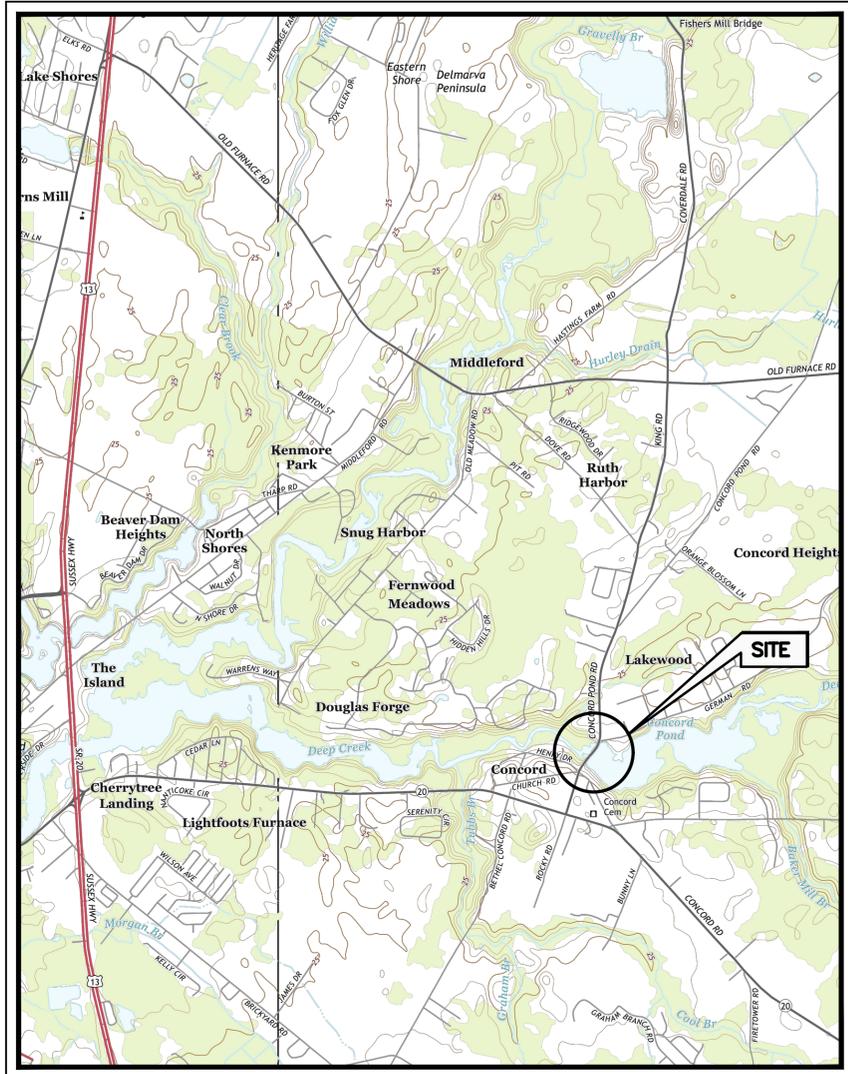


I:\DE-DOINREC\12804\61925\FLOOD-HAZ-INGM\DOCS\2-CONCORD_POND\DWG\SHEETS\49818-CO-6000-FD.DWG. 02/02/2017 5:05PM



ADAPTED FROM: SEAFORD EAST, DE U.S.G.S. 7.5 MIN. QUAD DATED 2014

SITE LOCATION MAP
SCALE: 1"=2,000'

CONTRACT DRAWINGS

IMPROVEMENTS TO DELAWARE DAMS

IMPROVEMENTS TO CONCORD POND DAM

CONTRACT NO.: NAT17001-DAMCONST

STATE OF DELAWARE, DNREC
DIVISION OF WATERSHED STEWARDSHIP
DOVER, DELAWARE

FEBRUARY 2017



O'BRIEN & GERE

O'BRIEN & GERE ENGINEERS, INC.



Robert R. Bowers
ROBERT R. BOWERS, P.E.
DE. P.E. NO. 14412

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GENERAL ABBREVIATIONS

| | | | | | | | |
|---|---|---|---|--|--|--|---|
| "A" | | "D" | | "J" | | "R" | |
| & AB AC ACF ACI ADD'L ADJ. AFF AFG AISC ALT. ALUM. ANSI AOBE APPD. APPROX. ASCE ASPH. ASTM AUTO AUX. AVG. AWS AWWA | AND AT ANCHOR BOLTS ABBREVIATION ACRE ACTUAL CUBIC FEET PER MINUTE AMERICAN CONCRETE INSTITUTE ADDITIONAL ADJUSTABLE ABOVE FINISHED FLOOR ABOVE FINAL GRADE AMERICAN INSTITUTE OF STEEL CONSTRUCTION ALTERNATE ALUMINUM AMERICAN NATIONAL STANDARDS INSTITUTE AS ORDERED BY ENGINEER APPROVED APPROXIMATE AMERICAN SOCIETY OF CIVIL ENGINEERS ASPHALT AMERICAN SOCIETY FOR TESTING AND MATERIALS AUTOMATIC AUXILIARY AVERAGE AMERICAN WELDING SOCIETY AMERICAN WATER WORKS ASSOCIATION | DISCH. DIV. DN. DP DPCO DPDT DPST D/S DWG. DWL. | DISCHARGE DIVISION DOWN DIFFERENTIAL PRESSURE DECK PLATE CLEAN OUT DOUBLE POLE DOUBLE THROW DOUBLE POLE SINGLE THROW DOWN STREAM DIAPHRAGM VALVE DRAWING DOWEL | JST. JT. | JOIST JOINT | R RCP RD RECT. RED. REM. REF. REINF. REQ'D. REV. RM. RO ROW RR RT RX | RADIUS or RISER REINFORCED CONCRETE PIPE ROAD RECTANGLE or RECTANGULAR REDUCE or REDUCER REMOVABLE REFERENCE REINFORCE REQUIRED REVISED or REVISION ROOM ROUGH OPENING RIGHT-OF-WAY RAILROAD RIGHT REMOVE EXISTING |
| "B" | | "E" | | "K" | | "S" | |
| B/ BAV B/E BF BFF BFG BFP BFV BITM. BLDG. BLK. BM. BOC BOCA BOF BOP BOT. BOW BRG. BRK. BS BSMT. BV BW | BOTTOM OF BALL VALVE BOTTOM ELEVATION BLIND FLANGE BELOW FINISHED FLOOR BELOW FINISHED GRADE BACK FLOW PREVENTER BACK FLOW (PREVENTER) VALVE BITUMINOUS BUILDING BLOCK BEAM or BENCHMARK BOTTOM OF CURB or BACK OF CURB BUILDING OFFICIAL'S & CODE ADMINISTRATION BOTTOM OF FOOTING BOTTOM OF PIPE BOTTOM BOTTOM OF WALL BEARING BRICK BOTH SIDES BASEMENT BUTTERFLY VALVE BUTT WELD | E. EA. ECV EF EJ EL ELEC. ELEV. ELL. EMBED. EMER. EMH ENGR. ENT. EO EOP EOS EQ. EQUIP. EQUIV. ETR EW EX.or EXIST. EXC. EXP EXP. STR. | EAST EACH ELECTRIC CHECK VALVE EACH FACE EXPANSION JOINT ELEVATION ELECTRIC or ELECTRICAL ELEVATION ELBOW EMBEDMENT EMERGENCY ELECTRIC MANHOLE ENGINEER ENTRANCE ELECTRIC OPERATOR EDGE OF PAVEMENT EDGE OF SHOULDER EQUAL EQUIPMENT EQUIVALENT EXISTING TO REMAIN EACH WAY EXISTING EXCAVATION EXPANSION or EXPOSED EXPOSED STRUCTURE | K. KCMIL KFT K-FT KGV KSF | KIPS (1K = 1000 POUNDS) THOUSAND CIRCULAR MILS KIP FOOT KIPS PER FOOT KNIFE GATE VALVE KIPS PER SQUARE FOOT | S SAN. S/C SCFM SCH. SD SE SEC. SECT. SEW. SF SHT. SICPP | SIGN or SOUTH SANITARY SITE/CIVIL STANDARD CUBIC FEET PER MINUTE SCHEDULE STORM DRAIN SOUTH EAST SECOND or SECONDARY SECTION SEWER SILT FENCE or SQUARE FOOT SHEET SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE SLIDE GATE SIMILAR STORM INLET SEDIMENT TRAP STEEL JOIST STORM MANHOLE SOLVENT WELDED SPECIFICATION SQUARE SANITARY SEWER or STAINLESS STEEL SUB-SOIL DRAIN STORM or STREET STATION STANDARD STIFFENER STEEL STRUCTURAL STORM SEWER SLUICE GATE SUSPEND or SUSPENDED SOUTH WEST or SIDEWALK STORM WATER MANAGEMENT SYMMETRICAL or SYMMETRICALLY |
| "C" | | "F" | | "M" | | "T" | |
| CANTIL. CB C/C CEM. CEM MORT CF CFM CFS CHAN. CI CISP CJ CL. CLR. CMH CMP CMU CO COL. COMBO. COMP. CONC. CONN. CONST. CONST. JT. CONT. CONT'D. CONTR. CONTR. JT. COORD. CORR. CORRUG. CPC CRS. CS CSES. CSP CTR. Cu. CU. CV CX CY | CANTILEVER CATCH BASIN CENTER TO CENTER CEMENT CEMENT MORTAR CUBIC FEET CUBIC FEET PER MINUTE CUBIC FEET PER SECOND CHANNEL CAST IRON CAST IRON SOIL PIPE CONTROL JOINT CENTERLINE CLEAR COMMUNICATION MANHOLE CORRUGATED METAL PIPE CONCRETE MASONRY UNIT CLEAN OUT COLUMN COMBINATION COMPARTMENT CONCRETE CONNECTION CONSTRUCTION CONSTRUCTION JOINT CONTINUE or CONTINUOUS CONTINUED CONTRACT or CONTRACTOR CONTRACTION JOINT COORDINATE CORRIDOR CORRUGATED CHLORINATED POLYVINYL CHLORIDE COURSE CARBON STEEL or CASCADE STEPS COURSES CORRUGATED STEEL PIPE CENTER COPPER CUBIC CHECK VALVE CONNECT TO EXISTING CUBIC YARD | F/ FD FDN. F1E FEE FF F/F FFE FG FH FIG. FILL FIN. FL FLG. FLV FM FOC FPM FPS FR. FRC FS FT FTG. FUT. FV F/W | FACE OF FLOOR DRAIN FOUNDATION FLANGE ONE END FLANGED EACH END FINISH FLOOR FACE TO FACE FINISH FLOOR ELEVATION FINISHED GRADE FIRE HYDRANT FIGURE FILL LINE FINISH FLOOR FLANGE FLAP VALVE FORCE MAIN FACE OF CONCRETE FEET PER MINUTE FEET PER SECOND FRAME FIBER REINFORCED CONCRETE FAR SIDE FEET or FOOT FOOTING FUTURE FIELD VERIFY FACE OF WALL | M. MAN. MAS. MATL. MAX. MD MECH. MEZZ. MFD. MFG. MFR. MGD MH MIN. MISC. MO MOD. MON. MOV MTD. MTL. MV MW | MAIN CONTRACTOR MANUAL MASONRY MATERIAL MAXIMUM METAL DECK MECHANICAL MEZZANINE MANUFACTURED MANUFACTURING MANUFACTURER MILLION GALLONS PER DAY MANHOLE MINIMUM MISCELLANEOUS MASONRY OPENING MODIFICATION MONUMENT MOTOR OPERATED VALVE MOUNTED METAL MUD VALVE MONITORING WELL | T. T/ T&B TBR T/EL T&G TGL THK. THRD. TMH TOB TOC TOF TOL. TOP TOS TOT. TOW TYP. | TANGENT or TOP TOP OF TOP AND BOTTOM TO BE REMOVED TOP ELEVATION TONGUE AND GROOVE THEORETICAL GRADE LINE THICK THREADED TELEPHONE MANHOLE TOP OF BLOCK TOP OF CURB TOP OF FOOTING TOLERANCE TOP OF PIPE or TOP OF PLANK TOP OF SLAB or TOP OF STEEL TOTAL TOP OF WALL TYPICAL |
| "G" | | "H" | | "N" | | "U" | |
| GAL. GALV. GB GEN GLV GOV. GPH GPM GR GRTG. GS GV GVL. GW. | GALLON(S) GALVANIZED GRADE BEAM GENERAL GLOBE VALVE GOVERNMENT GALLONS PER HOUR GALLONS PER MINUTE GRADE OR GUARD RAIL OR GUIDE RAIL GRATING GALVANIZED STEEL GATE VALVE GRAVEL GROUNDWATER | HDPE HDW. HGT. HORIZ. HP HPT HS HT. HV HYD. | HIGH DENSITY POLYETHYLENE HARDWARE HEIGHT HORIZONTAL HORSE POWER HIGH POINT HIGH STRENGTH HEIGHT HAND VALVE HYDRANT | N. N/A NAT. NC NE NF NIC NO or # NOM. NOR. NPT NRS NS NTS NW | NORTH or NORTHING NOT APPLICABLE NATURAL NORMALLY CLOSED NORTH EAST NEAR FACE NOT IN CONTRACT NORMALLY OPEN or NUMBER NOMINAL NORMAL NATIONAL PIPE THREAD NON-RISING STEM NEAR SIDE NOT TO SCALE NORTH WEST | UD UG. UGE U.N.O. U/S USGS | UNDER DRAIN UNDERGROUND UNDERGROUND ELECTRIC UNLESS NOTED OTHERWISE UNDERSIDE OR UP STREAM UNITED STATES GEOLOGICAL SURVEY |
| "I" | | "O" | | "P" | | "V" | |
| D DEG. DEMO. DEPT. DESCR. DET. DI DIA. or Ø DIAG. DIM. DIP | DRAIN DEGREE DEMOLISH or DEMOLITION DEPARTMENT DESCRIPTION DETAIL DUCTILE IRON DIAMETER DIAGONAL or DIAGRAM DIMENSION DUCTILE IRON PIPE | ID IF IN INCL IND. INFO. INSUL. IP IPF | IDENTIFICATION NUMBER or INSIDE DIAMETER INSIDE FACE INCH or INCHES or INVERT INCLUDED or INCLUDING INDUSTRIAL INFORMATION INSULATED or INSULATION IRON PIPE IRON PIN FOUND | OC OD OF OFALL. OFCI OFOI OH. OHE OPNG. OPP. OSHA OVFLOW. OZ. | ON CENTER OUTSIDE DIAMETER OUTSIDE FACE OUTFALL OWNER FURNISHED CONTRACTOR INSTALLED OWNER FURNISHED OWNER INSTALLED OVERHEAD OVERHEAD ELECTRIC OPENING OPPOSITE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION OVERFLOW OUNCE | VC VERT. VIF VOL. | VITRIFIED CLAY VERTICAL VERIFY IN FIELD VOLUME |
| "L" | | "Q" | | "W" | | "Y" | |
| L. LB. LBS. LDPE LF LG LONGIT. LP LPT LR LT. LW. LWIC | ANGLE POUND POUNDS LOW DENSITY POLYETHYLENE LINEAR FEET LENGTH or LONG LONGITUDINAL LIGHT POLE LOW POINT LONG RADIUS LEFT LIGHTWEIGHT LIGHT WEIGHT INSULATING CONCRETE | M. MAN. MAS. MATL. MAX. MD MECH. MEZZ. MFD. MFG. MFR. MGD MH MIN. MISC. MO MOD. MON. MOV MTD. MTL. MV MW | MAIN CONTRACTOR MANUAL MASONRY MATERIAL MAXIMUM METAL DECK MECHANICAL MEZZANINE MANUFACTURED MANUFACTURING MANUFACTURER MILLION GALLONS PER DAY MANHOLE MINIMUM MISCELLANEOUS MASONRY OPENING MODIFICATION MONUMENT MOTOR OPERATED VALVE MOUNTED METAL MUD VALVE MONITORING WELL | N. N/A NAT. NC NE NF NIC NO or # NOM. NOR. NPT NRS NS NTS NW | NORTH or NORTHING NOT APPLICABLE NATURAL NORMALLY CLOSED NORTH EAST NEAR FACE NOT IN CONTRACT NORMALLY OPEN or NUMBER NOMINAL NORMAL NATIONAL PIPE THREAD NON-RISING STEM NEAR SIDE NOT TO SCALE NORTH WEST | W W/ W/O WD. WF WG WLD WS WTF WWF | WATER or WEST WITH WITHOUT WOOD WIDE FLANGE WEIR GATE WELD OR WELDED WATERSTOP WATER TABLE or WEIGHT WELDED WIRE FABRIC |
| "P" | | "R" | | "X" | | "Z" | |
| PAR. PCP PE PERF. PF PI PIV PL PLV PLWD. PNT. POC PP PREFAB. PRI. PROP. PSF PSI PT PV PVC PVT | PARALLEL PRECAST CONCRETE PLANK POLYETHYLENE PERFORATED PARSHALL FLUME POINT OF INTERSECTION PINCH VALVE PROPERTY LINE PLUG VALVE PLYWOOD POINT POINT OF CONNECTION POLYPROPYLENE PREFABRICATED PRIMARY PROPOSED POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH PRESSURE TREATED PLUG VALVE POLYVINYL CHLORIDE PAVEMENT | R RCP RD RECT. RED. REM. REF. REINF. REQ'D. REV. RM. RO ROW RR RT RX | RADIUS or RISER REINFORCED CONCRETE PIPE ROAD RECTANGLE or RECTANGULAR REDUCE or REDUCER REMOVABLE REFERENCE REINFORCE REQUIRED REVISED or REVISION ROOM ROUGH OPENING RIGHT-OF-WAY RAILROAD RIGHT REMOVE EXISTING | X XS Y YR. | EXTRA STRONG YARD YEAR | Z Z Z | |

