- ALL EXCAVATED MATERIAL SHOULD BE DEPOSITED AND STABILIZED IN AN APPROVED AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE AUTHORIZED BY THE WMA.

TEMPORARY INSTREAM CONSTRUCTION MEASURES REVISION NOVEMBER 2000 PAGE 1.4 - 2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION:

- OBTAIN GRADING PERMIT AND OTHER NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. ALL EROSION AND SEDIMENT CONTROL SHALL CONFORM TO THE LATEST MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- STAKEOUT THE WATER MAIN ALIGNMENT - 2 WEEKS.
- INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS REQUIRED BY INSPECTOR. DURATION - 1 WEEK.
- BEGIN CONSTRUCTION. CONTRACTOR WILL OPEN ONLY THAT LENGTH OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE (1) DAY, SILT FENCE SHALL BE PLACED DOWN SLOPE OF THE TRENCH. ALL DITCHES, SWALES AND CONCENTRATED FLOW AREAS SHALL BE STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING AND PERMANENT SEED MIX OR WITH SOD. COMPLETE 48" WATER MAIN LINE CONSTRUCTION. DURATION - 60 DAYS.
- PROVIDE SEEDING AND PAVING AS APPLICABLE. PAVING TO BE PER CONSTRUCTION PLANS AND SPECIFICATIONS, COMPLETE SITE CLEANUP. DURATION - 60 DAYS.
- UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE AREAS DISTURBED BY THIS PROCESS WITH PERMANENT, TEMPORARY OR SPECIAL SEEDING IN ALL AREAS AS REQUIRED. DURATION - 30 DAYS.

EROSION CONTROL MATTING

NOTE: ACTUAL WIDTH TO BE DETERMINED BY CHANNEL CHARACTERISTICS

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-18-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

NOTE: ACTUAL WIDTH TO BE DETERMINED BY CHANNEL CHARACTERISTICS

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-18-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Jay G. ...* 2/9/05
 Chief, Bureau of Engineering: *Paul ...* 1/31/05
 Chief, Bureau of Utilities: *Ruth ...* 2-8-05
 Chief, Utility Design Division: *...* 1-28-05

O'BRIEN & GERE ENGINEERS, INC.
8201 Corporate Drive Suite 1000 Landover, Maryland 20785 (301) 731-5822 FAX: (301) 577-4737

