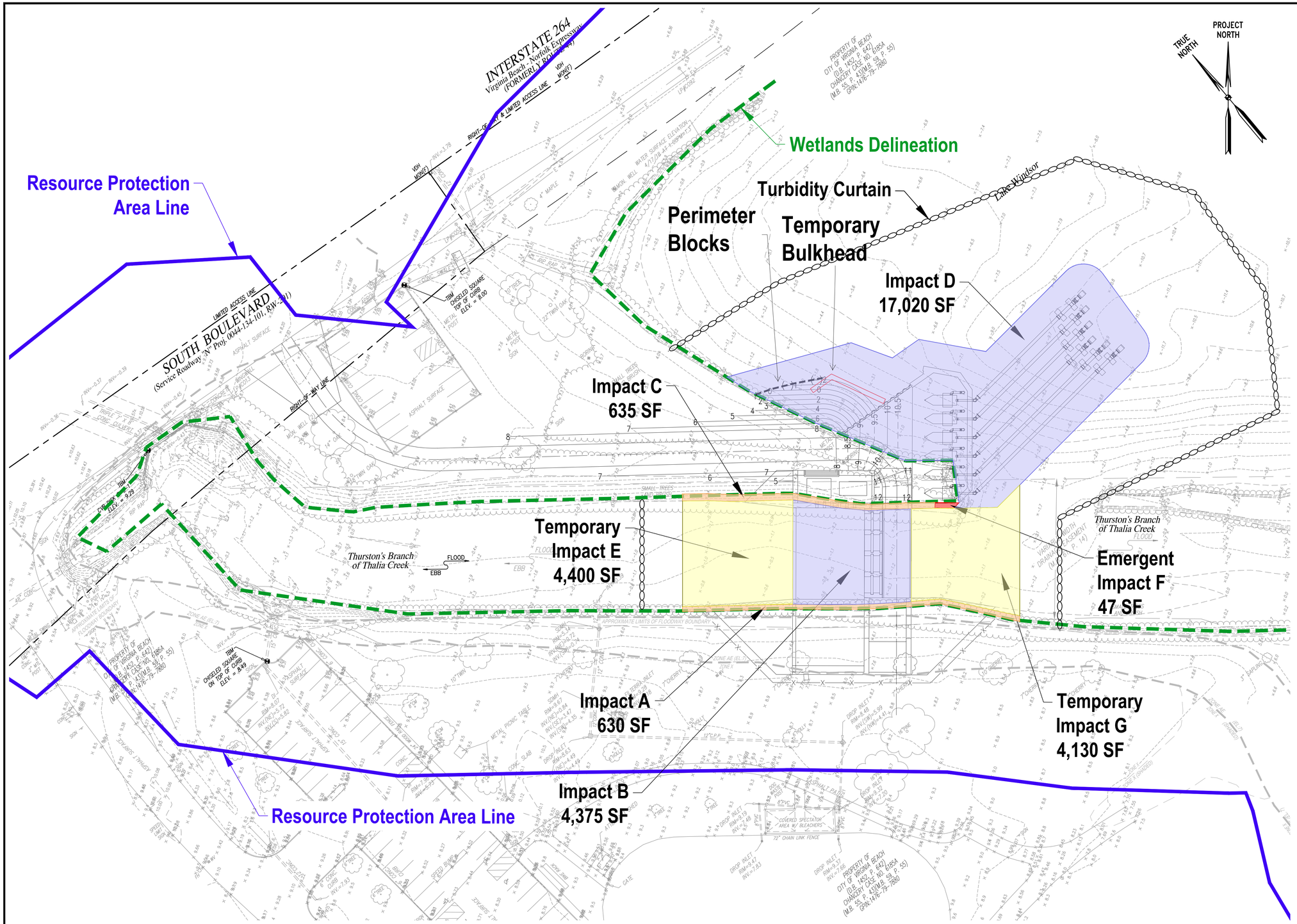
NOTES:
1. SEE SHT C-05 FOR SURVEY CONTROL AND CURVE GEOMETRY FOR CONSTRUCTION BASELINE.



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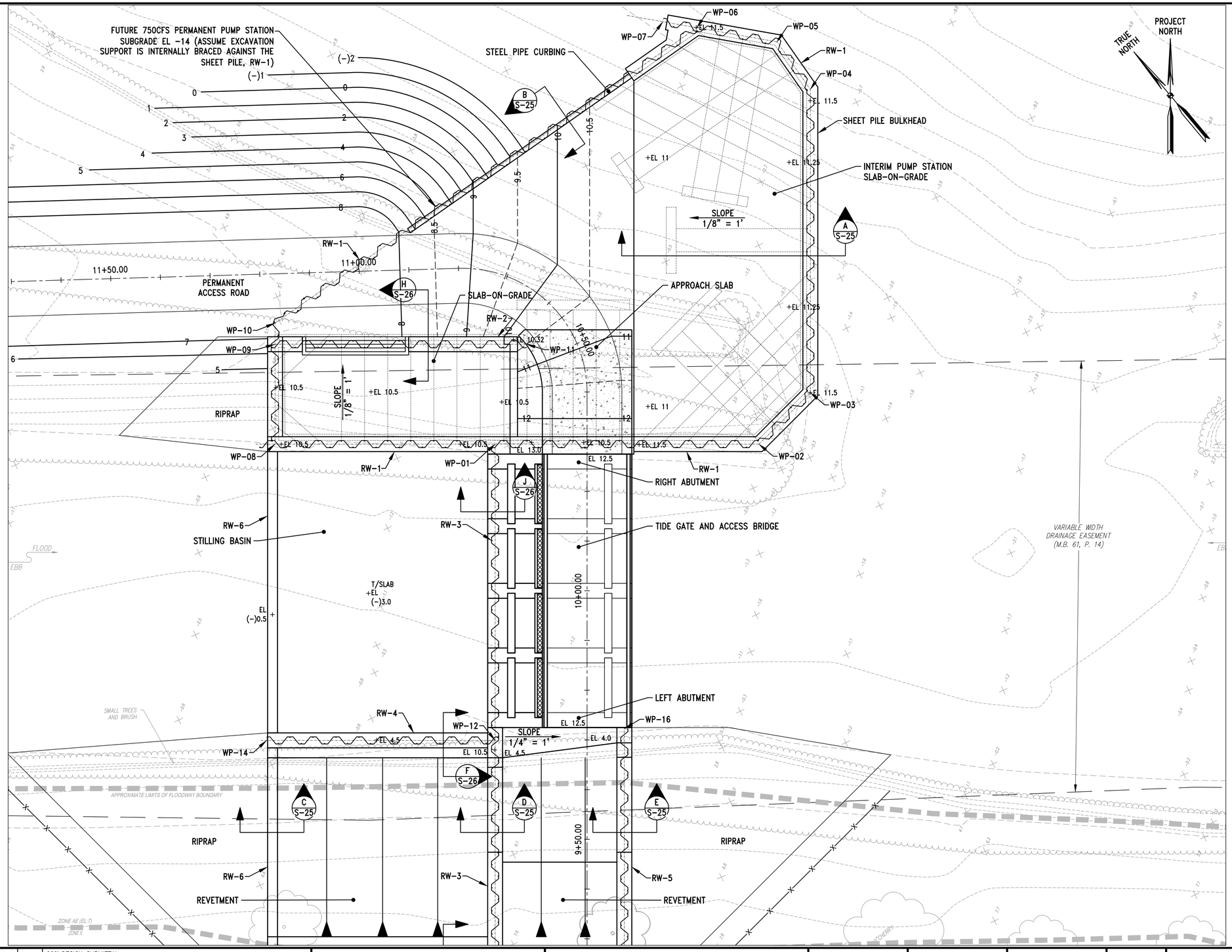
APPROVED BY:	NKD