INDEX OF DRAWINGS

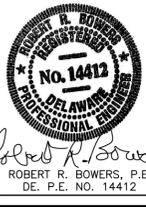
| SHT NO. | TITLE | REVISION |
|---------------------------|--|----------|
| 000 | TITLE SHEET | REV. B |
| GENERAL | | |
| G-1 | ABBREVIATIONS, DRAWING INDEX & METHODS OF SECTIONING | REV. B |
| G-2 | EXISTING CONDITIONS SITE PLAN | REV. B |
| G-3 | EXISTING CONDITIONS GATE PLANS | REV. B |
| G-4 | EXISTING STOP LOG REMOVAL & NEW GATE ARRANGEMENT | REV. B |
| G-5 | SPILLWAY IMPROVEMENTS PLAN | REV. B |
| G-6 | EROSION & SEDIMENTATION CONTROL PLAN AND NOTES | REV. B |
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| S-2 | NEW GATE INSTALLATION PLANS, SECTIONS & DETAILS | REV. B |
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| MECHANICAL | | |
| M-1 | NEW GATE AND TRASH RACK DETAILS | REV. B |
| REFERENCE DRAWINGS | | |
| REF-1 | BORING LOGS | - |

METHOD OF SECTIONING AND DETAILING

THE DRAWING UPON WHICH A SECTION, VIEW, OR DETAIL HAS BEEN TAKEN AND THE DRAWING UPON WHICH THE SECTION, VIEW, OR DETAIL HAS BEEN SHOWN IS CROSS-REFERENCED WITH SYMBOLS AS FOLLOWS.

| | |
|---|---|
| DRAWING WHERE SECTION IS TAKEN | DRAWING WHERE DETAIL IS TAKEN |
| <p>THE DESIGNATION IN THE UPPER HALF OF THE CIRCLE IS THE SECTION NUMBER. THE BOTTOM DESIGNATION REFERS TO THE DRAWING NUMBER ON WHICH THE SECTION CAN BE FOUND.</p> | <p>THE DESIGNATION IN THE UPPER HALF OF THE CIRCLE IS THE DETAIL LETTER. THE BOTTOM DESIGNATION REFERS TO THE DRAWING NUMBER ON WHICH THE DETAIL CAN BE FOUND.</p> |
| DRAWING WHERE SECTION IS SHOWN | DRAWING WHERE DETAIL IS SHOWN |
| <p>SECTION</p> <p>THIS IS SHOWN UNDER EACH SECTION. THE TOP DESIGNATION IS THE SECTION NUMBER. THE BOTTOM DESIGNATION REFERS TO THE DRAWING NUMBER WHERE THE SECTION HAS BEEN TAKEN.</p> | <p>DETAIL</p> <p>THIS IS SHOWN UNDER EACH DETAIL. THE TOP DESIGNATION IS THE DETAIL LETTER. THE BOTTOM DESIGNATION REFERS TO THE DRAWING NUMBER WHERE THE DETAIL HAS BEEN TAKEN.</p> |

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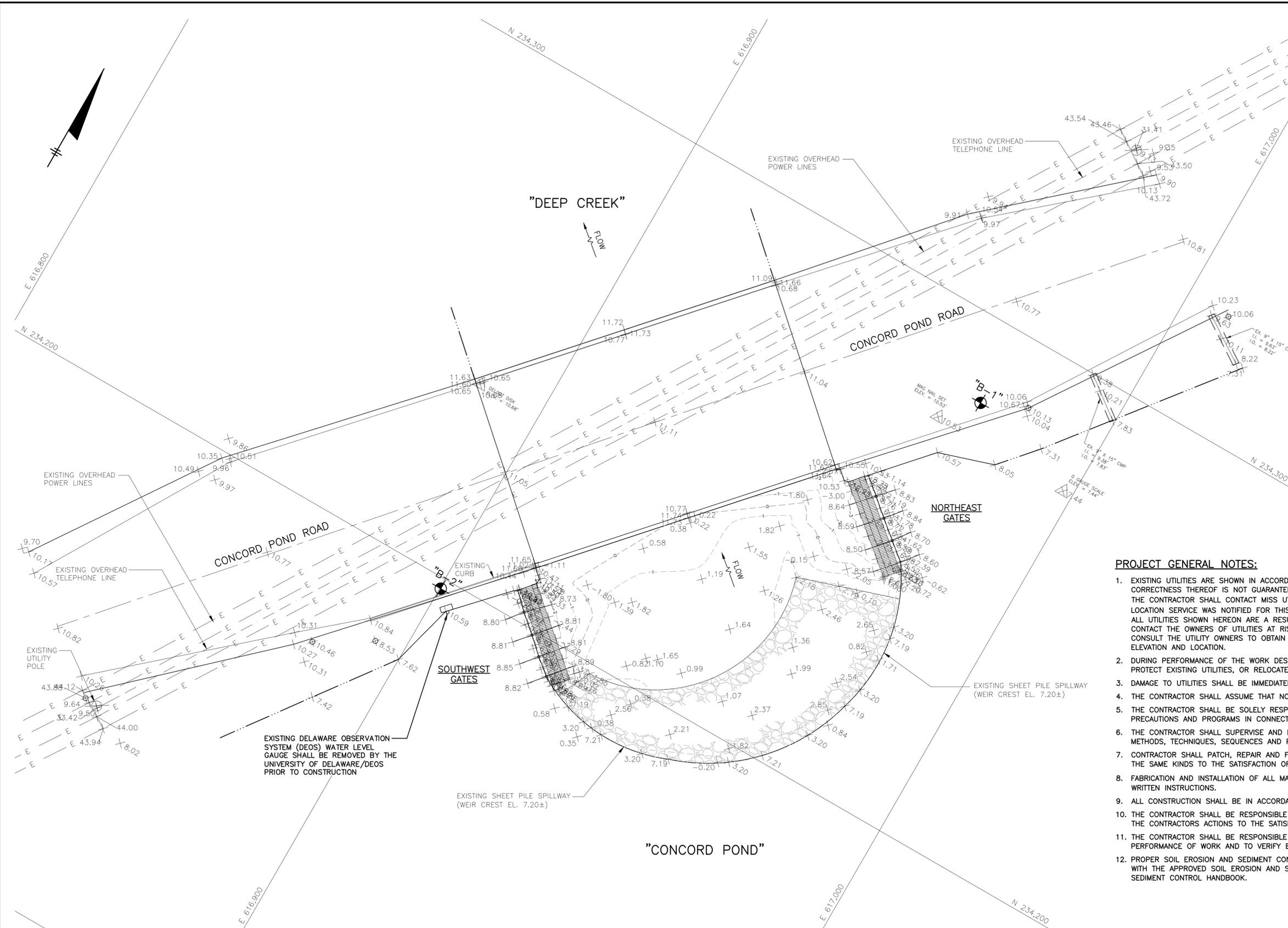
| | | | | | |
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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
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| | NO. | DATE | REVISION | INT. | |

O'BRIEN & GERE ENGINEERS, INC
EAST NORRITON, PA

STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

DNREC CONTRACT No.: NAT17001-DAMCONST

| | | |
|---|--|-----|
| GENERAL IMPROVEMENTS TO CONCORD POND DAM ABBREVIATIONS, DRAWING INDEX & METHOD OF SECTIONING | FILE NO. 12804.61925 -G01 DATE 02/02/2017 | G-1 |
|---|--|-----|



SURVEY NOTES -- CONCORD POND DAM:

- | | |
|----------------------|---|
| 1. ENGINEER/SURVEYOR | * AXIOM ENGINEERING, L.L.C. 18 CHESTNUT STREET GEORGETOWN, DE 19947 PHONE: (302) 855-0810 FAX: (302) 855-0812 |
| 2. OWNER OF RECORD | * STATE OF DELAWARE DEPT. OF NATURAL RESOURCES/DEL DOT 89 KINGS HIGHWAY DOVER, DE 19903 |
| 3. DEED REFERENCE | * BOOK 1983, PAGE 317 |
| 4. HORIZONTAL DATUM | * NAD83 DELAWARE STATE PLANE |
| 5. VERTICAL DATUM | * NAVD88 |
| 6. SURVEY DATES | * NOVEMBER 12, 2012 NOVEMBER 15, 2012 NOVEMBER 20, 2012 FEBRUARY 4, 2013 OCTOBER 23, 2015 |

LEGEND:

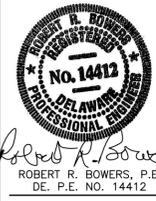
- 1 --- EX. ELEVATION CONTOUR
- E - EX. OVERHEAD UTILITY LINES
- - - - - EDGE OF WATER
- [Symbol] RIP RAP
- [Symbol] CONCRETE
- [Symbol] GRASS
- [Symbol] "B-1" EXISTING BORING (APPROX. LOCATION)
- [Symbol] EXISTING (DEOS) WATER LEVEL GAUGE

PROJECT GENERAL NOTES:

- EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. TO LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELMARVA (TELEPHONE 800-282-8555) (NO UNDERGROUND UTILITY LOCATION SERVICE WAS NOTIFIED FOR THIS SURVEY) NO LESS THAN 72 HOURS PRIOR TO INITIATING INTRUSIVE WORK. ALL UTILITIES SHOWN HEREON ARE A RESULT OF FIELD-LOCATED OBSERVABLE CASTINGS. THE CONTRACTOR SHALL CONTACT THE OWNERS OF UTILITIES AT RISK AS A RESULT OF CONDUCTING THE WORK HEREIN. THE CONTRACTOR SHALL CONSULT THE UTILITY OWNERS TO OBTAIN THE MOST ACCURATE INFORMATION AVAILABLE WITH REGARD TO UTILITY ELEVATION AND LOCATION.
- DURING PERFORMANCE OF THE WORK DESCRIBED HEREIN, THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, OR RELOCATE AS NECESSARY, AND MAINTAIN UNINTERRUPTED SERVICE.
- DAMAGE TO UTILITIES SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT THE CONTRACTORS SOLE EXPENSE.
- THE CONTRACTOR SHALL ASSUME THAT NO UTILITY SERVICE WILL BE PROVIDED ON-SITE TO SUPPORT THE PROJECT.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK. HE WILL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION.
- CONTRACTOR SHALL PATCH, REPAIR AND FINISH ALL DAMAGED SURFACES CAUSED BY THE WORK USING MATERIALS OF THE SAME KINDS TO THE SATISFACTION OF THE OWNER.
- FABRICATION AND INSTALLATION OF ALL MATERIALS, FINISHES, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL BUILDING CODES AND OSHA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF LANDSCAPE DAMAGED OR DESTROYED AS A RESULT OF THE CONTRACTORS ACTIONS TO THE SATISFACTION OF THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SURVEY CONTROL DURING THE PERFORMANCE OF WORK AND TO VERIFY EXISTING GRADES.
- PROPER SOIL EROSION AND SEDIMENT CONTROL TECHNIQUES SHALL BE IMPLEMENTED AS REQUIRED IN ACCORDANCE WITH THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN AND THE CURRENT DELAWARE SOIL EROSION AND SEDIMENT CONTROL HANDBOOK.

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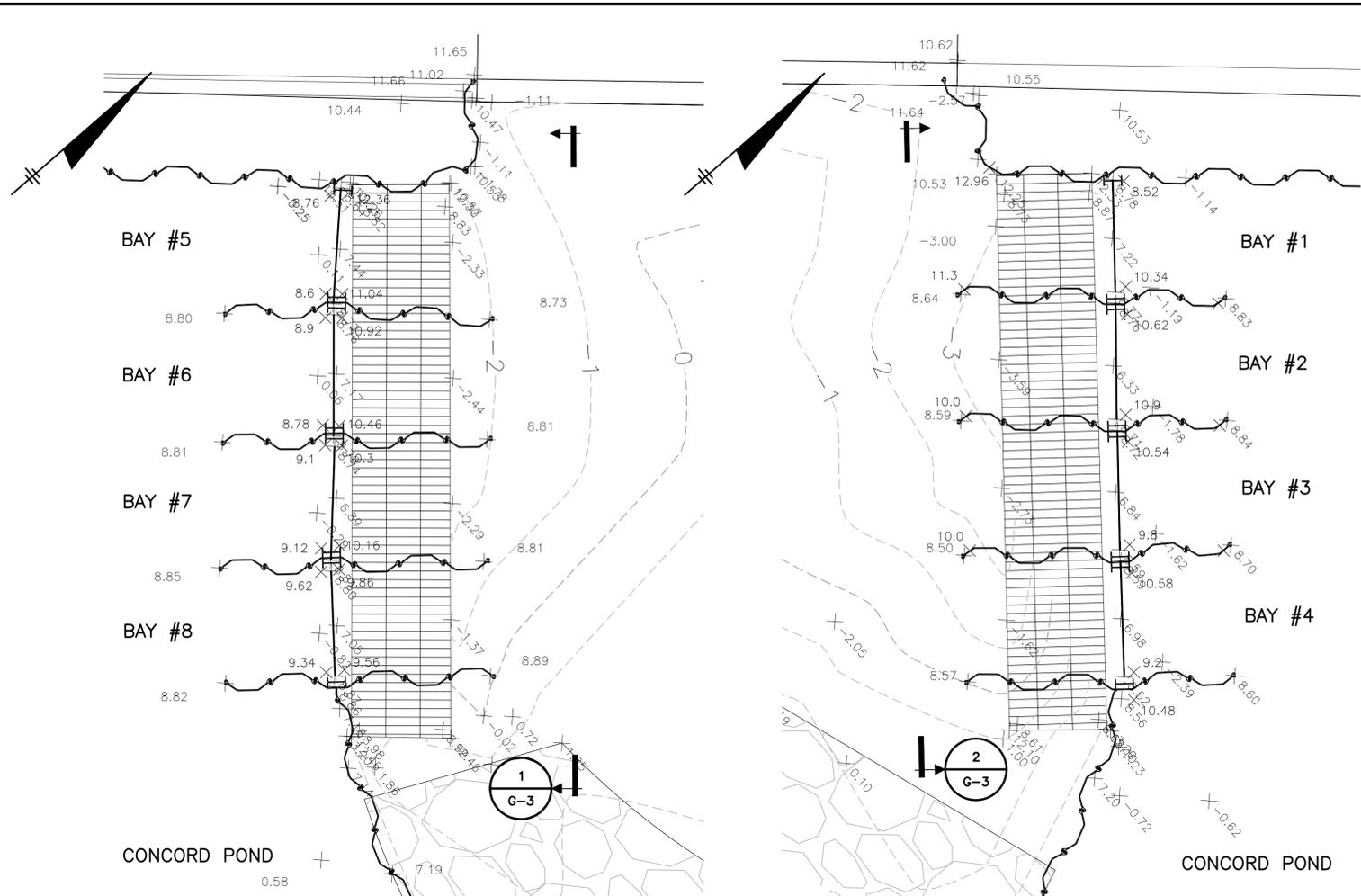