DATE: 08/30/04

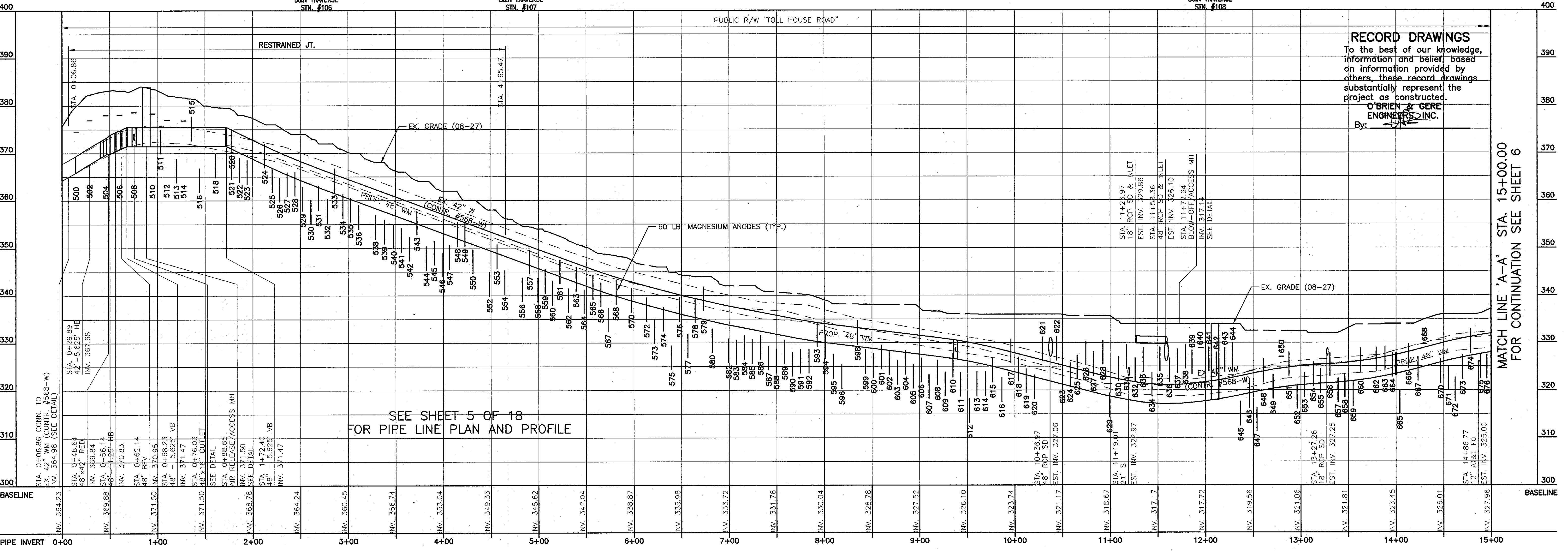
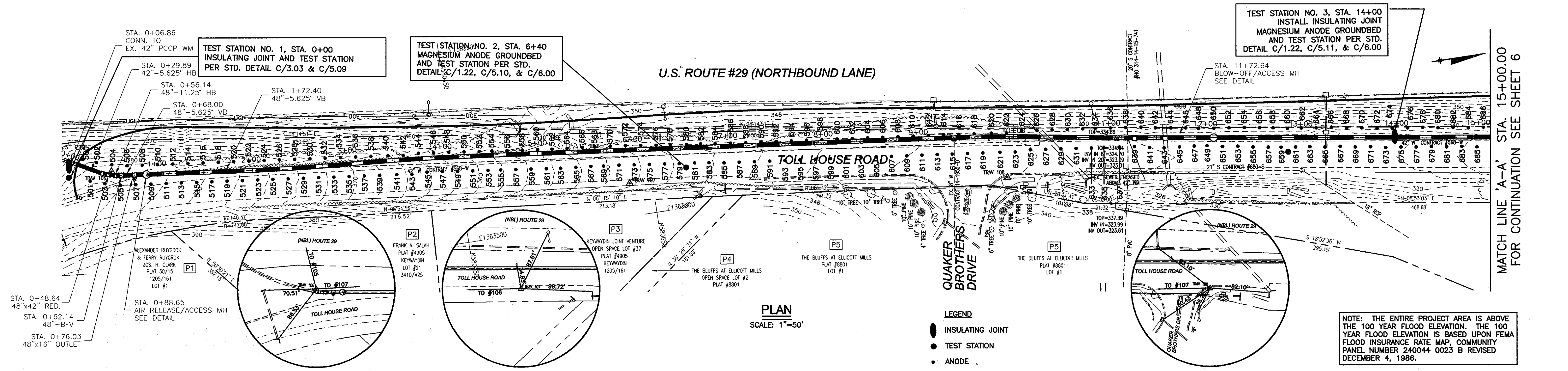
DSN. BY: GDR
DRN. BY: ALH
CHK. BY: RJD
DATE: 08/30/04

REVISION: 1/05, 12/04

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

TOLL HOUSE ROAD WATER MAIN REPLACEMENT - PHASE I
CAPITAL PROJECT: W-8243
CONTRACT NO.: 44-4227
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN SHEET 12 OF 18



RECORD DRAWINGS
 To the best of our knowledge, information and belief based on information provided by others, these record drawings substantially represent the project as constructed.
 O'BRIEN & GERE ENGINEERS, INC.
 By: [Signature]



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 3/1/07
 Chief - Bureau of Engineering: [Signature] 2/26/07
 Chief, Bureau of Utilities: [Signature] 2-27-07
 Chief, Utility Design Division: [Signature] 2-26-07

O'BRIEN & GERE ENGINEERS, INC.
 8401 Corporate Drive
 Suite 400
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737

DSN. BY:	GDR	YLM	2	AS-BUILT REVISIONS	02/07
DRN. BY:	ALH				
CHK. BY:	RJD				
DATE:	08/30/04	BY	NO.	REVISION	DATE

48"Ø WATER MAIN CATHODIC PROTECTION SYSTEM
 STA. 0+00.0 TO STA. 15+00.0

600' SCALE MAP NO. W&S 24_30_BLOCK NO.

