

A. GENERAL CONDITIONS

- 1. THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE STRUCTURES. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING THE WORK.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STRUCTURAL STABILITY DURING CONSTRUCTION. THE STRUCTURE SHOWN ON THE DRAWINGS HAS BEEN DESIGNED FOR STABILITY UNDER THE FINAL CONFIGURATION ONLY.
- 3. ALL WORK SHALL BE IN COMPLIANCE WITH LATEST EDITION OF THE OHIO BUILDING CODE AND CURRENT AMENDMENTS.
- 4. THE OWNER IS RESPONSIBLE FOR ZONING COMPLIANCE AND LOCAL BUILDING PERMITS, IF REQUIRED, PRIOR TO CONSTRUCTION.
- 5. APPLICABLE STATE OR FEDERAL MANDATED PERMITS SHALL BE OBTAINED PRIOR TO CONSTRUCTION.
- 6. STORM WATER PERMIT, IF REQUIRED, SHALL BE OBTAINED PRIOR TO CONSTRUCTION.

B. CAST-IN-PLACE CONCRETE

- 1. REINFORCED CONCRETE SHALL COMPLY WITH ACI 318 AND THE RECOMMENDATIONS OF ACI 350.
- 2. MINIMUM CONCRETE STRENGTH AT 28 DAYS: STRUCTURAL CONCRETE: f'c = 4500 PSI

MAXIMUM WATER/CEMENT RATIO IS 0.42.

- 3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, ASTM A615, GRADE 60.
- 4. REINFORCING STEEL FABRICATION SHALL BE IN COMPLIANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
- 5. CONCRETE MIX SHALL COMPRISE, AT A MINIMUM, TYPE I CEMENT, 4-7% AIR, SLUMP OF 4-6 INCHES, AND SIZE 57 OR 67 AGGREGATE. MIX DESIGN MAY INCORPORATE CLASS C OR F FLY ASH UP TO 25% OF CEMENT CONTENT.
- 6. ALL EXPOSED CORNERS OF CONCRETE TO HAVE 34" MINIMUM CHAMFER UNLESS NOTED OTHERWISE.
- 7. REINFORCING BARS TO EXTEND 12 BAR DIAMETERS BEYOND BAR BENDS, UNLESS NOTED OTHERWISE.
- 8. REINFORCING STEEL SHALL HAVE THE FOLLOWING MINIMUM CLEAR CONCRETE COVER UNLESS OTHERWISE NOTED:

 a. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"

 b. CONCRETE SURFACES IN CONTACT WITH EARTH, WATER, SEWAGE, SLUDGE OR EXPOSED TO WEATHER (INCLUDING BOTTOM COVER OVER LIQUID CONTAINING
 - STRUCTURES): 2"
 c. CONCRETE SURFACES NOT IN CONTACT WITH SOIL, WATER, SEWAGE, SLUDGE OR EXPOSED TO WEATHER: WALLS AND TOP AND BOTTOM OF SLABS: 1"
- 9. FINISH AND SEAL CONCRETE SURFACE AS PER OWNER'S REQUIREMENTS. AT A MINIMUM, FINISH ALL CONCRETE SURFACES TO A TOLERANCE OF & IN 10 FEET. SLOPE CONCRETE TO DRAINS AND TRENCHES AS SHOWN ON THE DRAWINGS. SEE DRAWINGS FOR AREAS THAT REQUIRE A TROWEL OR BROOM FINISH.