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| IN CHARGE OF | RRB | | | | |
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| DRAWN BY | MK | | | | |
| NO. | 02/02/2017 | ISSUED FOR BID | | RRB | |
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O'BRIEN & GERE ENGINEERS, INC
EAST NORRITON, PA

STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

| | |
|---------------------------------------|------------------|
| DNREC CONTRACT No.: NAT17001-DAMCONST | |
| GENERAL | FILE NO. |
| IMPROVEMENTS TO CONCORD POND DAM | 12804.61925 -G02 |
| EXISTING CONDITIONS SITE PLAN | DATE |
| | 02/02/2017 |
| | G-2 |

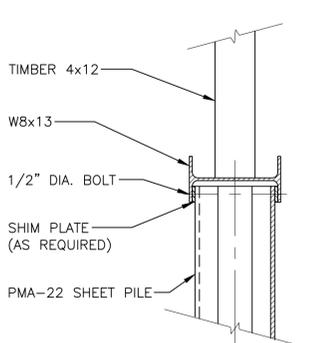


SOUTHWEST GATE PLAN
SCALE: 1"=3'-0"

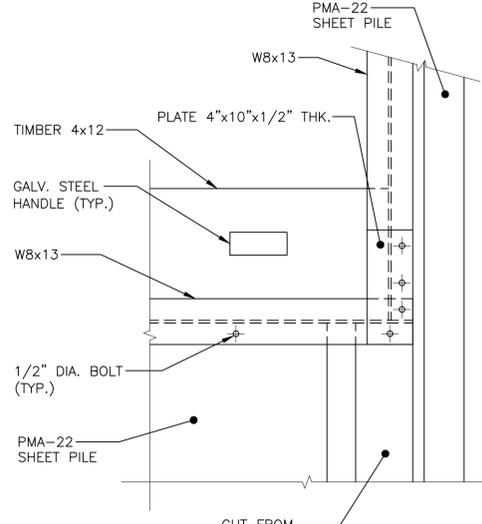
NORTHEAST GATE PLAN
SCALE: 1"=3'-0"

NOTES:

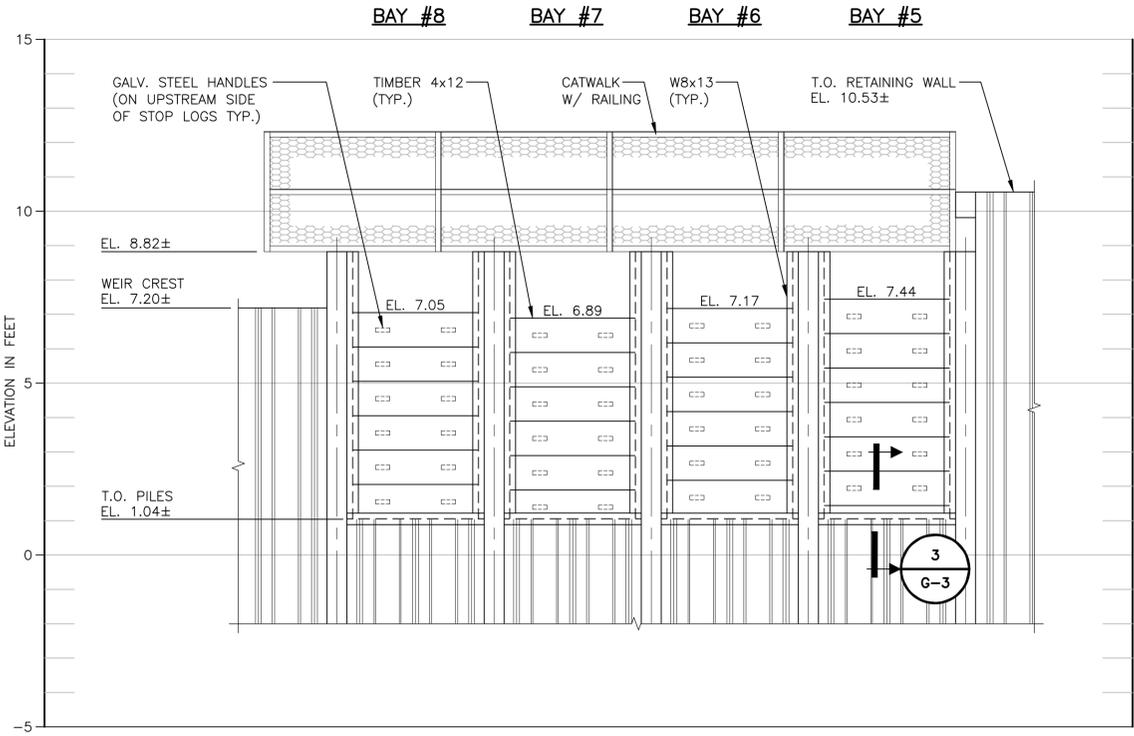
1. DETAILS AND SECTIONS OBTAINED FROM DRAWING TITLED "SPILLWAY PLAN, SECTIONS AND DETAILS" DATED 8/24/78, SHEET 4a OF 11, CONTRACT NO. 76-04-019, PROVIDED BY DELAWARE DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO STARTING WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ACTUAL FIELD CONDITIONS ARE DIFFERENT THAN SHOWN ON THE DRAWINGS.



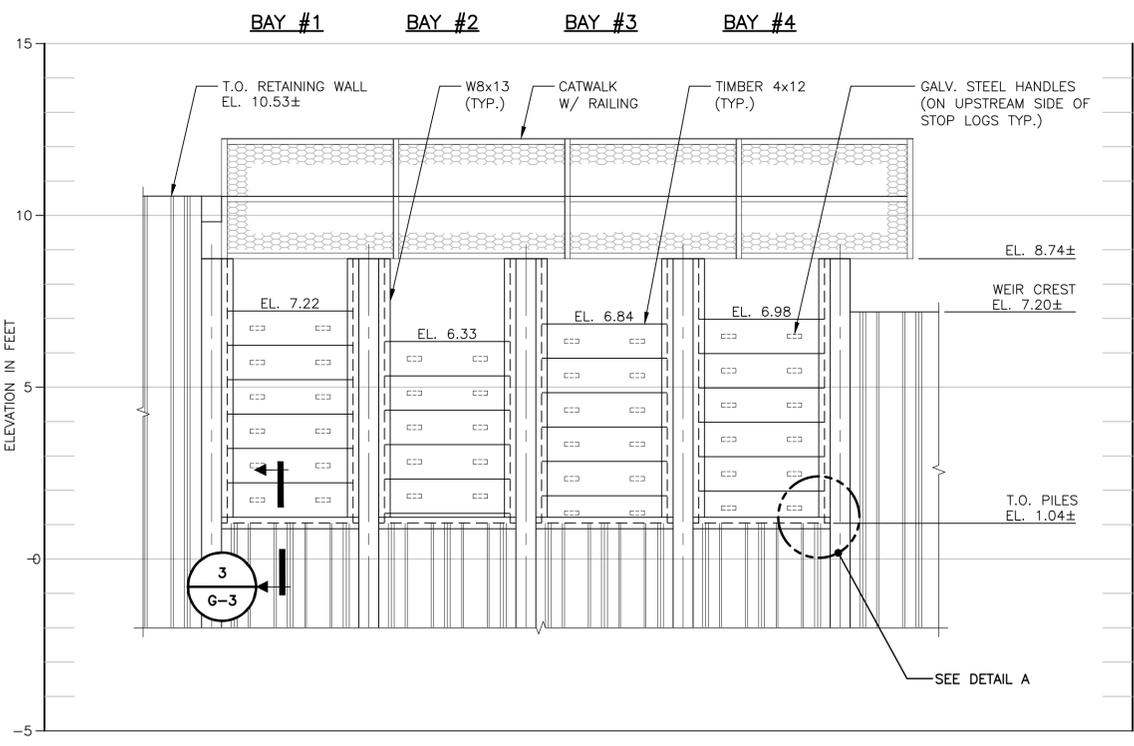
SECTION 3-G-3
SCALE: 1 1/2"=1'-0"



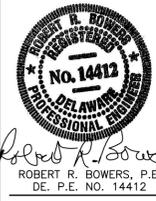
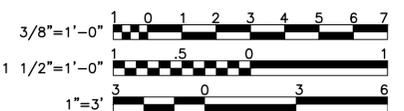
DETAIL A
SCALE: 1 1/2"=1'-0"



SECTION 1-G-3
SCALE: 3/8"=1'-0"



SECTION 2-G-3
SCALE: 3/8"=1'-0"



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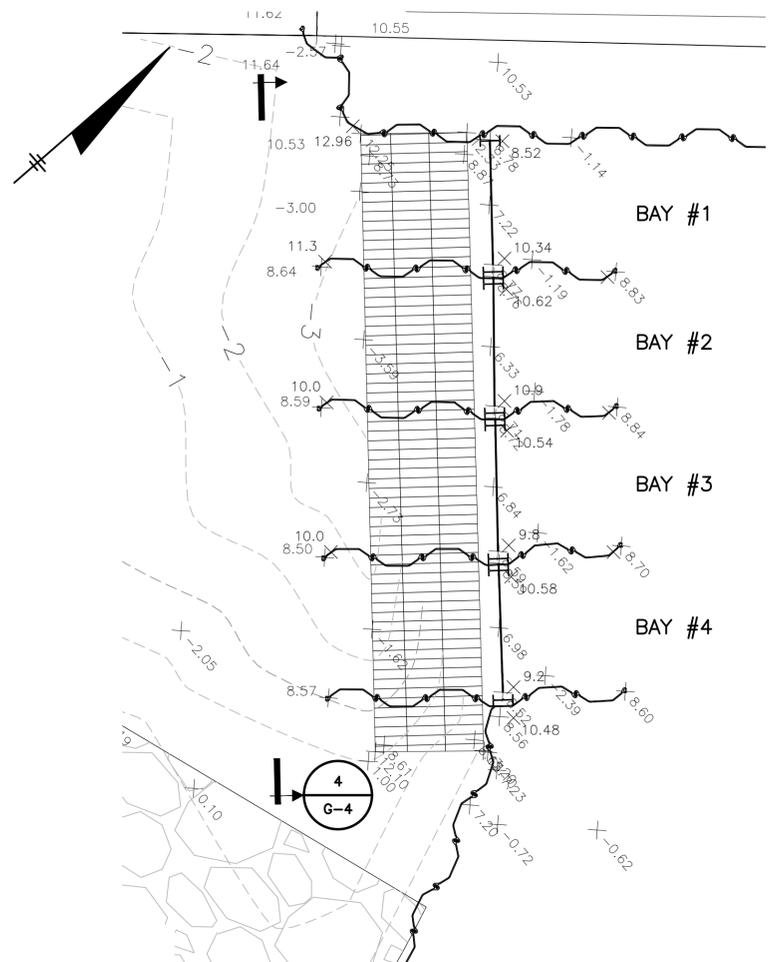
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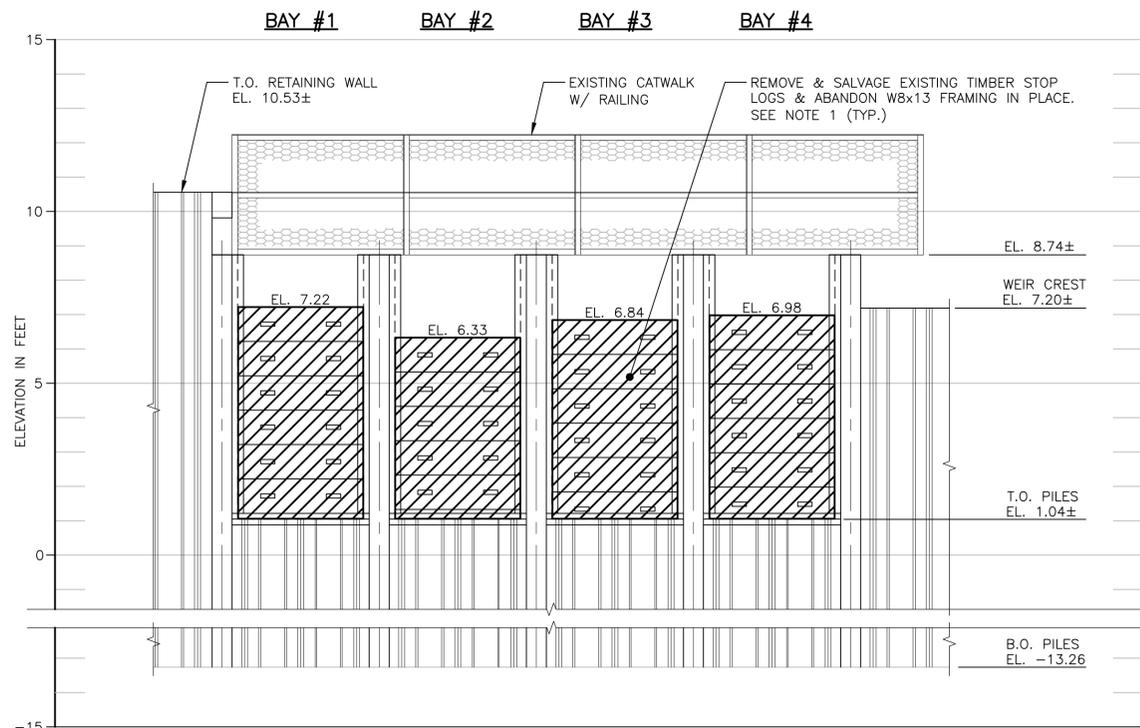
STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

| | | | |
|--|--|-------------------|-----|
| DNREC CONTRACT No.: NAT17001-DAMCONST | | FILE NO. | G-3 |
| GENERAL IMPROVEMENTS TO CONCORD POND DAM EXISTING CONDITIONS GATE PLANS | | 12804.61925 - G03 | |
| | | DATE | |
| | | 02/02/2017 | |



NORTHEAST GATE PLAN (SOUTHWEST GATE PLAN SIMILAR)

SCALE: 1"=3'-0"