TOLL HOUSE ROAD WATER MAIN REPLACEMENT
 CAPITAL PROJECT: W-8243
 CONTRACT NO.: 44-4227
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

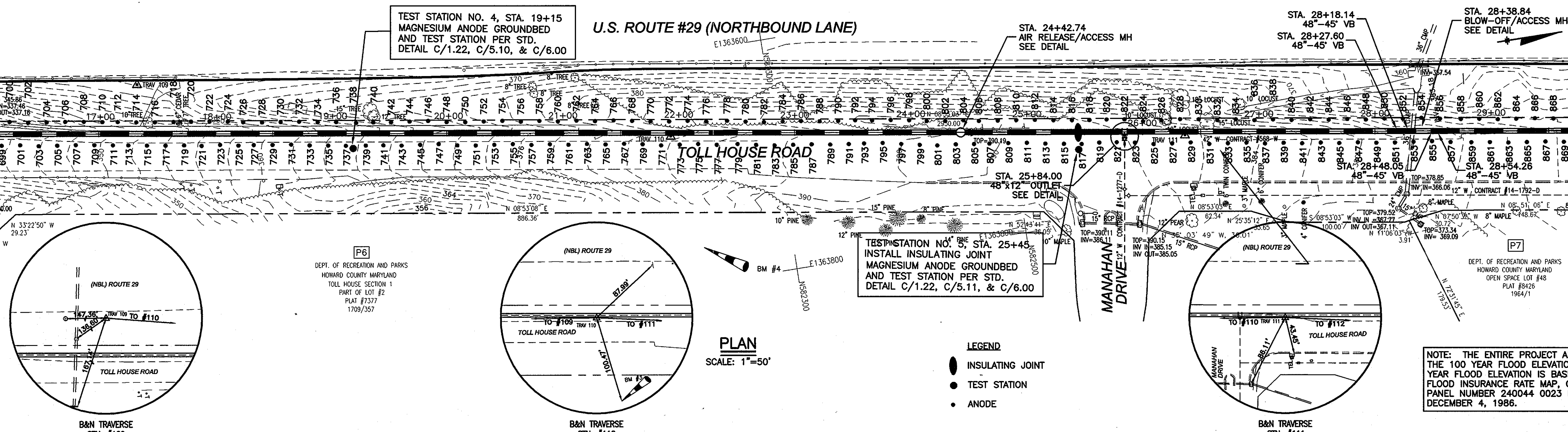
SCALE AS SHOWN
 SHEET 16 OF 18
 FILE NO. 32122-005

MATCH LINE 'A-A' STA. 15+00.00 FOR CONTINUATION SEE SHEET 6

MATCH LINE 'A-A' STA. 15+00.00 FOR CONTINUATION SEE SHEET 6

MATCH LINE 'A-A' STA. 15+00.00 FOR CONTINUATION SEE SHEET 5

MATCH LINE 'B-B' STA. 30+00.00 FOR CONTINUATION SEE SHEET 7



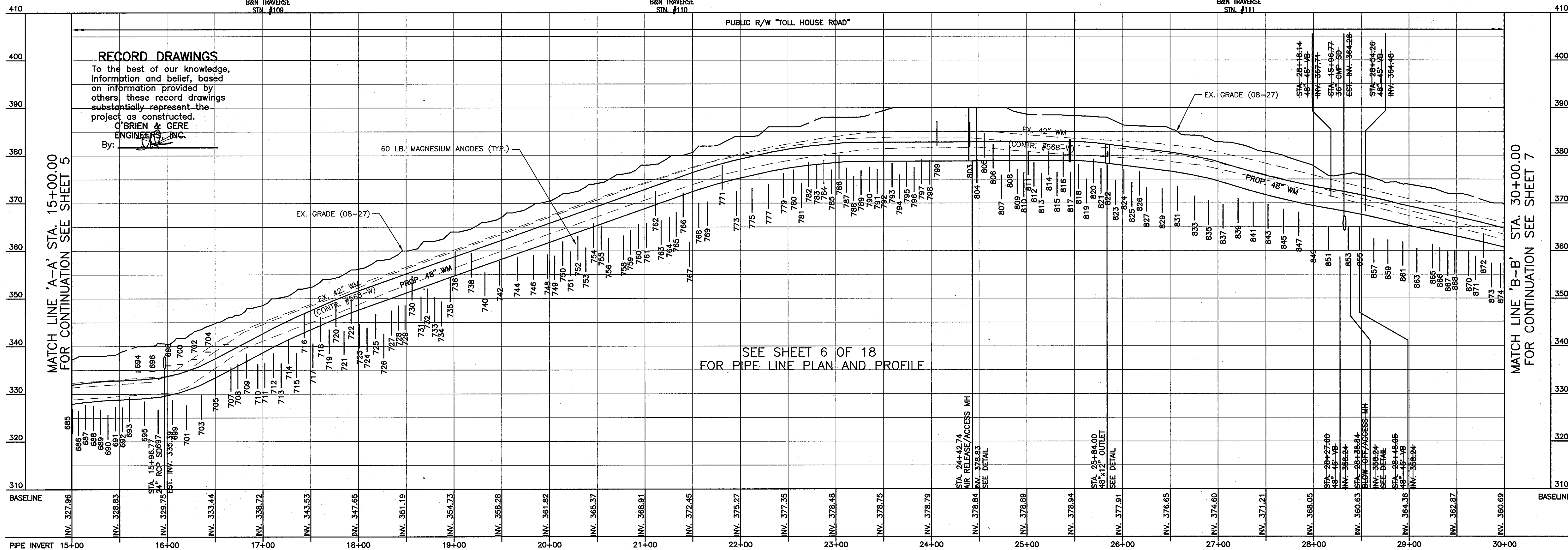
NOTE: THE ENTIRE PROJECT AREA IS ABOVE THE 100 YEAR FLOOD ELEVATION. THE 100 YEAR FLOOD ELEVATION IS BASED UPON FEMA FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 240044 0023 B REVISED DECEMBER 4, 1986.