C. SUBSURFACE PREPARATION

- 1. CLEAR AREA WHERE NEW CONSTRUCTION WILL BE INSTALLED. REMOVE VEGETATION, CONCRETE, ASPHALT AND ANY OTHER DELETERIOUS AND COMPRESSIBLE MATERIALS.
- 2. EXCAVATE TO ELEVATION REQUIRED FOR FOUNDATION AND UNDERGROUND PIPING AND UTILITY SUBBASE. DISPOSE OF MATERIAL AS DIRECTED BY THE OWNER. COMPACT SUBBASE AS DESCRIBED BELOW. IF SUBBASE DISPLAYS ANY ELASTICITY OR THE CONSTRUCTION FOR THE CONSTRUCTION.
- DEFORMATION UNDER THE WEIGHT OF THE CONSTRUCTION EQUIPMENT OR THE
 COMPACTION CRITERIA CANNOT BE ACHIEVED, OR IF UNDESIRABLE MATERIAL SUCH AS
 SEAMS OR ORGANIC MATERIAL ARE ENCOUNTERED, THE MATERIAL SHALL BE
 OVER
 EXCAVATED AND RE—COMPACTED, OR REMOVED AND REPLACED WITH SUITABLE
 MATERIAL
 - 3. STRUCTURAL BACKFILL SHALL BE DENSE-GRADED GRANULAR SOIL WHICH CONFORMS TO AASHTO No. 57 CRUSHED STONE. ALTERNATE MATERIAL SUCH AS WELL GRADED BANK RUN SAND AND GRAVEL (USCS DESIGNATION GW, SW, GW-GM OR SW-SM) MAY BE USED. ALTERNATE MATERIALS SHALL BE TESTED AND APPROVED PRIOR TO SITE DELIVERY AND USE.
 - 4. ALL FILL MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 6 TO 8 INCHES THICK AND BE UNIFORMLY MOISTURE CONDITIONED. EACH LIFT SHALL BE COMPACTED TO 98% (PREFERABLY 100%) OF STANDARD PROCTOR MAX. DRY DENSITY AND WITHIN THE RANGE OF ± 1000 OF OPTIMUM MOISTURE CONTENT, AS PER ASTM D 698.
 - 5. AT THE END OF EACH WORK DAY, FILL OPERATION SHOULD BE SLOPED BACK AWAY FROM EXCAVATION. ALSO, THE FILL SHOULD BE COMPACTED WITH A SMOOTH-DRUM ROLLER TO "SEAL" THE FILL AND REDUCE IMPACT FROM ANY PRECIPITATION AS REQUIRED.
 - 6. UPON COMPLETION OF EXCAVATION AND ANY SUBSEQUENT BACKFILL AND COMPACTION OPERATIONS, THE CONTRACTOR SHALL VERIFY A 2,000 PSF (MIN.) BEARING CAPACITY OF THE FOUNDATION SUB BASE.

D. STRUCTURAL STEEL

- 1. STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE THIRTEENTH EDITION OF THE "AISC MANUAL OF STEEL CONSTRUCTION"
- 2. MATERIALS:
 a. BEAMS, COLUMNS AND STRUCTURAL TEES (W SHAPES): ASTM A992, GRADE 50
 b. M,S AND HP SHAPES, CHANNELS: ASTM A572, GRADE 50
 - c. ANGLES AND PLATES: ASTM A36
 d. STRUCTURAL PIPES: ASTM A53, TYPE E OR S, GRADE B
 e. SQUARE AND RECTANGULAR HSS: ASTM A500, GRADE B.

3. CONNECTIONS:

a. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE—STEEL". WELDING FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70XX LOW HYDROGEN ELECTRODES. WELDERS SHALL BE AWS CERTIFIED. SUBMIT COPY OF ALL CERTIFICATIONS TO THE ENGINEER. SURFACES TO BE WELDED SHALL BE WIRE BRUSHED CLEAN BEFORE WELDING.

- b. ALL FIELD CONNECTIONS SHALL USE BOLTS, UNLESS NOTED OTHERWISE. ALL SHOP AND FIELD INSTALLED BOLTS SHALL BE %" DIA ASTM A-325 TYPE N BOLTS IN STANDARD HOLES, AND SNUG TIGHT, UNO. BOLTS FOR HANGER AND SIMILAR TENSION MEMBER CONNECTIONS SHALL BE ¾" DIA ASTM A325 TYPE SC IN STANDARD HOLES (NOTED "SC" ON DETAILS).
 - c. ALL BOLTED CONNECTIONS 2 BOLTS MINIMUM, UNO. d. FABRICATE AND ERECT ALL STRUCTURAL STEEL WITH RESIDUAL MILL CAMBER UPWARDS. e. MACHINE BOLTS SHALL BE ASTM A307.
- 4. ANCHOR RODS SHALL BE ASTM F1554 GRADE 36, UNO.
- 5. ALL MEMBERS SHALL BE PRIME PAINTED WITH TWO COATS OF TNEMEC SERIES L69 HI-BUILD EPOXOLINE II, 3 MILS EACH COAT AND A FINISH COAT OF TNEMEC SERIES 1080, ENDURA-SHIELD, 2.5 MILS (OR EQUAL).
- 6. GROUT BELOW BASE PLATES SHALL BE FLOWABLE, NON-SHRINK, NON-METALLIC AND SHALL CONFORM TO ASTM C827, C1090 AND C1107, GRADE C.