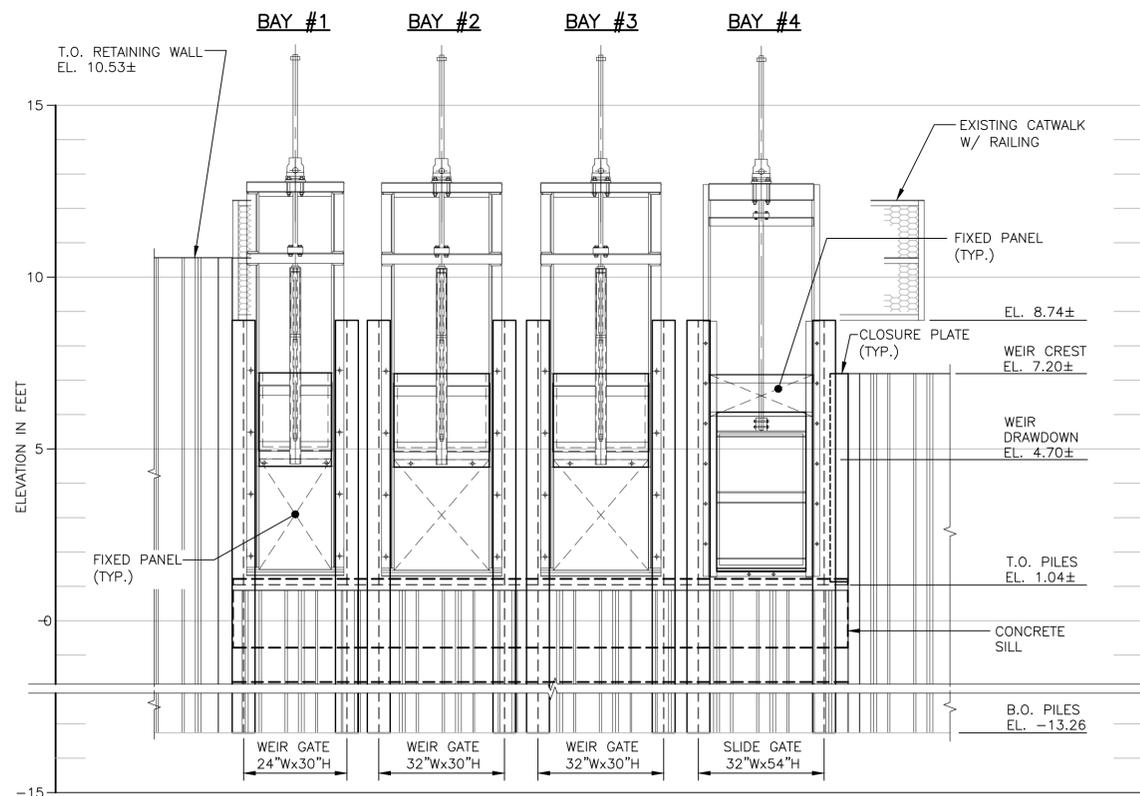


NOTES:

- EXISTING STOP LOG FRAMES (W8x13'S) TO BE ABANDONED IN PLACE. CONTRACTOR TO REMOVE EXISTING STOP LOGS, SALVAGE AND STORE AT DNREC OFFICES AT NANTICOKE WILD LIFE AREA, 4871 OLD SHARPTOWN RD., LAUREL, DE 19956.
- DETAILS SHOWN ON THIS PLAN ARE TYPICAL AND SIMILAR FOR SOUTHWEST GATE ARRANGEMENT EXCEPT FOR GATE SIZES IN SPECIFIC BAYS. SEE SHEET M-1 FOR NORTHEAST AND SOUTHWEST GATE DIMENSIONS, ARRANGEMENTS AND SIZES.
- SEE SHEET S-2 FOR GATE SILL AND GATE ATTACHMENT TO EXISTING STRUCTURE.

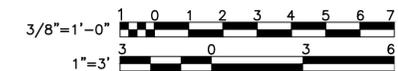
DEMO SECTION

SCALE: 3/8"=1'-0"



PROPOSED SECTION

SCALE: 3/8"=1'-0"



REFERENCE:

DETAILS AND SECTIONS OBTAINED FROM DRAWING TITLED "SPILLWAY PLAN, SECTIONS AND DETAILS" DATED 8/24/78, SHEET 4a OF 11, CONTRACT NO. 76-04-019, PROVIDED BY DELAWARE DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS.

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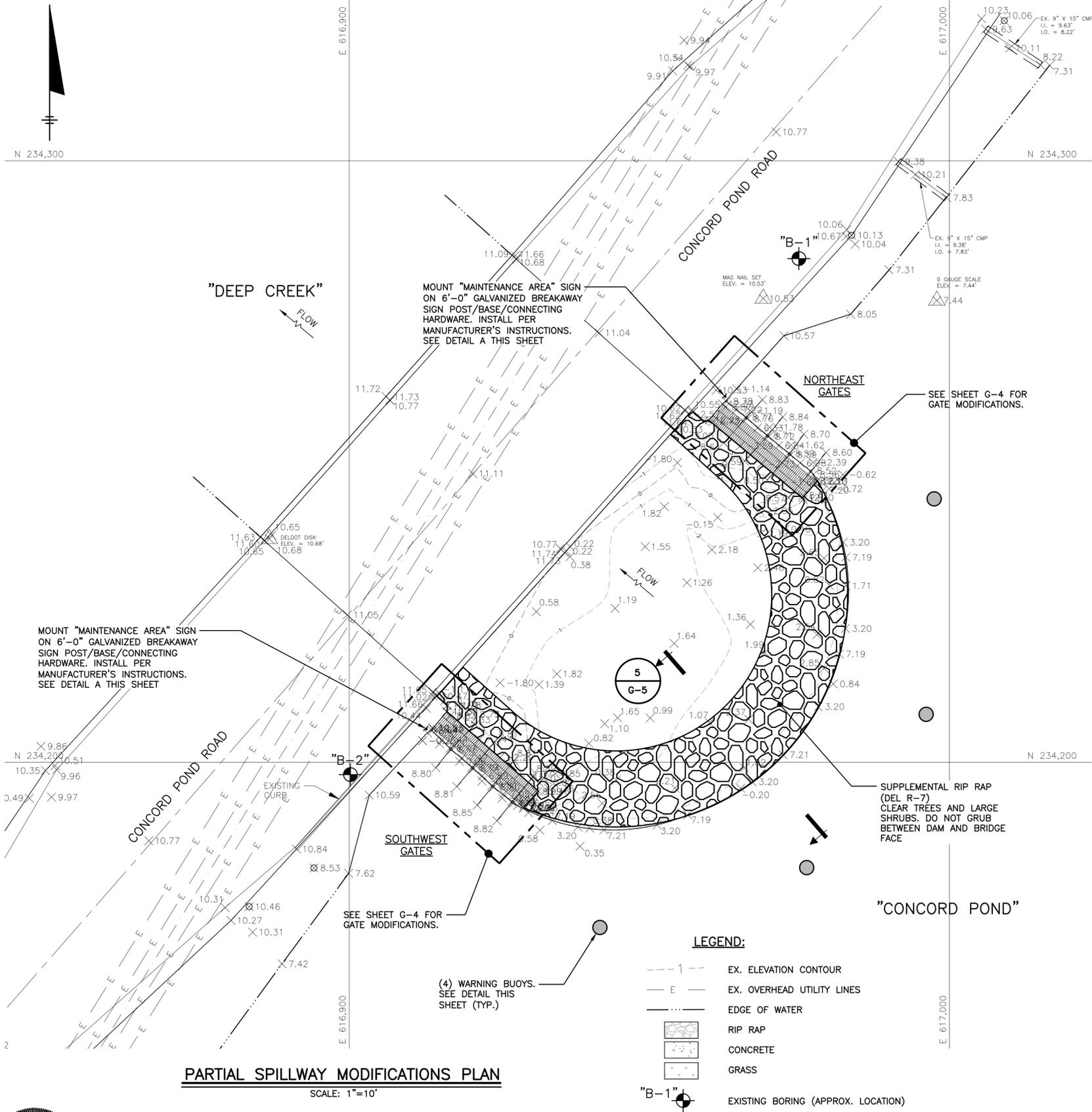
ROBERT R. BOWERS, P.E.
DE. P.E. NO. 14412

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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
| | | 0 | 02/02/2017 | ISSUED FOR BID | RRB |
| | | NO. | DATE | REVISION | INT. |



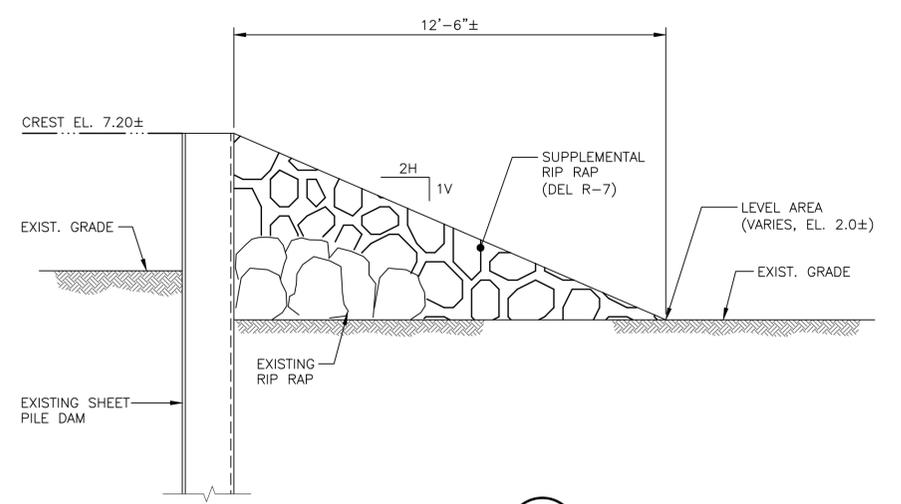
STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

| | | |
|---------------------------------------|-------------------|-----|
| DNREC CONTRACT No.: NAT17001-DAMCONST | | G-4 |
| GENERAL | FILE NO. | |
| IMPROVEMENTS TO CONCORD POND DAM | 12804.61925 - G04 | |
| EXISTING STOP LOG REMOVAL | DATE | |
| & NEW GATE ARRANGEMENT | 02/02/2017 | |

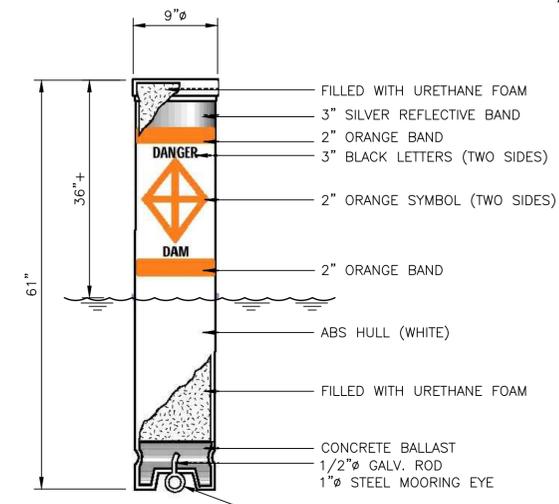


PARTIAL SPILLWAY MODIFICATIONS PLAN
SCALE: 1"=10'

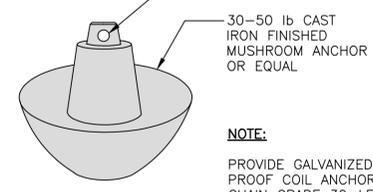
- LEGEND:**
- 1 --- EX. ELEVATION CONTOUR
 - E - EX. OVERHEAD UTILITY LINES
 - EDGE OF WATER
 - [RIP RAP SYMBOL] RIP RAP
 - [CONCRETE SYMBOL] CONCRETE
 - [GRASS SYMBOL] GRASS
 - "B-1" EXISTING BORING (APPROX. LOCATION)



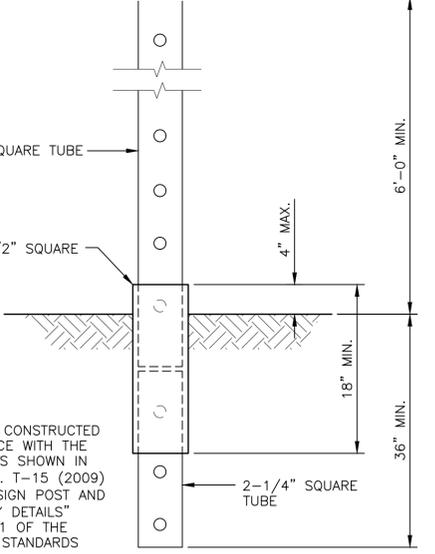
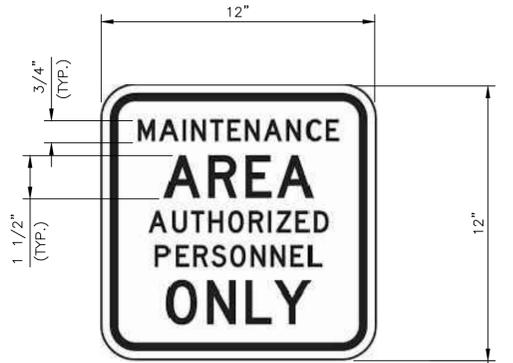
SECTION 5
SCALE: 3/8"=1'-0"



WARNING BUOY DETAIL
NOT TO SCALE



BUOY ANCHOR DETAIL
NOT TO SCALE

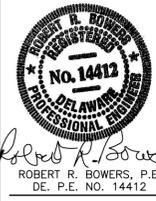


MAINTENANCE AREA SIGN

DETAIL A
NOT TO SCALE

NOTE:
PROVIDE GALVANIZED PROOF COIL ANCHOR CHAIN GRADE 30-LENGTH AS REQUIRED FOR DEPTH AT BUOY LOCATIONS

NOTE:
SIGNS TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN IN STANDARD NO. T-15 (2009) "BREAKAWAY SIGN POST AND PIN ASSEMBLY DETAILS" SHEET 1 OF 1 OF THE DELDOT 2011 STANDARDS



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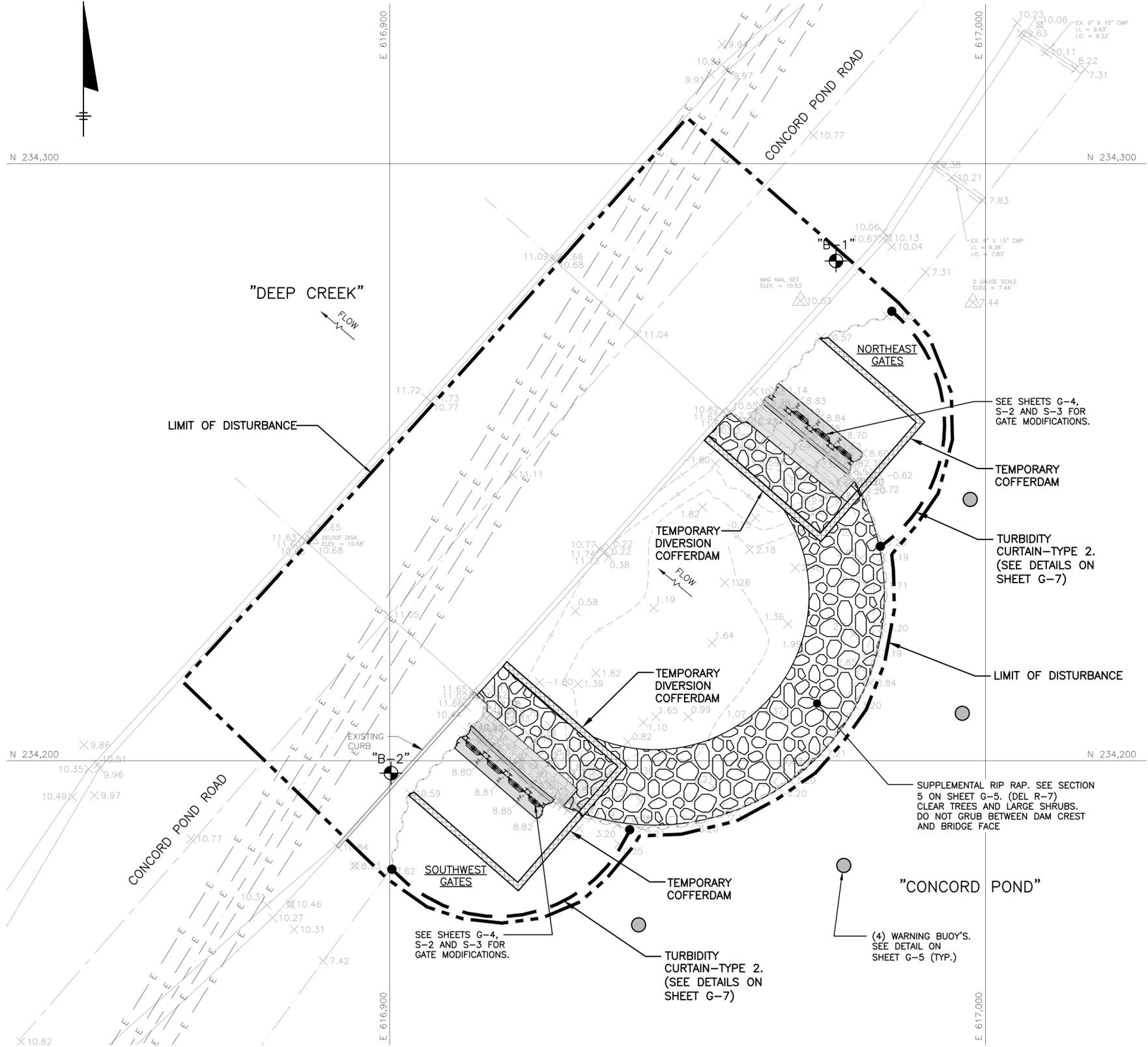
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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
| | 0 | 02/02/2017 | ISSUED FOR BID | RRB | |
| | NO. | DATE | REVISION | INT. | |



STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

DNREC CONTRACT No.: NAT17001-DAMCONST

| | | |
|---|------------------------------|-----|
| GENERAL IMPROVEMENTS TO CONCORD POND DAM SPILLWAY IMPROVEMENTS PLAN | FILE NO. 12804.61925 -G05 | G-5 |
| | DATE 02/02/2017 | |



PARTIAL SPILLWAY MODIFICATIONS PLAN

SCALE: 1"=10'

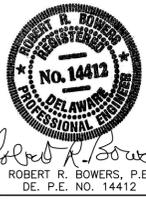
SEQUENCE OF CONSTRUCTION

THE FOLLOWING IS A GENERAL SEQUENCE OF CONSTRUCTION INTENDED AS A GENERAL OUTLINE OF EARTH DISTURBANCE ACTIVITIES AND INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR MAY ADJUST THE TIMING AND SEQUENCE OF CERTAIN ACTIVITIES AS NECESSARY, PROVIDED THAT THE INTENDED EROSION CONTROL MEASURES ARE IN PLACE AND FUNCTIONAL PRIOR TO EARTH DISTURBANCE ACTIVITIES OCCURRING.