RECORD DRAWINGS

To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.
 O'BRIEN & GERE ENGINEERS, INC.
 By: *[Signature]*

MATCH LINE 'A-A' STA. 15+00.00 FOR CONTINUATION SEE SHEET 5

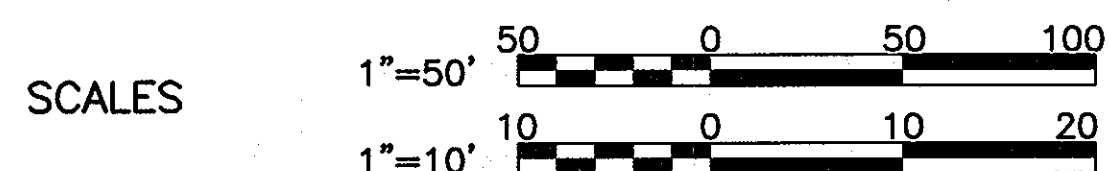
MATCH LINE 'B-B' STA. 30+00.00 FOR CONTINUATION SEE SHEET 7



SEE SHEET 6 OF 18 FOR PIPE LINE PLAN AND PROFILE

PROFILE

HORIZ. SCALE: 1"=50'
 VERT. SCALE: 1"=10'



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AS-BUILT REPLACEMENT SHEET 02/07

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 3/16/07
 DIRECTOR OF PUBLIC WORKS DATE
[Signature] 2/26/07
 CHIEF - BUREAU OF UTILITIES DATE
[Signature] 2-27-07
 CHIEF, BUREAU OF UTILITIES DATE
[Signature] 2-26-07
 CHIEF/UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
 ENGINEERS, INC.
 8401 Corporate Drive
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 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737

DSN. BY: GDR	YLM	2	AS-BUILT REVISIONS	02/07
DRN. BY: ALH				
CHK. BY: RJD				
DATE: 08/30/04	BY	NO.	REVISION	DATE

48"Ø WATER MAIN
 CATHODIC PROTECTION SYSTEM
 STA. 15+00.0 TO STA. 30+00.0
 600' SCALE MAP NO. W&S 24, 30 BLOCK NO.

TOLL HOUSE ROAD
 WATER MAIN REPLACEMENT
 CAPITAL PROJECT: W-8243
 CONTRACT NO.: 44-4227
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 17 OF 18
 FILE NO. 32122-006