PROJECT NO.	PWCN-17-0192
JOB NO.	161931
CADD FILE	FIG 2 IMPRVWETIM

CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 2 – PROPOSED IMPROVEMENTS WITH WETLAND IMPACTS

SHEET ____ OF ____ SHEETS



NOTES:

1. WORK THIS SHT WITH SHT S-08.
2. SEE SHT C-02 FOR OVERALL SITE PLAN.
3. SEE SHT G-07 AND SHT S-04 FOR STRUCTURE NOTES.
4. SEE SHTS S-01, S-02 AND S-03 FOR STRUCTURAL STANDARD DETAILS.
5. SEE SHT S-06 FOR STRUCTURAL QUANTITY SUMMARY.
6. SEE SHT C-06 FOR OVERALL ANTICIPATED CONSTRUCTION SEQUENCE.
7. SEE SHT S-09 FOR TIDE GATE ANTICIPATED CONSTRUCTION SEQUENCE.
8. SEE SHT S-11 FOR TIDE GATE SUBSTRUCTURE PLAN.
9. SEE SHTS S-15 TO S-18 FOR TIDE GATE SHEET PILE PLAN.
10. SEE SHTS S-22, S-23 & S-24 FOR RETAINING WALL PROFILES.

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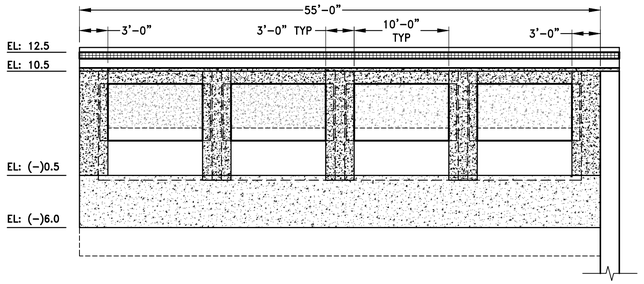
CADD FILE	FIG3 TGATELAYOUT

CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 3 – TIDE GATE LAYOUT PLAN

SHEET ____ OF ____ SHEETS

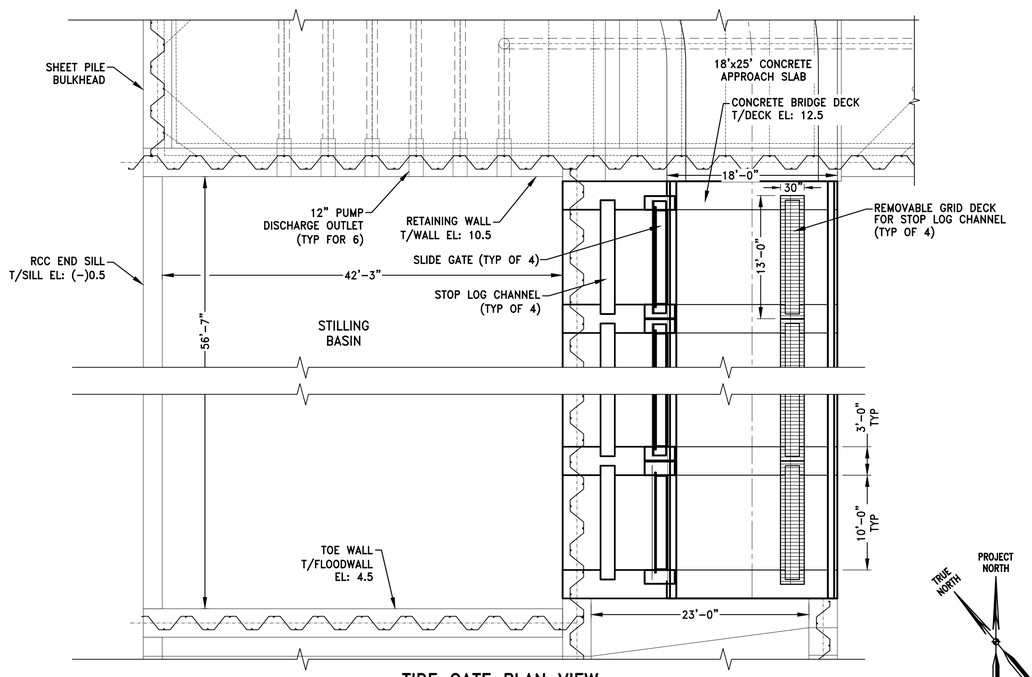
NOTES:
1. SEE SHT G-07 FOR STRUCTURAL GENERAL NOTES.
2. SEE SHTS S-01, S-02 AND S-03 FOR STRUCTURAL STANDARD DETAILS.
3. SEE SHT S-04 FOR STRUCTURAL NOTES.
4. SEE SHT S-36 FOR SLIDE GATE - PLAN.
5. SEE SHT S-38 FOR SLIDE GATE - DETAILS.