1. DELINEATE APPROVED LIMITS OF DISTURBANCE WITH SURVEY STAKES AND FLAGS OR ORANGE CONSTRUCTION FENCING. CONTRACTOR SHALL NOT PERFORM ANY EARTH DISTURBANCE ACTIVITIES OUTSIDE OF THE APPROVED LIMITS OF DISTURBANCE.
2. INSTALL TEMPORARY TRAFFIC CONTROL MEASURES TO CLOSE CONCORD ROAD AS INDICATED ON THE APPROVED DETOUR PLAN. CONTRACTOR MAY STAGE EQUIPMENT AND MATERIALS FROM THE EXISTING PAVED AREAS OF CONCORD ROAD ONCE DETOUR IS IN PLACE. SINCE CONTRACTOR'S EQUIPMENT WILL BE OPERATING FROM EXISTING PAVEMENT, NO STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT THIS SITE.
3. INSTALL TURBIDITY BARRIERS IN CONCORD POND AROUND PROJECT AREA.
4. INSTALL TEMPORARY COFFERDAMS UPSTREAM OF THE EXISTING SHEET PILE SPILLWAY FOR DEWATERING AND DOWNSTREAM DIVERSIONS TO DIVERT FLOW OVER THE SPILLWAY AROUND THE PROJECT SITE.
5. REMOVE EXISTING STOP LOGS AND EXCAVATE AS NECESSARY TO PREPARE FOUNDATIONS FOR NEW GATE STRUCTURES.
6. INSTALL PILE FOUNDATIONS AND CONCRETE SLABS FOR GATES.
7. INSTALL STEEL FRAMING AND NEW GATES ACCORDING TO APPROVED PLANS AND DETAILS.
8. ONCE GATES HAVE BEEN TESTED FOR WATERTIGHTNESS AND PROPER FUNCTION, REMOVE TEMPORARY UPSTREAM COFFERDAMS, DOWNSTREAM DIVERSIONS AND TURBIDITY BARRIERS.
9. REMOVE TREES AND LARGE SHRUBS DOWNSTREAM OF THE SHEET PILE SPILLWAY. DO NOT GRUB OR REMOVE ROOT BALLS DURING THIS OPERATION. PLACE ADDITIONAL RIPRAP ACCORDING TO THE APPROVED PLANS AND DETAILS. THIS WORK MAY BE PERFORMED IN THE WET.
10. INSTALL DAM WARNING BUOYS AND PERFORM ANY ADDITIONAL REPAIRS TO FENCING OR LANDSCAPED AREAS AS NEEDED.
11. SWEEP PAVEMENT OF CONCORD ROAD AND PERFORM ANY PAVEMENT REPAIRS NECESSARY.
12. ONCE ALL AREAS HAVE BEEN STABILIZED AND CLEANED, REMOVE ANY REMAINING SOIL EROSION AND SEDIMENT CONTROL BMP'S AND TRAFFIC CONTROL MEASURES TO REOPEN CONCORD ROAD TO TRAFFIC.

LEGEND:

- 1 --- EX. ELEVATION CONTOUR
- E - EX. OVERHEAD UTILITY LINES
- EDGE OF WATER
- [RIP RAP SYMBOL] RIP RAP
- [CONCRETE SYMBOL] CONCRETE
- [GRASS SYMBOL] GRASS
- "B-1" [BORING SYMBOL] EXISTING BORING (APPROX. LOCATION)
- LIMIT OF DISTURBANCE
- TURBIDITY BARRIER
- [COFFERDAM SYMBOL] TEMPORARY COFFERDAM



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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
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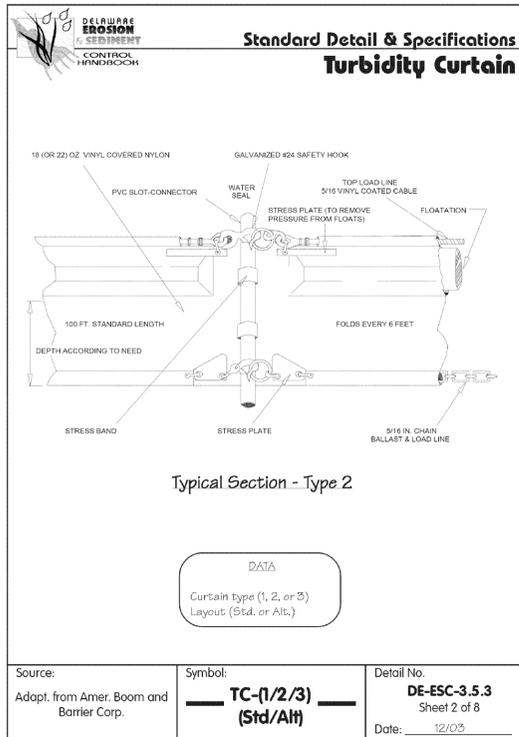
STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE



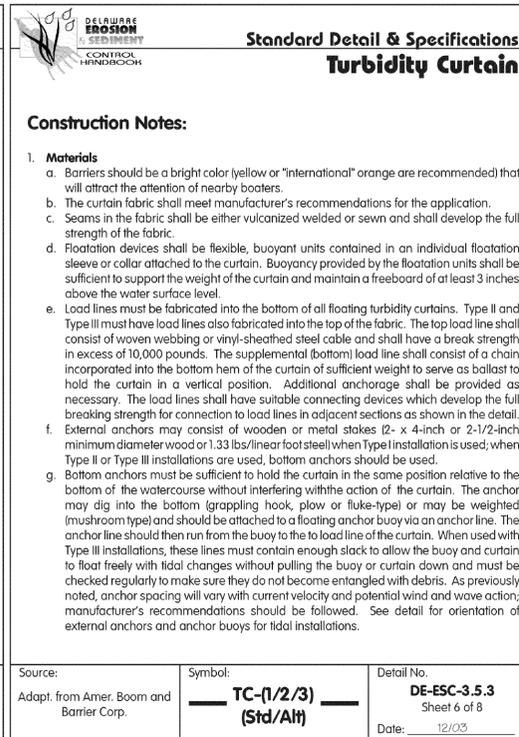
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|---------------------------------------|-------------------|
| DNREC CONTRACT No.: NAT17001-DAMCONST | |
| GENERAL | FILE NO. |
| IMPROVEMENTS TO CONCORD POND DAM | 12804.61925 - G06 |
| EROSION & SEDIMENTATION CONTROL | DATE |
| PLAN & NOTES | 02/02/2017 |
| | G-6 |

EROSION AND SEDIMENT CONTROL NOTES

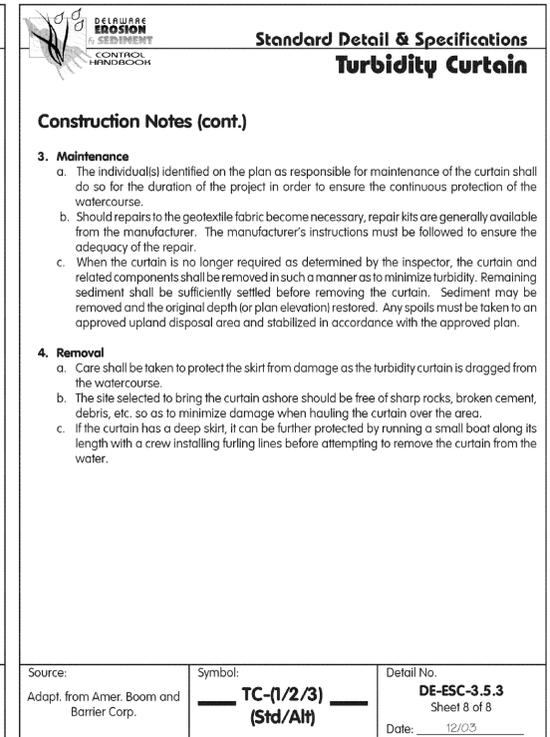
- 1. ALL SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK.
2. DNREC HAS OBTAINED ALL NECESSARY ENVIRONMENTAL PERMITS. CONSTRUCTION SHALL BEGIN AFTER THE RECEIPT OF ALL NECESSARY FEDERAL, STATE, COUNTY AND LOCAL PERMITS. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL PERMITS HAVE BEEN OBTAINED AND THAT COPIES ARE AVAILABLE ON THE PROJECT SITE. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY PRE-CONSTRUCTION NOTIFICATIONS REQUIRED AS GENERAL OR SPECIAL CONDITIONS OF ANY PERMIT.
3. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE CONTRACTOR SHALL INVITE ANY AND ALL SUBCONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNERS, THE EROSION AND SEDIMENTATION CONTROL PLAN PREPARER AND THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL (DNREC) SEDIMENT AND STORMWATER PROGRAM TO A PRE-CONSTRUCTION MEETING ON THE PROJECT SITE.
4. ANY CONCERNS BY THE CONTRACTOR REGARDING THE PROPOSED EROSION AND SEDIMENT CONTROL PLANS AND/OR DETAILS MUST BE SUBMITTED AT THE PRE-CONSTRUCTION MEETING. ANY DEVIATION FROM THE APPROVED EROSION AND SEDIMENT CONTROL PLANS REQUIRES WRITTEN APPROVAL BY DNREC.
5. IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROLS MAY BE REQUIRED AS DEEMED NECESSARY BY DNREC.
6. AT LEAST THREE (3) WORKING DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY MISS-UTILITY OF DELMARVA (TELEPHONE 811) 800-282-8555 OR 800-441-8355 FOR BURIED UTILITY LOCATIONS.
7. REVIEW AND/OR APPROVAL OF THE EROSION AND SEDIMENT CONTROL PLAN(S) SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH THE REQUIREMENTS OF THE SEDIMENT AND STORMWATER REGULATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM ANY ERRORS OR OMISSIONS IN THE APPROVED PLANS.
8. ALL APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES MUST BE IN PLACE PRIOR TO ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, EXCAVATION, GRADING OR UTILITY WORK.
9. THE DNREC SEDIMENT AND STORMWATER PROGRAM MUST BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF EARTH DISTURBANCE ACTIVITIES. FAILURE TO DO SO CONSTITUTES A VIOLATION OF DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
10. THE LIMITS OF DISTURBANCE (LOD) LINE IS TO BE STAKED BY THE CONTRACTOR AS SHOWN ON THE FINAL APPROVED E&S PLANS PRIOR TO ANY DISTURBANCE.
11. FOLLOWING SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION CONTROLS SHALL BE COMPLETED WITHIN FOURTEEN (14) CALENDAR DAYS.
12. THE CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE A RESPONSIBLE INSPECTOR WITH A CERTIFICATION OF TRAINING AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION (I.E. A BLUE CARD HOLDER). THE BLUE CARD HOLDER SHALL PREPARE AN INSPECTION REPORT AFTER EACH INSPECTION. REPORTS SHALL INCLUDE THE DATE THAT ALL IDENTIFIED DEFICIENCIES MUST BE RESOLVED AND ARE TO BE SIGNED BY THE BLUE CARD HOLDER. INSPECTION REPORTS SHALL BE EMAILED OR FAXED TO THE CONTRACTOR, ENGINEER AND TO THE DNREC SEDIMENT AND STORMWATER PROGRAM OR AS DIRECTED AT THE PRECONSTRUCTION MEETING.
13. ANY REQUEST TO DEVIATE FROM THE WEEKLY INSPECTIONS MUST BE APPROVED IN WRITING BY DNREC.
14. ANY ERODED AREAS SHALL BE STABILIZED AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROPRIATE MANNER.



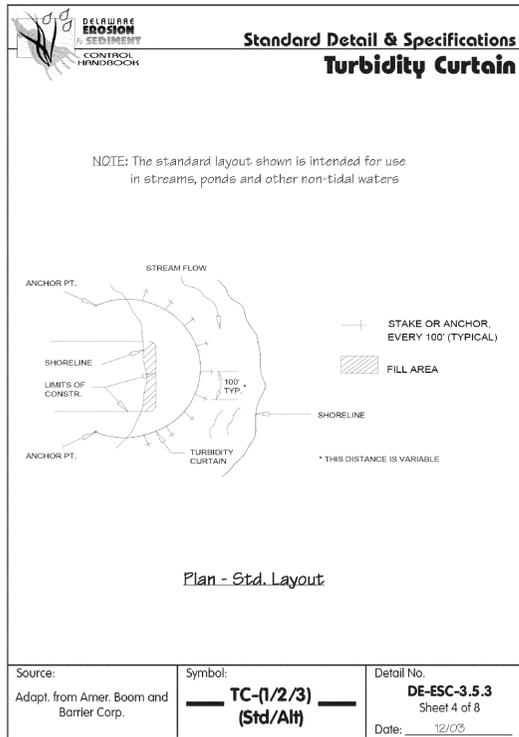
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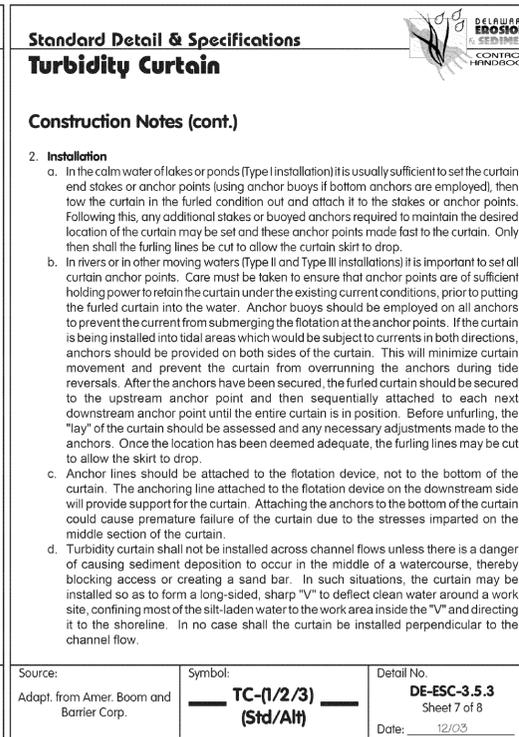
Source: Adapt. from Amer. Boom and Barrier Corp. Symbol: TC-(1/2/3) (Std/Alt) Detail No. DE-ESC-3.5.3 Sheet 6 of 8 Date: 12/03



Source: Adapt. from Amer. Boom and Barrier Corp. Symbol: TC-(1/2/3) (Std/Alt) Detail No. DE-ESC-3.5.3 Sheet 8 of 8 Date: 12/03



Source: Adapt. from Amer. Boom and Barrier Corp. Symbol: TC-(1/2/3) (Std/Alt) Detail No. DE-ESC-3.5.3 Sheet 4 of 8 Date: 12/03



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Table with columns: IN CHARGE OF, DESIGNED BY, CHECKED BY, DRAWN BY, NO., DATE, ISSUED FOR BID, REVISION, INT.