MATCH LINE 'B-B' STA. 30+00.00 FOR CONTINUATION SEE SHEET 6

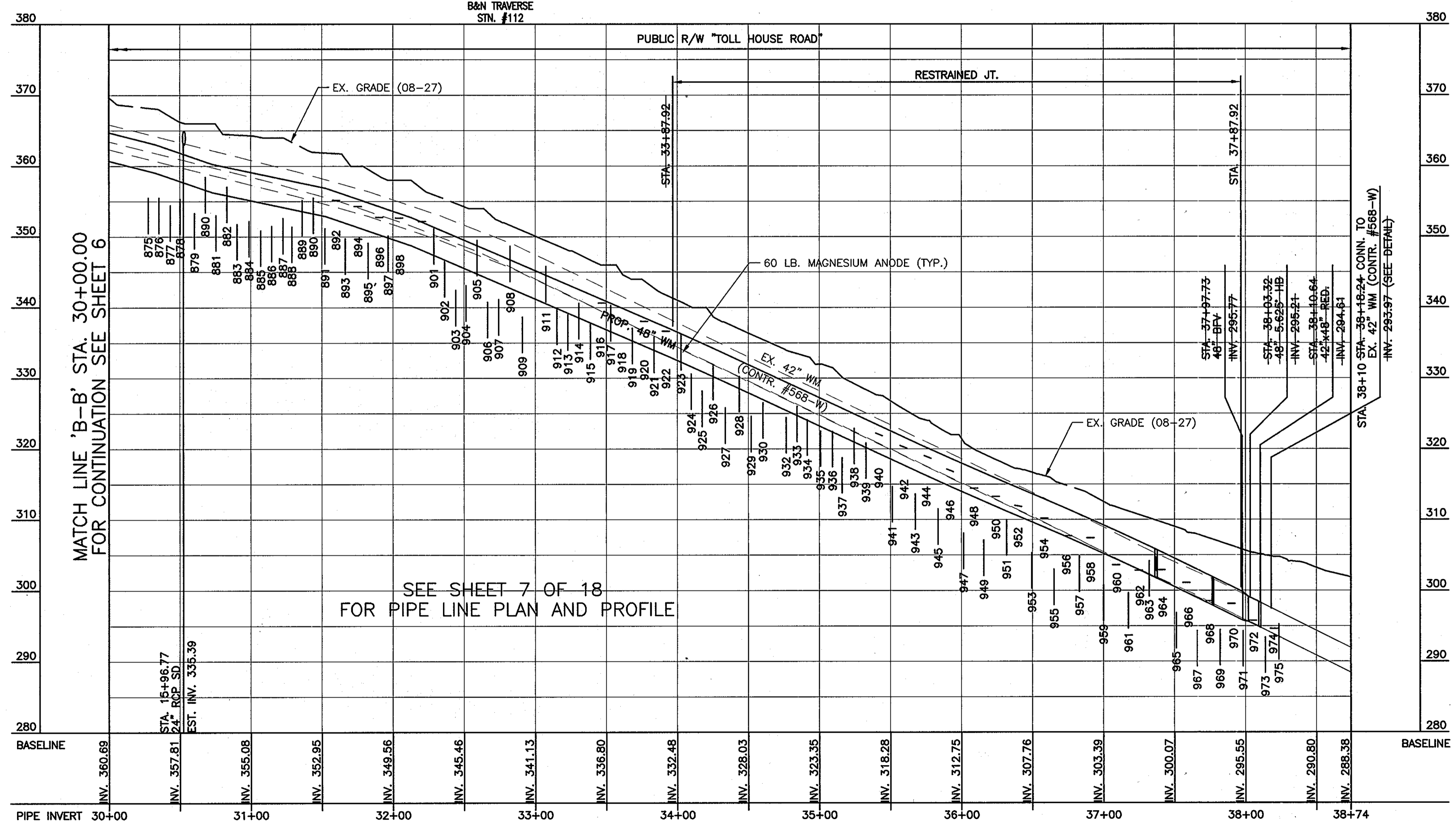
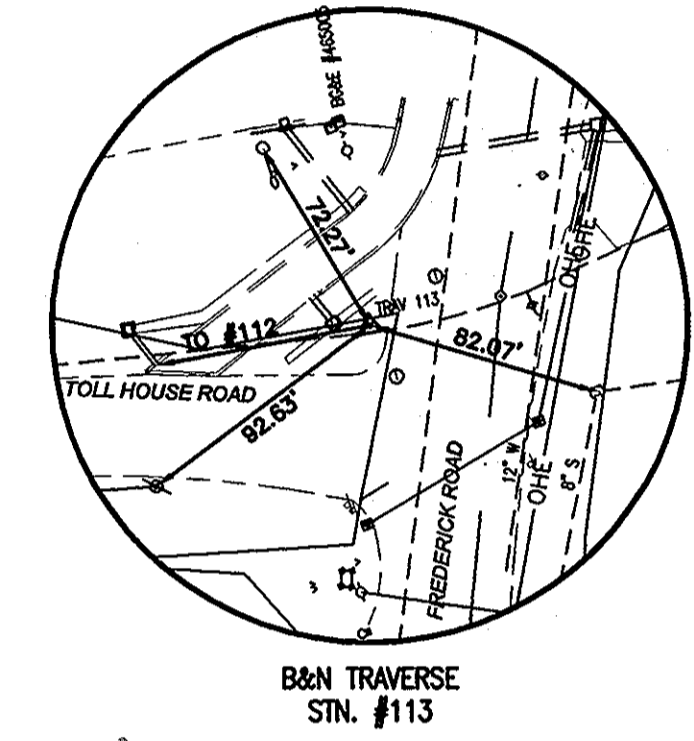
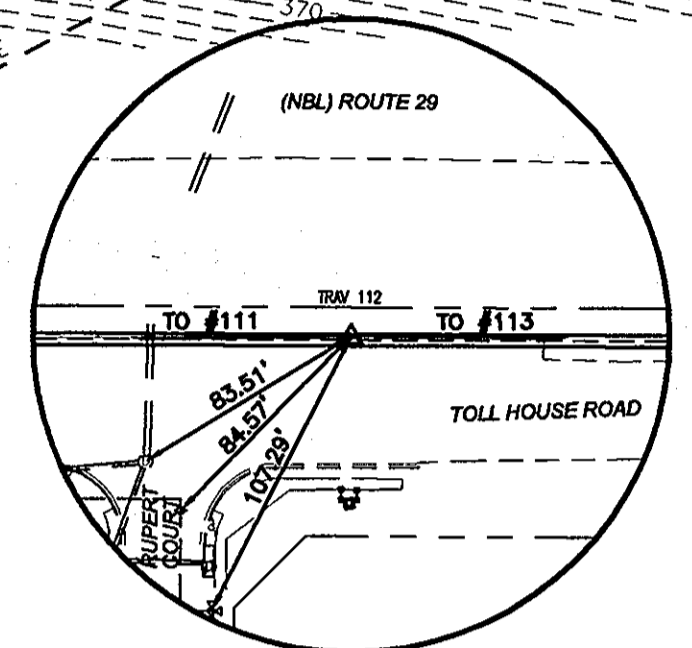
MATCH LINE 'B-B' STA. 30+00.00 FOR CONTINUATION SEE SHEET 6