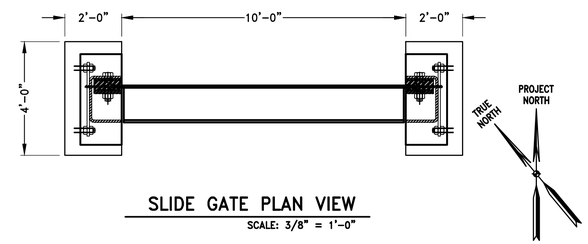
TIDE GATE FRONT VIEW
SCALE: 1/8" = 1'-0"

SCHEDULE

ITEM	NO.	SIZE	ELEV.
SLIDE GATES	4	120"x72"	(-)0.50

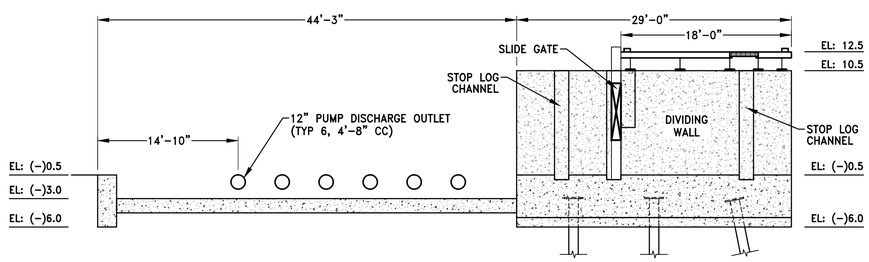


TIDE GATE PLAN VIEW
SCALE: 1/8" = 1'-0"

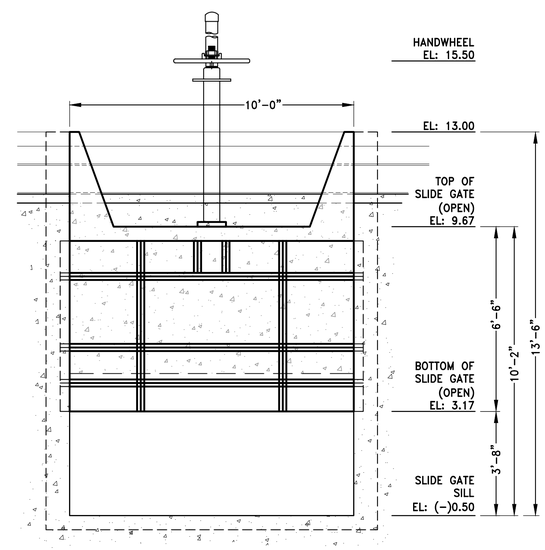


SLIDE GATE PLAN VIEW
SCALE: 3/8" = 1'-0"

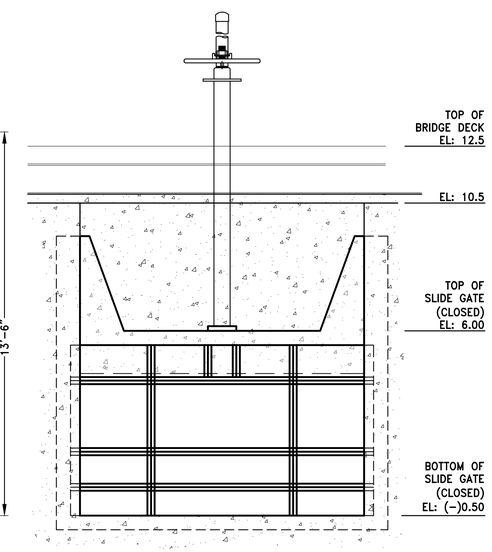
NOTES
1. SEE SITE PLAN, SHEET M-01.
2. ALL ELEVATIONS ARE BASE ON NAVD88.



TIDE GATE SIDE VIEW
SCALE: 1/8" = 1'-0"



SLIDE GATE ELEV VIEW
SLIDE GATE IN OPEN POSITION
SCALE: 3/8" = 1'-0"



SLIDE GATE ELEV VIEW
SLIDE GATE IN CLOSED POSITION
SCALE: 3/8" = 1'-0"

0 8 16 24
GRAPHIC SCALE: 1/8"= 1'-0"

0 2 4 8
GRAPHIC SCALE: 3/8"= 1'-0"