STATE OF DELAWARE DNREC DIVISION OF WATERSHED STEWARDSHIP IMPROVEMENTS TO DELAWARE DAMS DOVER, DELAWARE

Table with columns: DNREC CONTRACT No.: NAT17001-DAMCONST, GENERAL IMPROVEMENTS TO CONCORD POND DAM EROSION & SEDIMENTATION CONTROL NOTES & DETAILS, FILE NO., DATE, G-7

STRUCTURAL GENERAL NOTES:

- THE FOLLOWING NOTES APPLY, UNLESS OTHERWISE NOTED OR SHOWN ON PLANS.
- ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE REFERENCES LISTED IN THESE GENERAL NOTES. WHERE CONFLICTS ARISE BETWEEN THE SPECIFICATIONS, REFERENCES, NOTES, & DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.
 - WORK THESE STRUCTURAL DRAWINGS WITH THE GENERAL, CIVIL, & MECHANICAL DRAWINGS. VERIFY & COORDINATE DIMENSIONS ON THE STRUCTURAL DRAWINGS WITH WHAT IS SHOWN ON THE GENERAL, CIVIL, & MECHANICAL DRAWINGS.
 - SECTIONS & DETAILS SHOWN ON THE DRAWINGS ARE TYPICAL, UNLESS NOTED OTHERWISE. USE SIMILAR CONSTRUCTION AT LOCATIONS NOT SPECIFICALLY DETAILED.
 - THE CONTRACTOR SHALL VERIFY AND/OR ESTABLISH ALL EXISTING SITE CONDITIONS BEFORE BEGINNING THE WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF THE FIELD CONDITIONS DO NOT PERMIT THE INSTALLATION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - THE CONTRACTOR SHALL MAINTAIN THE STRUCTURAL INTEGRITY AND SERVICEABILITY OF THE EXISTING STRUCTURES WITHIN THE WORK AREA.
 - JOB SITE SAFETY ALONG WITH CONSTRUCTION MEANS & METHODS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND PRODUCT DATA AS INDICATED. THE ENGINEER SHALL HAVE A MINIMUM OF TEN (10) BUSINESS DAYS TO REVIEW THESE SUBMITTALS. THE SUBMITTALS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT HE HAS VERIFIED ALL CONSTRUCTION CRITERIA, MATERIALS, & SIMILAR DATA & HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION, & COMPLIANCE WITH THE CONTRACT DOCUMENTS. SHOP DRAWINGS THAT ARE REPRODUCTIONS/COPIES OF THE CONTRACT DRAWINGS SHALL BE REJECTED.
 - ALL MATERIALS SHALL BE STORED TO PROTECT THEM FROM THE ELEMENTS.

FOUNDATION & GEOTECHNICAL NOTES:

- FOUNDATIONS SHALL BE PREPARED IN ACCORDANCE WITH THE NOTES ON SECTION 1 ON SHEET S-2.

CAST-IN-PLACE CONCRETE NOTES:

- FOR CONCRETE WORK, FOLLOW EM 1110-2-2104 "STRENGTH DESIGN FOR REINFORCED-CONCRETE HYDRAULIC STRUCTURES" US ARMY CORPS OF ENGINEERS AS SUPPLEMENTED BY ACI 301 AND 318. FOLLOW ACI 306R FOR COLD WEATHER CONCRETE WORK AND ACI 305R FOR HOT WEATHER CONCRETE WORK. FOLLOW ACI 315 DETAILING CONCRETE REINFORCEMENT AND ACCESSORIES.
- CONCRETE MIX SHALL BE PROPORTIONED IN ACCORDANCE TO ACI 318 AND SHALL MEET THE MINIMUM REQUIREMENTS HEREIN. CONTRACTOR SHALL SUBMIT LABORATORY TEST REPORTS FOR CONCRETE MATERIALS, MIX DESIGNS TO THE ENGINEER FOR REVIEW BEFORE PROCUREMENT OF MATERIALS AND EXECUTION OF THE CONCRETE WORK.
- MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH: 4,000 P.S.I.
- MAXIMUM WATER TO CEMENTITIOUS MATERIALS RATIO: 0.45
- MAXIMUM DESIGN SLUMP (+/- 1"): BEFORE ADDING HIGH-RANGE WATER REDUCER.....2" TO 4" AFTER ADDING HIGH-RANGE WATER REDUCER.....7" (ABS MAX)
- PORTLAND CEMENT: ASTM C150 TYPE 1A OR 2A. USE ONLY ONE BRAND THROUGHOUT THE PROJECT UNLESS OTHERWISE ACCEPTABLE TO THE ENGINEER.
- THE FOLLOWING MATERIALS MAY BE USED TO REDUCE THE PORTLAND CEMENT PORTION OF THE CEMENTITIOUS MATERIALS CONTENT, BUT THESE MATERIALS MAY NOT EXCEED 20% OF THE TOTAL CEMENTITIOUS MATERIALS CONTENT:

POZZOLANS: ASTM C618 CLASS C OR F
GROUND GRANULATED BLAST FURNACE SLAG: ASTM C989, GRADE 80.
- CONCRETE SHALL BE AIR ENTRAINED 5% TO 7%. AIR ENTRAINMENT ADMIXTURE SHALL CONFORM TO C260 AND SHALL BE COMPATIBLE WITH OTHER ADMIXTURES.

CAST-IN-PLACE CONCRETE NOTES (CONTINUED):

- THE CONTRACTOR MAY USE THE FOLLOWING ADMIXTURES:

WATER-REDUCER: ASTM C 494 TYPE A
WATER-REDUCER/RETARDER: ASTM C 494 TYPE D
WATER-REDUCER/ACCELERATOR: ASTM C 494 TYPE E
HIGH-RANGE WATER REDUCER: ASTM 494 TYPE F OR G

NOTE: CALCIUM CHLORIDE IS NOT PERMITTED IN ANY ADMIXTURE.
- NORMAL WEIGHT AGGREGATES SHALL BE COARSE AND FINE AGGREGATES CONFORMING TO ASTM C-33. LIMIT COARSE AGGREGATE SIZE IN ACCORDANCE TO ACI 318.
- CAST SIX (6) TEST CYLINDERS FOR EACH DAY'S POUR: 3 FIELD CURED AND 3 LABORATORY CURED. TEST 1 FIELD CURED AND 1 LABORATORY CURED CYLINDER AT 7 DAYS AND AT 28 DAYS, HOLD THE LAST TWO IN RESERVE. CONTRACTOR SHALL NOTE THE TRUCK AND BATCH NUMBER AND THE LOCATION OF WHERE THE SAMPLED CONCRETE WAS PLACED ON EACH TEST CYLINDER. CONTRACTOR SHALL SUBMIT TEST RESULTS TO THE ENGINEER.
- THE CONTRACTOR SHALL ENGAGE A TESTING AGENCY ACCEPTABLE TO THE ENGINEER TO PERFORM MATERIAL EVALUATION TESTS AND TO DESIGN CONCRETE MIXES.
- CHAMFER EXPOSED CORNERS OF CONCRETE 3/4 IN UNLESS NOTED OTHERWISE.
- CONCRETE REINFORCING: DEFORMED BARS, ASTM A-615, GRADE 60
- ALL LAP SPLICES FOR DEFORMED BARS SHALL BE CLASS "B" SPLICES UNLESS NOTED OTHERWISE. IF USED, MECHANICAL COUPLERS SHALL MEET ACI 318 REQUIREMENTS.
- SUBMIT SHOP DRAWINGS FOR CONCRETE REINFORCING DETAILING, FABRICATION, BENDING, AND PLACEMENT. SHOP DRAWINGS SHALL COMPLY WITH ACI 315 REQUIREMENTS AND SHALL SHOW BAR SCHEDULES, STIRRUP SPACING, BENT BAR DIAGRAMS, AND ARRANGEMENT OF CONCRETE REINFORCEMENT.
- CAST-IN-PLACE CONCRETE COVER FOR REINFORCING U.N.O. ON THE DRAWINGS:
CONCRETE CAST AGAINST EARTH 4"
ALL OTHER CONCRETE:
#6 BAR & LARGER 2"
#5 BAR & SMALLER 2"
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ALL FORMWORK AND FALSEWORK REQUIRED FOR THE CONCRETE WORK. FORMWORK FOR CAST-IN-PLACE CONCRETE SHALL BE CONSTRUCTED TO BE SUBSTANTIAL AND UNYIELDING THAT WILL CONFORM TO THE SPECIFIED DIMENSIONS AND PROVIDE SMOOTH SURFACES. FORMWORK CONSTRUCTION SHALL CONFORM TO ACI MANUAL OF CONCRETE PRACTICE ACI 347 CH.2, PART 2.4. FORM RELEASE AGENTS SHALL BE NON-STAINING COMMERCIAL FORMULATION WITH MAXIMUM 350 g/L VOLATILE ORGANIC COMPOUNDS. FORMWORK MAY BE REMOVED ONCE THE CONCRETE TEST CYLINDERS HAVE ATTAINED 75% OF 28-DAY COMPRESSIVE STRENGTH. FORMS SHALL BE REMOVED IN SUCH A WAY AS TO PREVENT DAMAGE TO THE CONCRETE.
- THE CONCRETE SHALL BE MOIST-CURED BY ONE OR BOTH THE FOLLOWING METHODS:
MOISTURE-RETAINING COVER, COMPLYING WITH ASTM C171
CURING COMPOUND COMPLYING WITH ASTM C309, TYPE 1
- WHERE REQUIRED, LOCATE CONSTRUCTION JOINTS IN THE CENTER-1/3 OF SPAN, AND NOT CLOSER THAN 3 FT. FROM AN SUPPORTING PILE.
- CONSTRUCTION JOINTS SHALL HAVE A SHEAR KEY 1-1/2 IN. DEEP x 1/3-JOINT-WIDTH. ALSO PROVIDE A TENSION CLASS "B" LAP OF REINFORCING. USE ROUGHENED JOINT WHERE INDICATED ON THE DRAWINGS. PROVIDE 6" HEAVY DUTY PVC WATERSTOP (GREENSTREAK TYPE 749 OR APPROVED EQUAL).
- CONTRACTOR SHALL PROVIDE CONTROL JOINTS AS INDICATED ON THE DRAWINGS.

STRUCTURAL STEEL & ALUMINUM NOTES:

- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO "THE MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRENGTH DESIGN", FOURTEENTH EDITION, 2010, AMERICAN INSTITUTE OF STEEL CONSTRUCTION INCLUDING ANSI/AISC 360-10 "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDING", SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS, AND AISC CODE OF STANDARD PRACTICE, EXCEPT SECTIONS 7.9.
- ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS AND SHALL CONFORM TO "STRUCTURAL WELDING CODE - STEEL ANSI/AWS D1.1-2010" AND "STRUCTURAL WELDING CODE - ALUMINUM ANSI/AWS D1.2" AMERICAN WELDING SOCIETY.
- WIDE FLANGES, CHANNELS, WT'S, HP'S, AND OTHER STRUCTURAL SHAPES: ASTM A992 OR ASTM A572, GRADE 50.
- STEEL PLATES, BARS, AND ANGLES: ASTM A36.
- HOLLOW STRUCTURAL SECTIONS: (SQUARE OR RECT.) ASTM A500, GRADE B.
- HOLLOW STRUCTURAL SECTIONS: (ROUND) ASTM A501.
- STAINLESS STEEL FOR STRUCTURAL SHAPES, BARS, & PLATES: ASTM A304
- ALUMINUM ALLOY FOR STRUCTURAL SHAPES: 6061 T-6 . APPLY BITUMINOUS TAR COATING TO ALUMINUM SURFACES IN CONTACT WITH DISSIMILAR METALS.
- ALL BOLTED CONNECTIONS SHALL BE AS INDICATED ON THE DRAWINGS.
- ANCHOR BOLTS SHALL CONFORM TO ASTM A307 WITH OVERSIZED WASHER OR PLATE HEADED ENDS. HOOKED ANCHORS ARE NOT PERMITTED.
- WELDING ELECTRODES: E70-XX SERIES FOR STEEL. PROVIDE ALUMINUM ALLOY 5356 FOR ALUMINUM WELDS.
- HOT-DIP GALVANIZING: ASTM A123.
- NONMETALLIC, NON-SHRINK GROUT: ASTM C1107. MINIMUM COMPRESSIVE STRENGTH AT 28-DAYS = 5,000 PSI.
- CEMENT GROUT: PORTLAND CEMENT, ASTM C150, TYPE I. MINIMUM COMPRESSIVE STRENGTH AT 28-DAYS = 5,000 PSI.
- GAS CUTTING OF MAIN STRUCTURAL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.
- SUBMIT SHOP DRAWINGS FOR FABRICATION AND ERECTION OF STRUCTURAL STEEL. CLEARLY INDICATE COORDINATED DIMENSIONS OF MECHANICAL UNITS, FLOOR OR ROOF PENETRATIONS, ETC. SHOP AND ERECTION DRAWINGS MUST SHOW ALL SHOP AND FIELD WELDS.
- THE GENERAL CONTRACTOR AND STEEL ERECTOR SHALL NOTIFY THE ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
- ALL STEEL SHALL BE HOT-DIP GALVANIZED, UNLESS NOTED OTHERWISE ON THE DRAWINGS. SPIRAL WELDED PIPE PILES SHALL BE PLAIN STEEL.
- FIELD WELDED SURFACES WITHIN FOUR (4") INCHES OF WELD SHALL BE CLEANED AND GROUND SMOOTH. AFTER WELDING COAT THE EXPOSED AREA WITH APPROPRIATE PRIMER/PANTS AS REQUIRED.
- VISUALLY INSPECT ALL FILLET WELDS. TEN PERCENT (10%) OF ALL FILED FILLET WELDS IN PRIMARY CONNECTIONS AND MULTI-PASS WELDS SHALL BE TESTED BY THE MAGNETIC PARTICLE METHOD, OR AS OTHERWISE STATED IN THE SPECIFICATIONS.
- FIELD TEST BOLTED CONNECTIONS IN ACCORDANCE WITH AISC SPECIFICATIONS.