U.S. ROUTE #29 (NORTHBOUND LANE)

TEST STATION NO. 6, STA. 31+90. MAGNESIUM ANODE GROUND BED AND TEST STATION PER STD. DETAIL C/1.22, C/5.10, & C/6.00

TEST STATION NO. 7, STA. 38+10 INSULATING JOINT AND TEST STATION PER STD. DETAIL C/3.03 & C/5.09

NOTE: THE ENTIRE PROJECT AREA IS ABOVE THE 100 YEAR FLOOD ELEVATION. THE 100 YEAR FLOOD ELEVATION IS BASED UPON FEMA FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 240044 0023 B REVISED DECEMBER 4, 1986.



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PROFILE HORIZ. SCALE: 1"=50' VERT. SCALE: 1"=10'

- LEGEND
● INSULATING JOINT
● TEST STATION
● ANODE

RECORD DRAWINGS To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed. O'BRIEN & GERE ENGINEERS, INC. By: [Signature]

AS-BUILT REPLACEMENT SHEET 02/07

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND. Includes signatures and dates for Director of Public Works (3/6/07) and Chief, Utility Design Division (2-26-07).

O'BRIEN & GERE ENGINEERS, INC. 8401 Corporate Drive Suite 400 Landover, Maryland 20785 (301) 731-5622 FAX: (301) 577-4737

Table with columns: DSN. BY: GDR, DRN. BY: ALH, CHK. BY: RJD, DATE: 08/30/04, YLM 2, AS-BUILT REVISIONS, 02/07, BY NO., REVISION, DATE.

48"Ø WATER MAIN CATHODIC PROTECTION SYSTEM STA. 30+00.0 TO STA. 38+10.0

TOLL HOUSE ROAD WATER MAIN REPLACEMENT CAPITAL PROJECT: W-8243 CONTRACT NO.: 44-4227 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN SHEET 18 OF 18