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PROJECT NO. PWCN-17-0192
JOB NO. 161931
CADD FILE FIG 4 TGSGSECT

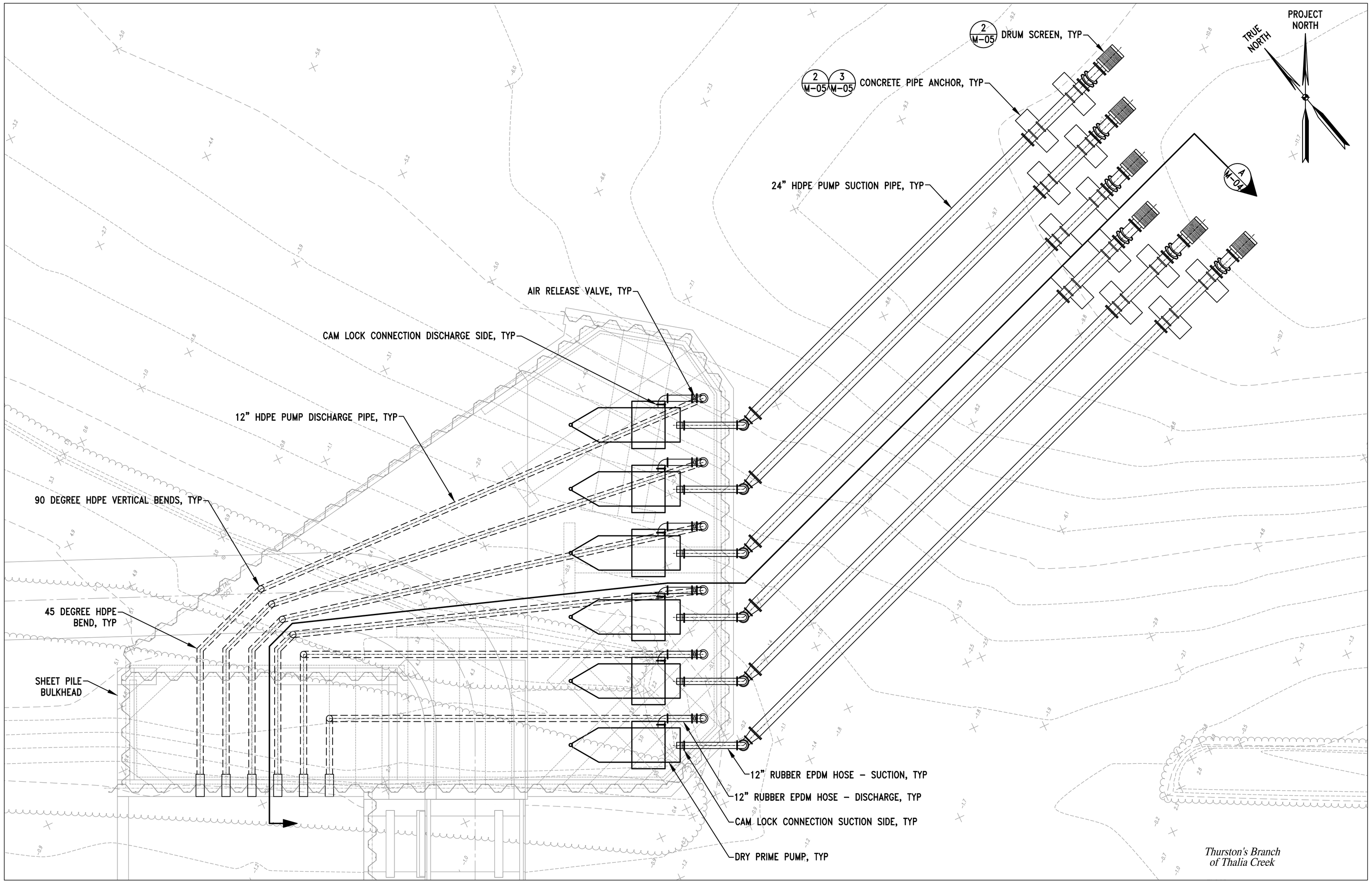
CITY OF VIRGINIA BEACH - DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 4 - TIDE GATE - SLIDE GATE - SECTIONS

SHEET ____ OF ____ SHEETS

NOTES:

1. SEE SHT G-08 FOR MECHANICAL GENERAL NOTES.
2. SEE SHT M-02 FOR INTERIM PUMP STATION – MECHANICAL – PROCESS FLOW DIAGRAM.
3. SEE SHT M-03 FOR INTERIM PUMP STATION – MECHANICAL – QUANTITY SUMMARY.
4. SEE SHT M-04 FOR INTERIM PUMP STATION – MECHANICAL – SECTIONS.
5. SEE SHTS M-05 & M-06 FOR INTERIM PUMP STATION – MECHANICAL – DETAILS.
6. SEE SHT M-07 FOR STANDBY GENERATOR AND DIESEL FUEL TANK – PLAN AND DETAILS.



0 10 20 30
GRAPHIC SCALE: 1"= 10'

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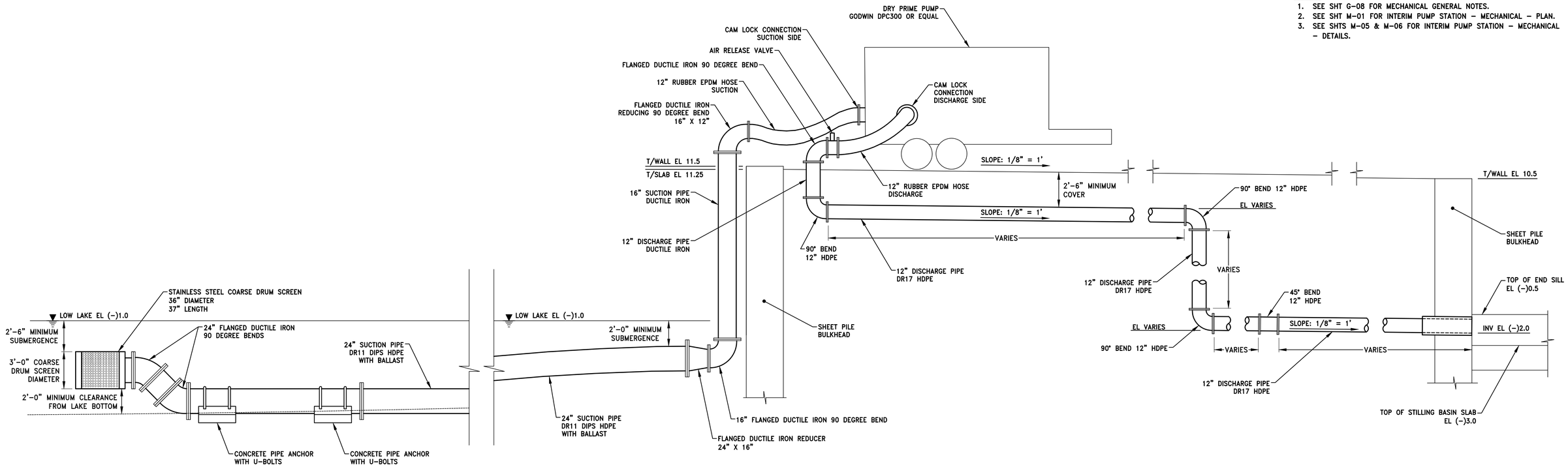
CADD FILE FIG 5 MECHPLN

CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 5 INTERIM PUMP STATION – MECHANICAL – PLAN

SHEET ____ OF ____ SHEETS

NOTES:
1. SEE SHT G-08 FOR MECHANICAL GENERAL NOTES.
2. SEE SHT M-01 FOR INTERIM PUMP STATION – MECHANICAL – PLAN.
3. SEE SHTS M-05 & M-06 FOR INTERIM PUMP STATION – MECHANICAL – DETAILS.