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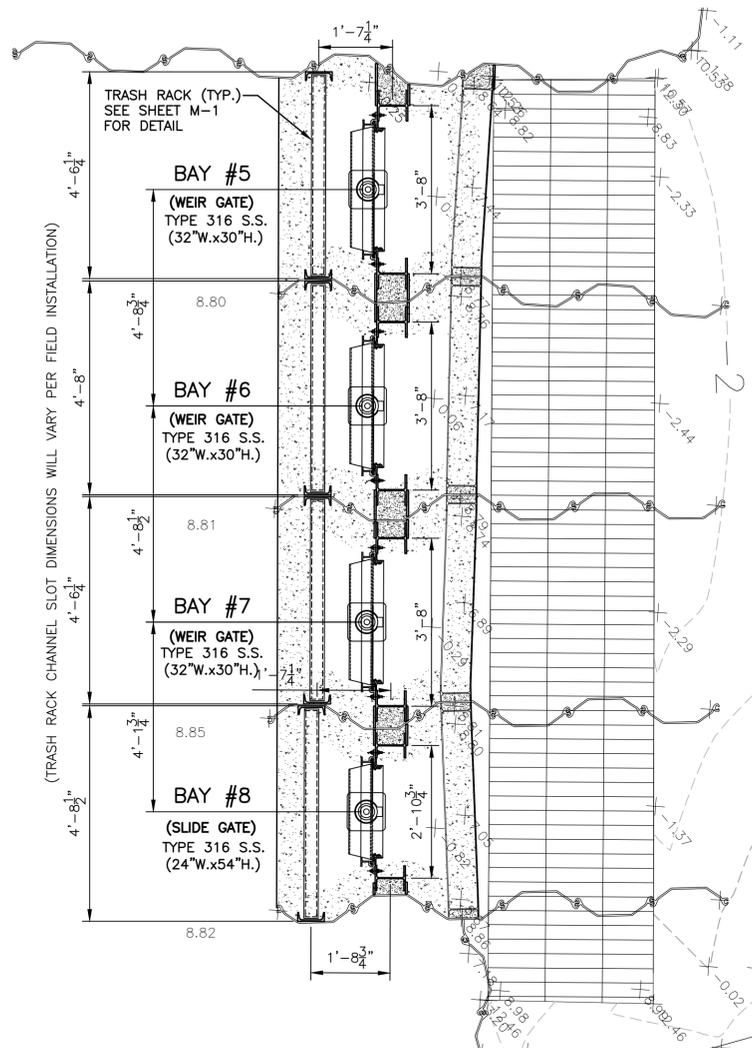
THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
| | | 0 | 02/02/2017 | ISSUED FOR BID | RRB |
| | | NO. | DATE | REVISION | INT. |

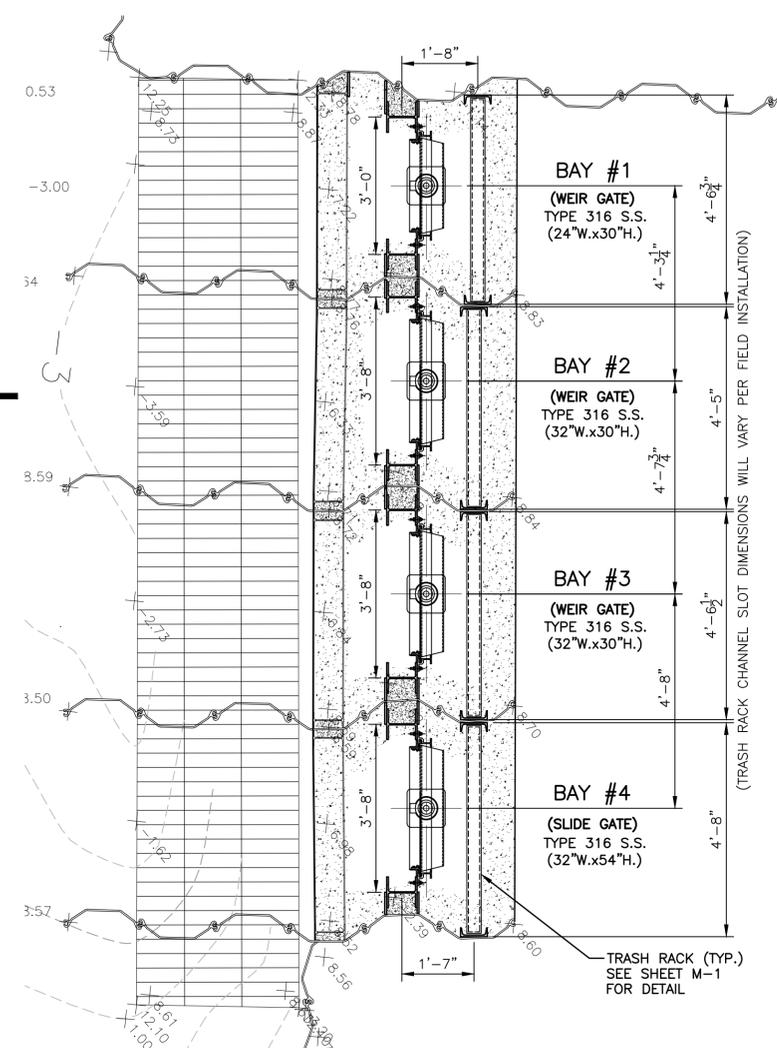


STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

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| DNREC CONTRACT No.: NAT17001-DAMCONST | |
| STRUCTURAL IMPROVEMENTS TO CONCORD POND DAM STRUCTURAL GENERAL NOTES AND SPECIFICATIONS | FILE NO. 12804.61925 -S01 DATE 02/02/2017 |
| | S-1 |



SOUTHWEST GATE PLAN
SCALE: 1"=2'

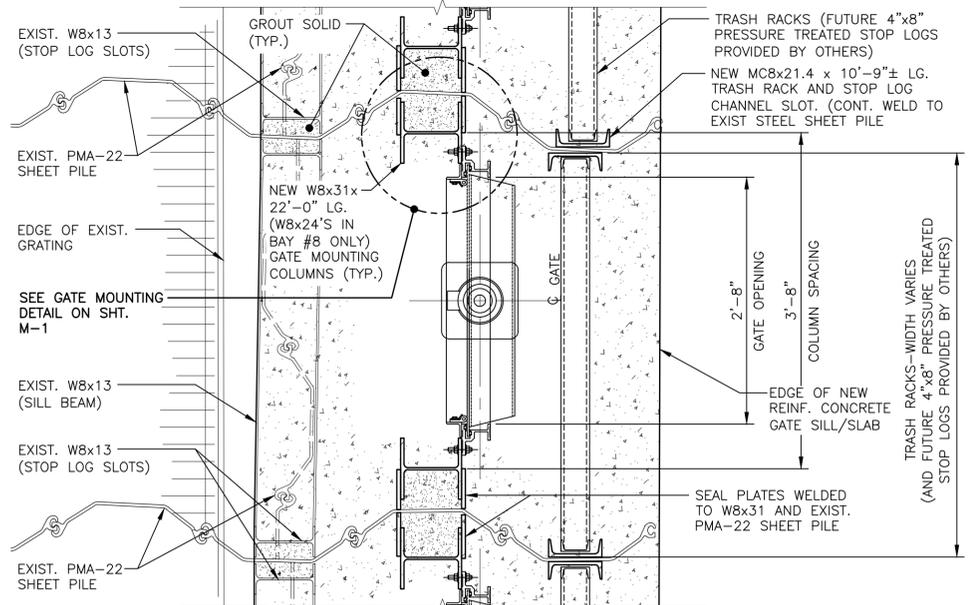
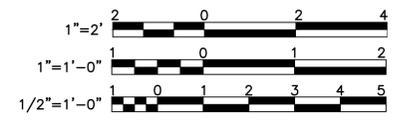


NORTHEAST GATE PLAN
SCALE: 1"=2'

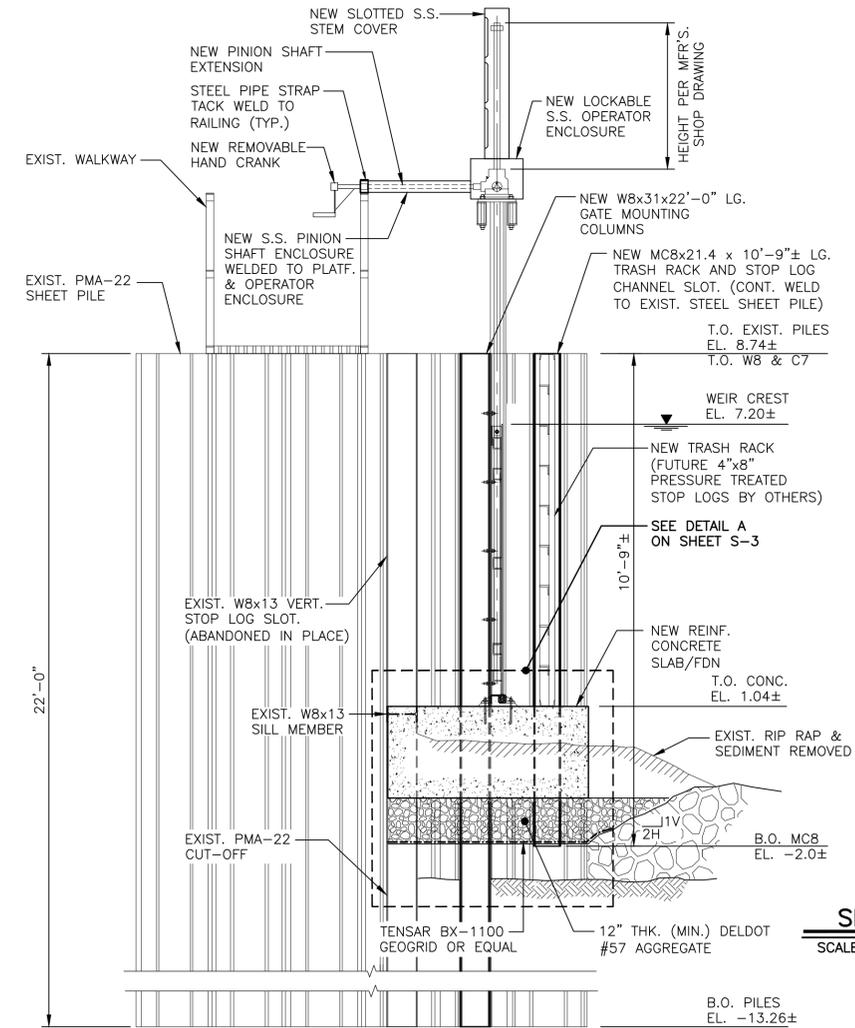
- NOTES:**
- CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING GATES OR PROCEEDING WITH ANY FABRICATION WORK.
 - DETAILS SHOWN ON THIS DRAWING ARE REPRESENTATIVE OF GENERAL ARRANGEMENT/ INSTALLATION REQUIREMENTS FOR THE STYLE OF GATE.
 - OPERATORS SHOWN ARE REPRESENTATIVE AND ARE NOT RELATED TO THE STYLE OF GATE. REFER TO SPECIFICATION FOR OPERATOR.
 - GATES SHALL HAVE A NON-SHRINK, NON-SAG, NON-METALLIC GROUT BETWEEN THE STAINLESS STEEL FRAME AND CARBON STEEL STRUCTURAL SHAPE. PROVIDE ISOLATION KITS FOR THE FASTENERS.
 - ALL STEEL SHALL BE HOT-DIPPED GALVANIZED PER STRUCTURAL STL. & ALUMINUM NOTES ON SHEET S-1.

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

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

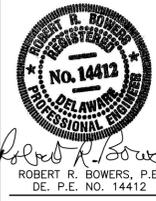


TYPICAL GATE INSTALLATION PLAN (SIMILAR ALL BAYS - BAY #2 SHOWN)
SCALE: 1"=1'



- NOTES:**
- UNDERCUT A MINIMUM OF 3'-0" BELOW TOP OF SLAB ELEVATION TO SUITABLE NATIVE GRANULAR SOILS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
 - PLACE GEOGRID ON APPROVED SUBGRADE FOLLOWED BY PLACEMENT OF DELDOT #57 AGGREGATE TO CONCRETE SLAB SUBGRADE ELEVATION. COMPACT WITH VIBRATORY PLATE UNTIL NO ADDITIONAL SETTLEMENT OF AGGREGATE BASE IS OBSERVED.

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



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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
| NO. | 02/02/2017 | ISSUED FOR BID | | RRB | |
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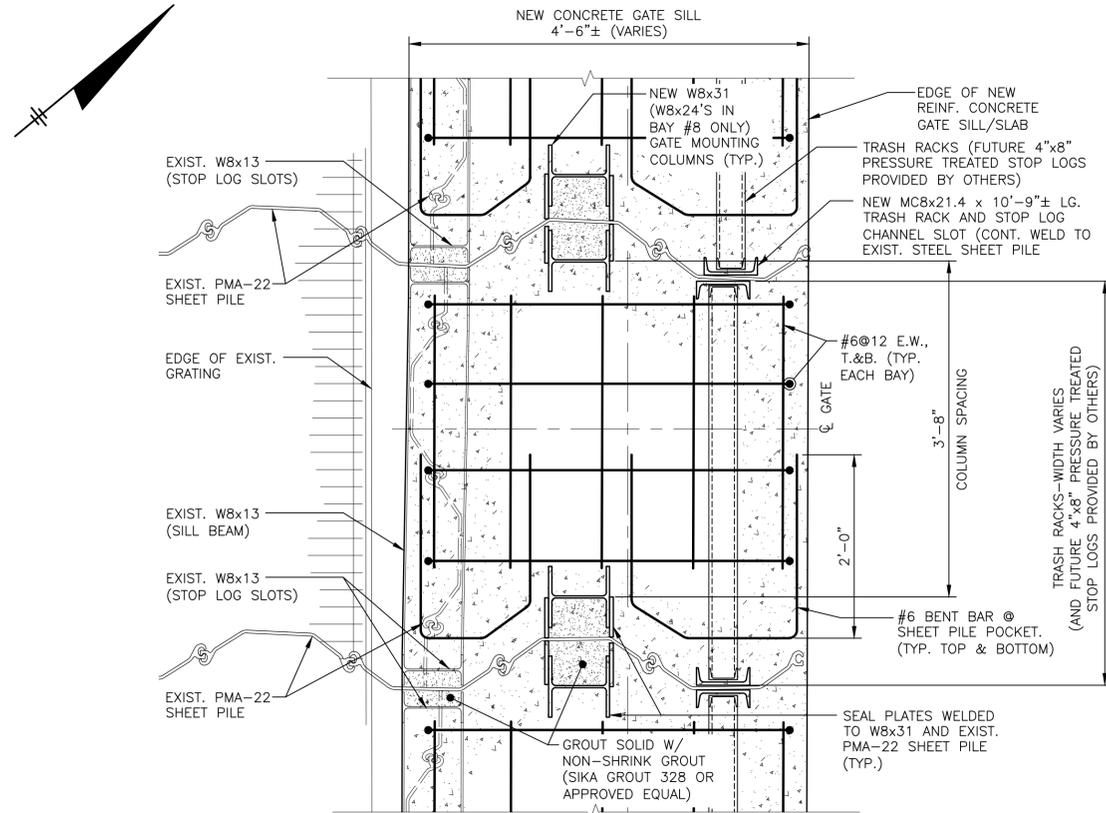
O'BRIEN & GERE ENGINEERS, INC
EAST NORRITON, PA

STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

DNREC CONTRACT No.: NAT17001-DAMCONST
STRUCTURAL
IMPROVEMENTS TO CONCORD POND DAM
NEW GATE INSTALLATION
PLANS, SECTIONS & DETAILS

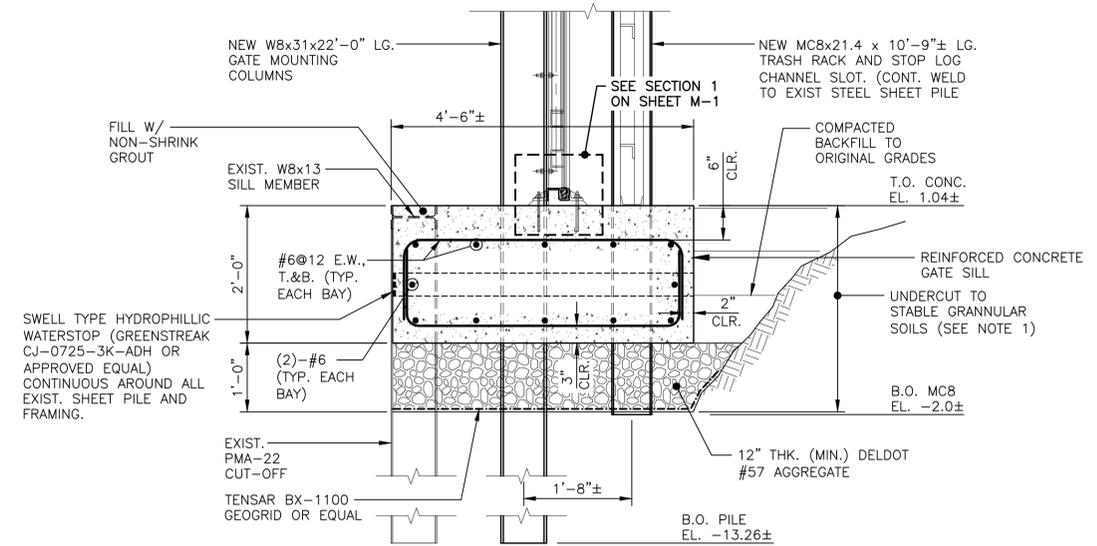
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| FILE NO. | 12804.61925 -S02 |
| DATE | 02/02/2017 |

S-2



GATE SILL REINFORCING PLAN (SIMILAR ALL BAYS - BAY #2 SHOWN)

SCALE: 1"=1'



GATE SILL DETAIL

SCALE: 3/4"=1'

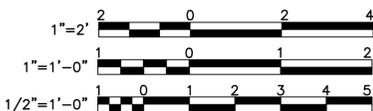
A
S-2

NOTES:

1. UNDERCUT A MINIMUM OF 3'-0" BELOW TOP OF SLAB ELEVATION TO SUITABLE NATIVE GRANULAR SOILS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
2. PLACE GEOGRID ON APPROVED SUBGRADE FOLLOWED BY PLACEMENT OF DELDOT #57 AGGREGATE TO CONCRETE SLAB SUBGRADE ELEVATION. COMPACT WITH VIBRATORY PLATE UNTIL NO ADDITIONAL SETTLEMENT OF AGGREGATE BASE IS OBSERVED.