PROFILE VIEW (A / M-01)

GRAPHIC SCALE: 1/4"= 1'-0" HORZ (0 4 8 12)

GRAPHIC SCALE: 1/4"= 1'-0" VERT (0 4 8 12)

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SCALE HORIZ: 1/4" = 1' VERT: 1/4" = 1'
DATE: DEC 2019
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APPROVED BY: NKD

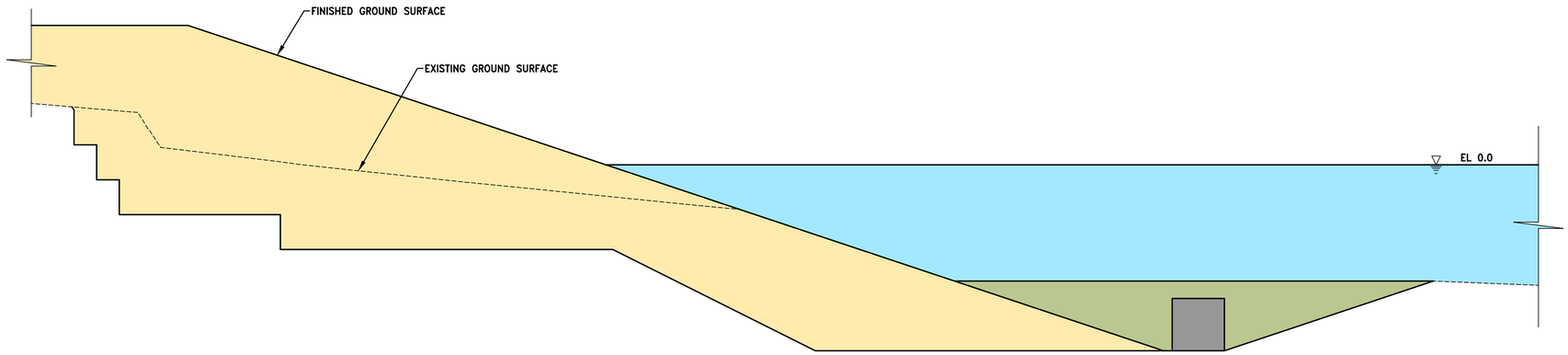
PROJECT NO. PWCN-17-0192
JOB NO. 161931
CADD FILE FIG 6 MECHSECT

CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 6 INTERIM PUMP STATION MECHANICAL – SECTIONS

SHEET ____ OF ____ SHEETS

NOTE:
1. SEE SHT C-02 FOR OVERALL SITE PLAN.



TYPICAL SECTION – SIDE-HILL EMBANKMENT (FILL) (A/–)

SCALE: N.T.S.

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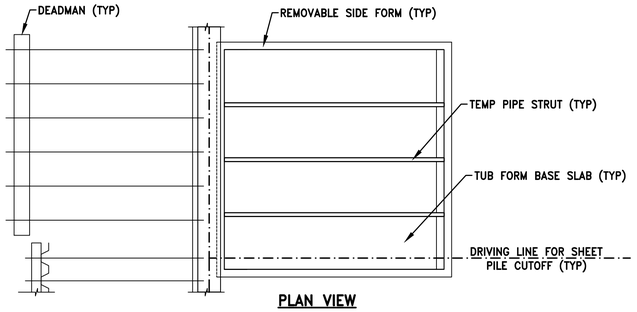
CADD FILE FIG7 TYPSECTDTL

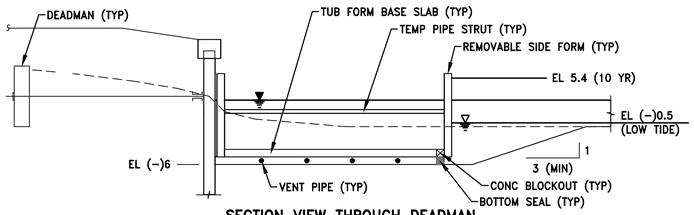
CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 7 – TYPICAL SECTION & EMBANKMENT DETAILS

SHEET ___ OF ___ SHEETS



PLAN VIEW

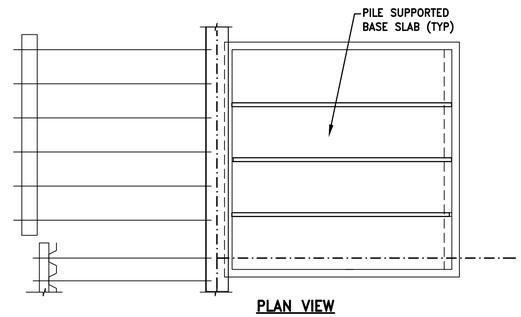


SECTION VIEW THROUGH DEADMAN

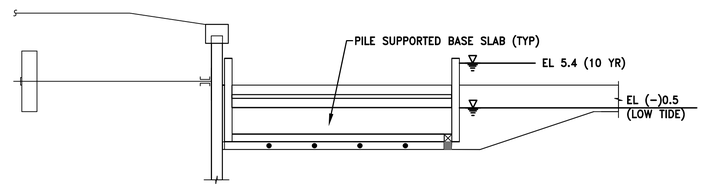
STEP 1.

WORKING FROM NE TO SW ACROSS STREAM CHANNEL (AFTER ANCHORED BULKHEAD IS INSTALLED),
1A. EXCAVATE TO EL (–)6 ON CREEK–SIDE OF ANCHORED BULKHEAD,
1B. PLACE BACKFILL BEHIND ANCHORED BULKHEAD,
1C. INSTALL SHEET PILE CUTOFF & CONCRETE PILING ACROSS STREAM CHANNEL (WITH FOLLOWER, AS NEEDED),
1D. SCREED BOTTOM TO RE–LEVEL SUBGRADE, & THEN
1E. USE TEMPORARY STRADDLE BEAM(S) WITH BLOCKING TO HANG PRECAST CONCRETE TUB FORM(S) WITH VENT PIPE.

STEP 1



PLAN VIEW

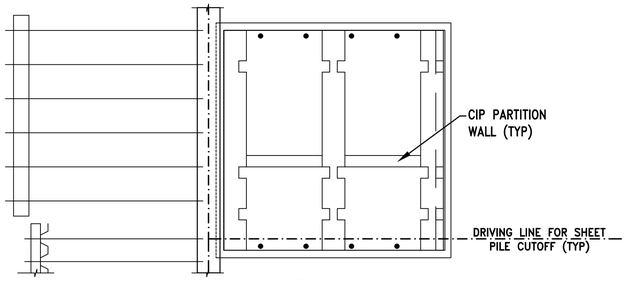


SECTION VIEW THROUGH DEADMAN

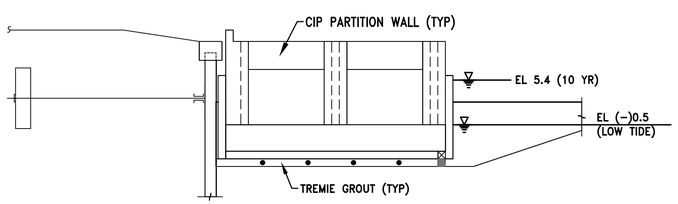
STEP 2.

2A. SEAL ANNULAR SPACE AROUND PILING,
2B. DEWATER TUB FORM,
2C. PLACE STEEL REINFORCEMENT & CONCRETE IN–THE–DRY,
2D. AFTER INITIAL CONCRETE SET, FINISH SLAB SURFACE,
2E. FLOOD FORMWORK & COMPLETE INITIAL WET CURE FOR A MINIMUM OF 7 DAYS UNDISTURBED, AND
2F. AFTER INITIAL WET CURE, USE A PUMP TO REMOVE WATER FROM WITHIN TUB FORM TO EXPOSE TOP OF BASE SLAB; AND REMOVE PUMPED WATER OFF–SITE FOR TREATMENT & DISPOSAL.

STEP 2



PLAN VIEW

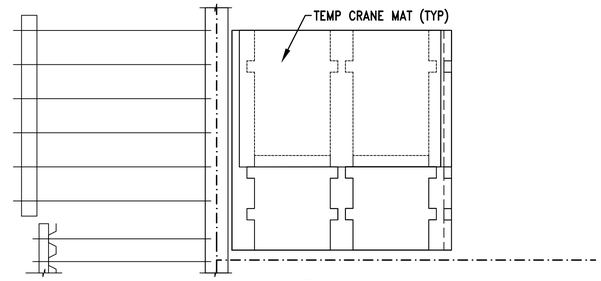


SECTION VIEW THROUGH DEADMAN

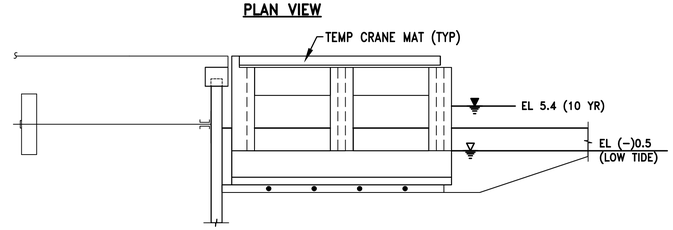
STEP 3.

3A. CONSTRUCT CIP WALLS, AND
3B. PLACE TREMIE GROUT THROUGH VENT PIPE TO FILL VOID BELOW TUB FORM (SLAB). TEMPORARILY RE–FILL AREA WITHIN FORMWORK WITH WATER TO PROVIDE BALLAST (AS NEEDED) TO OFFSET BUOYANT FORCE FROM A HIGH WATER EVENT.

STEP 3



PLAN VIEW



SECTION VIEW THROUGH DEADMAN

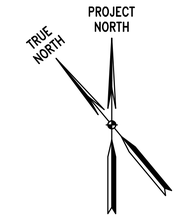
STEP 4.

4A. REMOVE SIDE FORMS, BOTTOM SEAL & BLOCKING, AND
4B. PLACE CRANE MATS TO SERVE AS TEMPORARY BRIDGE DECK & APPROACH FOR CONSTRUCTION ACCESS TO REMAINDER OF TIDE GATE.

STEP 4

IN–THE–WET CONSTRUCTION SEQUENCE (1)

SCALE: 1" = 10'–0"



NOTES:

1. SEE SPECIAL PROVISION SECTION XXX, ANTICIPATED SEQUENCE OF CONSTRUCTION.
2. SEE SHT C–06 FOR THE OVERALL ANTICIPATED CONSTRUCTION SEQUENCE.
3. BOTH IN–THE–WET AND IN–THE–DRY CONSTRUCTION METHODS ARE ACCEPTABLE. COMPLETED WORK MUST SATISFY ALL SPECIFIED PERFORMANCE REQUIREMENTS. REFER TO WORK METHODS IN SPECIFICATION SECTION 105.05(C).
4. THE CONTRACTOR WILL BE REQUIRED TO DETERMINE THE CONSTRUCTION METHOD (IN–THE–WET OR IN–THE–DRY) PRIOR TO COMMENCEMENT OF INTRUSIVE ACTIVITY. THE CONTRACTOR WILL BE RESPONSIBLE TO DETERMINE THE CONSTRUCTION METHOD THAT BEST SUITS HIS EXPERIENCE AND CAPACITY TO BUILD IN A MARINE ENVIRONMENT WITH SEMIDIURNAL TIDAL CYCLE.
5. IF THE IN–THE–DRY CONSTRUCTION METHOD IS USED, A TEMPORARY COFFERDAM WATER CONTROL MEASURE MUST BE FURNISHED THAT IS CAPABLE OF RESISTING LOAD FROM A 10 PERCENT ANNUAL CHANCE HIGH–WATER EVENT WITH WATER SURFACE ON THE UNPROTECTED SIDE OF THE FALSEWORK AT ELEVATION 5.4 FEET (NAVD88 DATUM), WITH A MINIMUM OF 11.4 FEET OF DIFFERENTIAL HYDROSTATIC HEAD ABOVE THE TARGET SUBGRADE ELEVATION. WORKING DRAWINGS FOR THE TEMPORARY COFFERDAM AND DEWATERING MUST BE ACCOMPANIED BY ERECTION PLANS AND DETAILED STABILITY/DESIGN CALCULATIONS, INCLUDING A SEEPAGE ANALYSIS, SLIDING, BOTTOM HEAVE AND PIPING STABILITY, IN ACCORDANCE WITH SPECIFICATION SECTION 105.10.
6. IF THE IN–THE–WET CONSTRUCTION METHOD IS USED, PLANS FOR FALSEWORK, TUB FORMS AND CONCRETE PLACEMENT MUST BE ACCOMPANIED BY ERECTION PLANS AND DETAILED STABILITY/DESIGN CALCULATIONS INCLUDING FLOTATION STABILITY IN ACCORDANCE WITH SPECIFICATION SECTION 105.10. FALSEWORK MUST BE CAPABLE OF RESISTING LOAD FROM A 10 PERCENT ANNUAL CHANCE HIGH–WATER EVENT WITH WATER SURFACE ON THE UNPROTECTED SIDE OF THE FALSEWORK IS AT ELEVATION 5.4 FEET (NAVD88 DATUM).
7. AT THE PRE–CONSTRUCTION CONFERENCE, THE CONTRACTOR MUST DECLARE THE GENERAL SEQUENCE OF WORK AND PROPOSED MEANS AND METHODS FOR THE ENTIRE SCOPE OF WORK, IN ACCORDANCE WITH SPECIFICATION SECTION 105.02.
8. UNLESS NOTED OTHERWISE, DETAILS FOR PERMANENT WORKS IN THIS PLAN SET REFLECT THE IN–THE–WET CONSTRUCTION METHOD. WHERE APPLICABLE, DETAILS THAT PERTAIN TO IN–THE–DRY CONSTRUCTION ARE LABELED AS "ALTERNATE DETAILS."
9. TO PROVIDE CLARITY, A STEP–BY–STEP SCHEMATIC IS SHOWN ON THIS SHEET TO ILLUSTRATE KEY ASPECTS OF BOTH IN–THE–WET AND IN–THE DRY CONSTRUCTION METHODS.

STEP 5. REPEAT STEPS 1 THROUGH 4 TO CONSTRUCT REMAINING 2 GATE BAYS.
STEP 6. COMPLETE CLOSURE POUR WITH ANCHORED SHEET PILE BULKHEAD AT RIGHT (NORTHEASTERLY) BANK.
STEP 7. REMOVE TEMPORARY CRANE MATS, AND INSTALL PERMANENT APPROACH SLAB AND ACCESS BRIDGE DECK (WITH REMOVABLE DECK PLATE).
STEP 8. INSTALL SHEET PILE, TOE WALL AND KNEE WALL AT LEFT BANK.
STEP 9. PLACE WALL BACKFILL AND REVETMENT AT LEFT BANK.
STEP 10. INSTALL SLIDE GATES WITH SEALS AND ACTUATORS. USE SHIMS TO ALIGN SLIDE GATES. COMPLETE GATE COMMISSIONING, AND THEN PLACE GROUT WITH WATERSTOPS TO SECURE GATES IN PLACE.

SHEET PILE CUTOFF, CONCRETE PILING, HOLES IN TUB FORM, TEMPORARY STRADDLE BEAMS, SLIDE GATES AND ACTUATORS ARE NOT SHOWN ON THIS SHEET FOR CLARITY.

0 10 20 30
GRAPHIC SCALE: 1"= 10'

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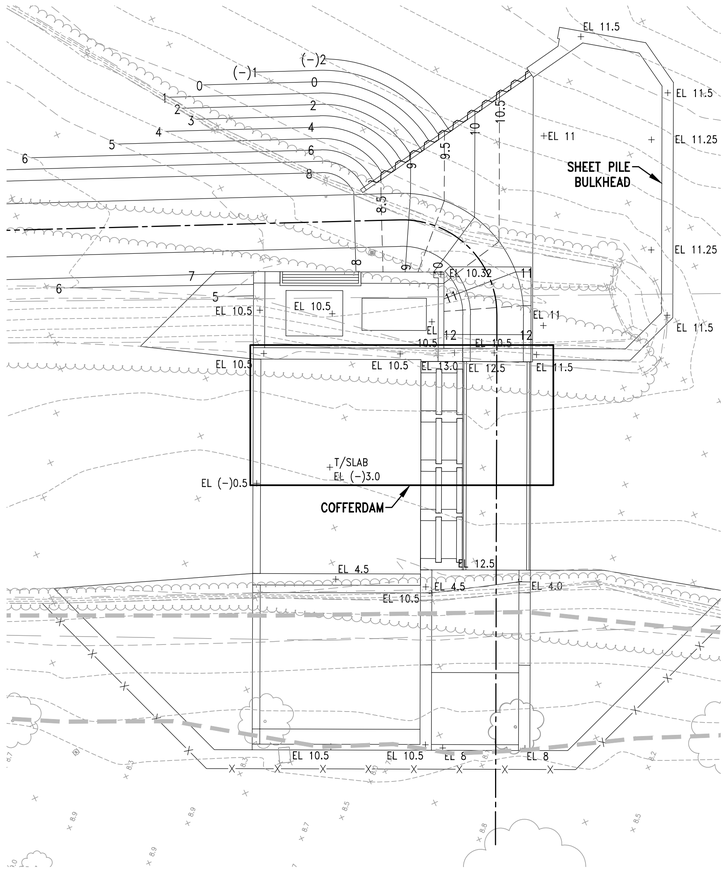
CADD FILE	FIG 8 CSEQINWET