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING GATES OR PROCEEDING WITH ANY FABRICATION WORK.
2. DETAILS SHOWN ON THIS DRAWING ARE REPRESENTATIVE OF GENERAL ARRANGEMENT/ INSTALLATION REQUIREMENTS FOR THE STYLE OF GATE.
3. OPERATORS SHOWN ARE REPRESENTATIVE AND ARE NOT RELATED TO THE STYLE OF GATE. REFER TO SPECIFICATION FOR OPERATOR.
4. GATES SHALL HAVE A NON-SHRINK, NON-SAG, NON-METALLIC GROUT BETWEEN THE STAINLESS STEEL FRAME AND CARBON STEEL STRUCTURAL SHAPE. PROVIDE ISOLATION KITS FOR THE FASTENERS.
5. ALL STEEL SHALL BE HOT-DIPPED GALVANIZED PER STRUCTURAL STL. & ALUMINUM NOTES ON SHEET S-1.



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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MAD | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
| | | 0 | 02/02/2017 | ISSUED FOR BID | RRB |
| | | NO. | DATE | REVISION | INT. |

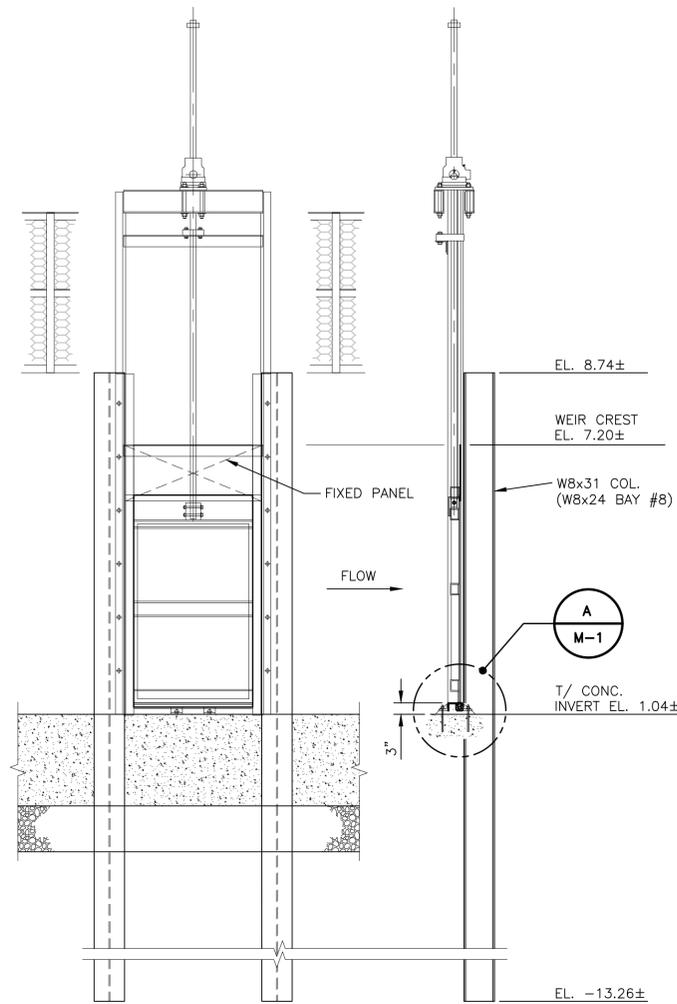
O'BRIEN & GERE ENGINEERS, INC
EAST NORRITON, PA

STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

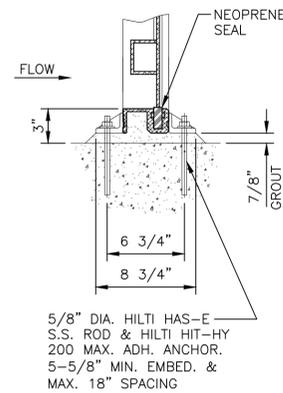
DNREC CONTRACT No.: NAT17001-DAMCONST

STRUCTURAL
IMPROVEMENTS TO CONCORD POND DAM
NEW GATE REINFORCING
PLAN, SECTIONS & DETAILS

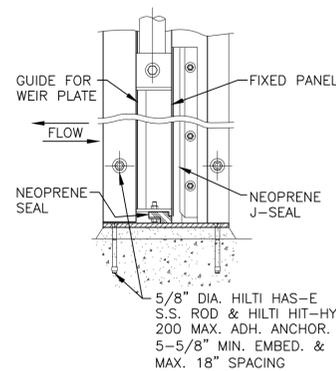
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12804.61925 -S03
DATE
02/02/2017



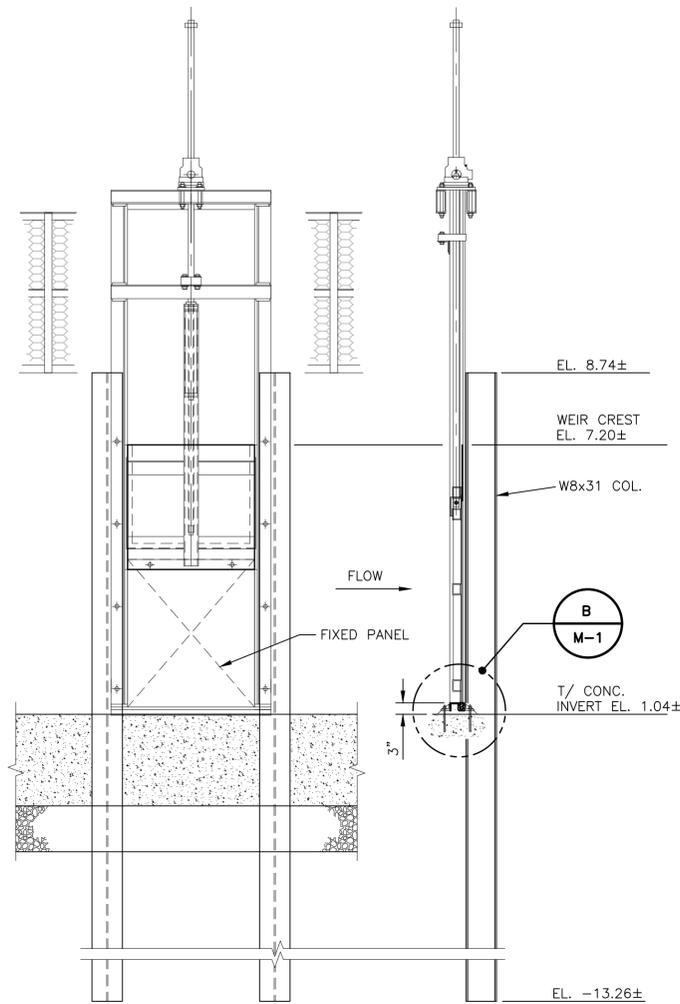
**FACE-MOUNTED
SELF CONTAINED SLIDE GATE**
SCALE: 1/2"=1'-0"



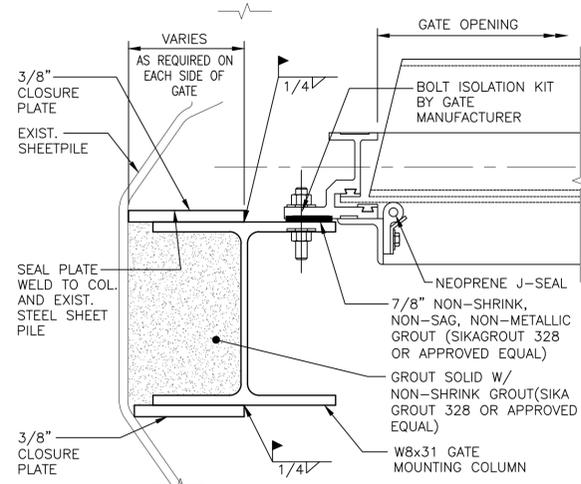
DETAIL A
NOT TO SCALE



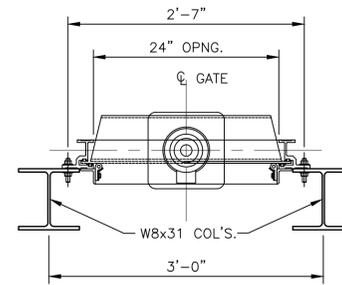
DETAIL B
NOT TO SCALE



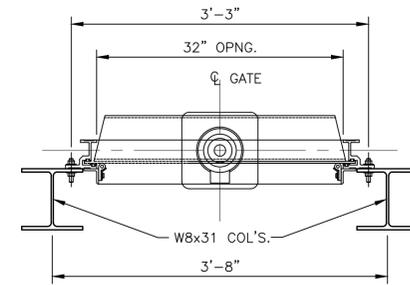
**FACE-MOUNTED
SELF CONTAINED WEIR GATE**
SCALE: 1/2"=1'-0"



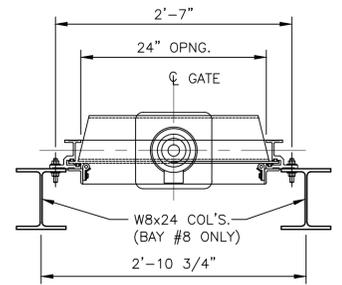
GATE MOUNTING DETAIL
NOT TO SCALE



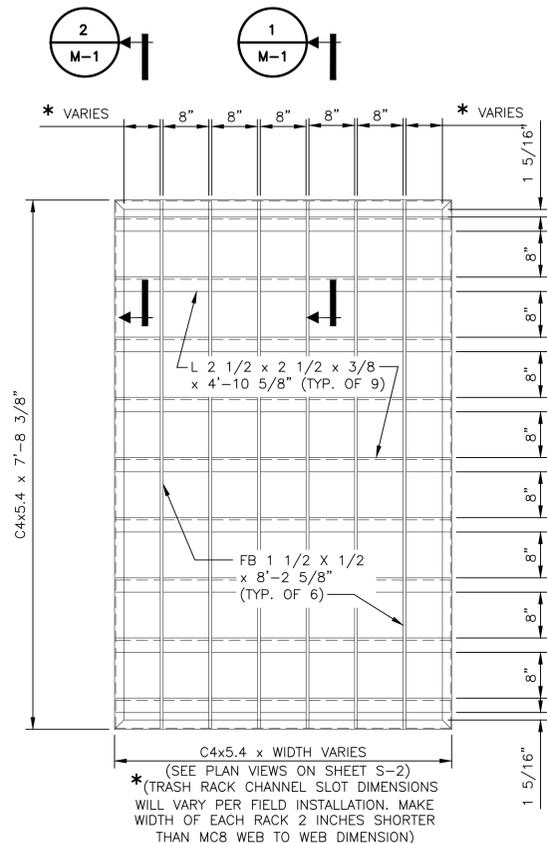
COLUMN SPACING BAY #1
SCALE: 1"=1'



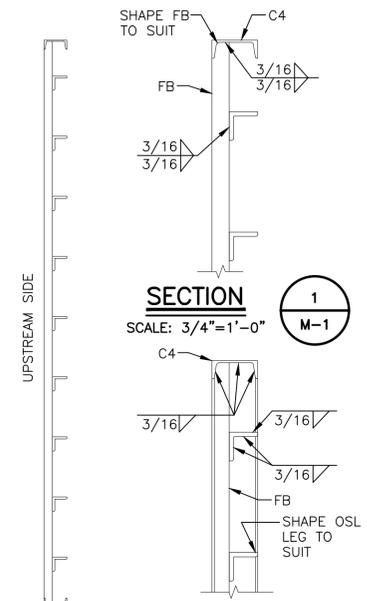
COLUMN SPACING BAYS #2 THRU #7
SCALE: 1"=1'



COLUMN SPACING BAY #8
SCALE: 1"=1'



**STEEL TRASH RACK DETAIL
(1) RACK PER BAY**
SCALE: 3/4" = 1'-0"

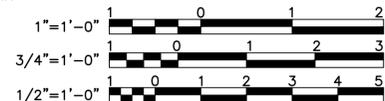


CROSS SECTION SECTION 1
SCALE: 3/4"=1'-0"

NOTE:
1. HOT DIP GALVANIZE ALL STEEL TRASH RACKS.

PLAN GENERAL NOTES:

- CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING GATES OR PROCEEDING WITH ANY FABRICATION WORK.
- ALUMINUM SURFACES IN CONTACT WITH CONCRETE TO BE FIELD COATED WITH ONE COAT OF COAL TAR EPOXY.
- DETAILS SHOWN ON THIS DRAWING ARE REPRESENTATIVE OF GENERAL ARRANGEMENT/INSTALLATION REQUIREMENTS FOR THE STYLE OF GATE.
- OPERATORS SHOWN ARE REPRESENTATIVE AND ARE NOT RELATED TO THE STYLE OF GATE. REFER TO MANUFACTURER'S SHOP DRAWING FOR SPECIFICATION OF OPERATOR.
- ALL ANCHOR BOLTS SHALL BE STAINLESS STEEL INSTALLED PER MANUFACTURER'S REQUIREMENTS.
- GATES SHALL HAVE A NON-SHRINK, NON-SAG, NON-METALLIC GROUT BETWEEN THE STAINLESS STEEL FRAME AND CARBON STEEL STRUCTURAL SHAPE. PROVIDE ISOLATION KITS FOR THE FASTENERS.



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| IN CHARGE OF | RRB | | | | |
| DESIGNED BY | MK | | | | |
| CHECKED BY | DRP | | | | |
| DRAWN BY | MK | | | | |
| NO. | 02/02/2017 | ISSUED FOR BID | | RRB | |
| REVISION | | | | INT. | |

O'BRIEN & GERE ENGINEERS, INC
EAST NORRITON, PA

STATE OF DELAWARE DNREC
DIVISION OF WATERSHED STEWARDSHIP
IMPROVEMENTS TO DELAWARE DAMS
DOVER, DELAWARE

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|---|-----------------------------|
| DNREC CONTRACT No.: NAT17001-DAMCONST | |
| MECHANICAL IMPROVEMENTS TO CONCORD POND DAM NEW GATE AND TRASH RACK DETAILS | FILE NO. 12804.61925-M01 |
| | DATE 02/02/2017 |
| | M-1 |