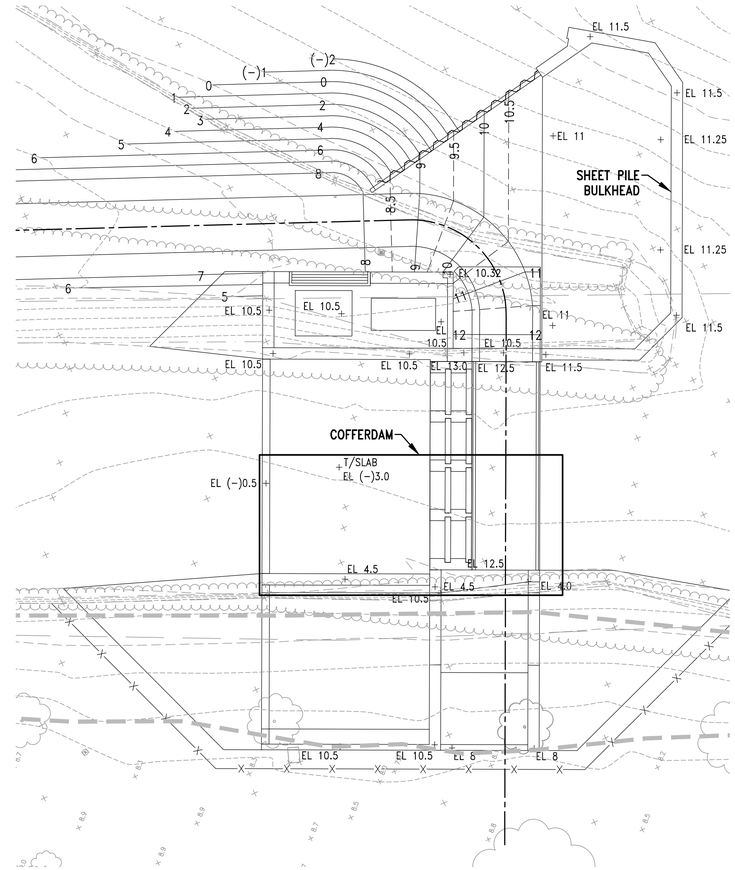
CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 8 – TIDE GATE – ANTICIPATED CONSTRUCTION SEQUENCE IN–THE–WET OPTION

SHEET ____ OF ____ SHEETS



PHASE 1



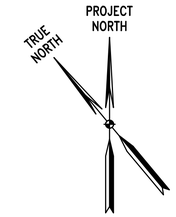
PHASE 2

STEP 1.
INSTALL APPROVED TEMPORARY COFFERDAM WITH INTERNAL BRACING, AS REQUIRED. THE TEMPORARY COFFERDAM MUST FORM A SHEET PILE STRUCTURE THAT COMPLETELY ENCIRCLES THE AREA TO BE DEWATERED. THE CONTRACTOR WILL BE RESPONSIBLE TO DETERMINE THE DEPTH OF TEMPORARY SHEET PILE REQUIRED TO SATISFY PERFORMANCE REQUIREMENTS INCLUDING OPERATION OF THE DEWATERING SYSTEM. A PRESSURE RELIEF AND INSTRUMENTATION SYSTEM MUST BE INSTALLED AS PART OF THE TEMPORARY COFFERDAM TO ELIMINATE BUILDUP OF DIFFERENTIAL PRESSURE BETWEEN THE PREPARED SUBGRADE AND ATMOSPHERIC PRESSURE ABOVE, TO MITIGATE AGAINST DEVELOPMENT OF FLEXURAL STRESS ON COMPLETED WORKS INVOLVING CAST-IN-PLACE CONCRETE THAT HAS CURED FOR LESS THAN 21 CONTINUOUS CALENDAR DAYS IN PLACE. DEWATERING WILL ALSO BE REQUIRED TO DEVELOP A STABLE SUBGRADE, AND PERMIT CONCRETE CONSTRUCTION (PLACEMENT AND CURING), AND BACKFILLING IN-THE-DRY.

STEP 2.
DEWATER TO MAINTAIN A TOTAL HYDROSTATIC ELEVATION (HEAD) THAT IS AT A DEPTH OF AT LEAST 2 FEET BELOW THE LOWEST PREPARED SUBGRADE ELEVATION THAT IS PLANNED WITHIN THE INTERIOR OF THE AREA THAT IS ENCIRCLED BY THE TEMPORARY COFFERDAM. MAINTAIN DEWATERING CONTINUOUSLY, UNTIL SUCH TIME THAT CONCRETE IS PLACED AND CURED FOR A MINIMUM OF 21 CONTINUOUS CALENDAR DAYS WITHOUT BUILDUP OF ANY FLEXURAL STRESS DUE TO FLUCTUATION IN DIFFERENTIAL HYDROSTATIC PRESSURE AT THE PREPARED SUBGRADE ELEVATION.

STEP 3.
AFTER WORK IS COMPLETED (INCLUDING A MINIMUM 21 CALENDAR DAY CURING PERIOD FOR THE YOUNGEST CONCRETE PLACED WITHIN THE COFFERDAM), THE NEXT STAGE OF TEMPORARY COFFERDAM WORK MAY PROCEED.

STEP 4.
REPEAT STEPS 1, 2, AND 3.



NOTES:
1. SEE SHT S-09 NOTES 1 THROUGH 9.
2. THE EXISTING CHANNEL BOTTOM FOR THALIA CREEK MUST NOT BE CONSTRICTED MORE THAN 55 PERCENT OF THE PRE-CONSTRUCTION CHANNEL BOTTOM WIDTH AT ANY TIME.
3. TEMPORARY SHEET PILING MUST BE ABANDONED IN-PLACE AT NO ADDITIONAL COST TO THE OWNER.

IN-THE-DRY CONSTRUCTION SEQUENCE (1)

SCALE: 1" = 20'-0"

0 20 40 60
GRAPHIC SCALE: 1"= 20'

NO.	DATE	BY	REVISION
			60% DESIGN SUBMITTAL

CITY OF VIRGINIA BEACH, VA

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http://www.mbakerintl.com

SCALE HORIZ:	1" = 20'
VERT:	N/A
DATE:	DEC 2019
DRAWN BY:	DAB
CHECKED BY:	DRG
APPROVED BY:	NKD

PROJECT NO.	PWCN-17-0192
JOB NO.	161931
CADD FILE	FIG9 CSEQINDRY

CITY OF VIRGINIA BEACH – DEPARTMENT OF PUBLIC WORKS
LAKE WINDSOR TIDE GATE & INTERIM PUMP STATION

FIGURE 9 – TIDE GATE – ANTICIPATED CONSTRUCTION SEQUENCE IN-THE-DRY OPTION

SHEET ____ OF ____ SHEETS