E. METAL FABRICATIONS

- 1. CONFORM TO REQUIREMENTS FOR STRUCTURAL STEEL, TYP. UNO.
- 2. ADHESIVE OR MECHANICAL ANCHORS IN CONCRETE SHALL BE GALVANIZED STEEL ANCHORS AND SHALL BE INSTALLED AS PER MANUFACTURER'S REQUIREMENTS AND WITH THE FOLLOWING EMBEDMENT, UNO:
- ½" DIA 4¼" EMBEDMENT %" DIA — 5" EMBEDMENT ¾" DIA — 6%" EMBEDMENT

F. PRECAST CONCRETE NOTES

PRECAST SUMP

CONCRETE: 5000 PSI @ 28 DAYS

ENTRAINED AIR: 5% - 9%

STEEL: ASTM A496-A615 GRADE: 60 KSI

JOINT FACE PREPARED

CONSTRUCTION JOINT

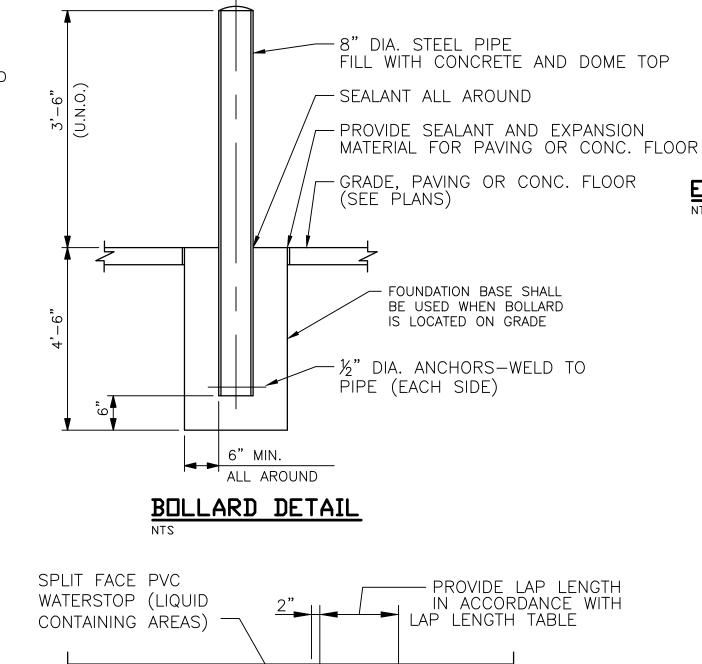
SIMILAR TO

GRATING SUPPORT:

OPTION 1: PROVIDE AN EMBEDDED FRP CURB ANGLE WHICH SHALL BE SIZED TO FIT 1" OR 2" DEEP FRP GRATING. SEE STANDARD DETAIL THIS SHEET.

OPTION 2: CONTRACTOR SHALL PROVIDE A STEEL SHELF ANGLE, BOLTED INTO PRECAST OR CAST—IN—PLACE CONCRETE SUMP WALLS TO ACCOMMODATE 1" OR 2" DEEP FRP GRATING. SEE STANDARD DETAIL THIS SHEET.

CONTROL JOINT DETAIL



'THK. BASE PLATE

DIA. HILTI KWIK

BOLT, GALVANIZED,

W/ 6½" EMBED.

TYP. OF (4)

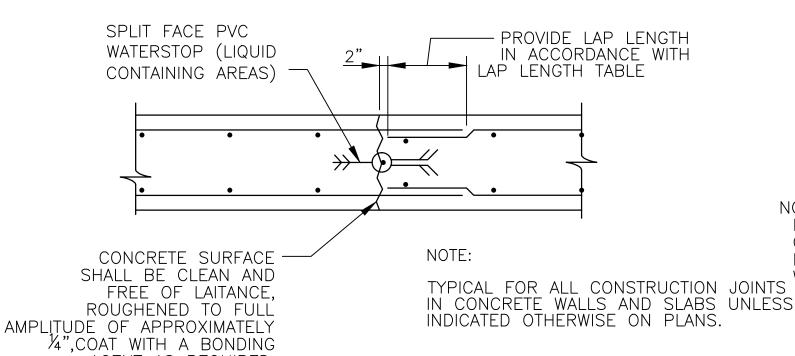
ALTERNATE BASE DETAIL (ON SLAB)

(IN LIEU OF CONCRETE FOUNDATION)

TOP OF GRATING

FLUSH W/TOP

OF CONCRETE —



EQUIP. SUPPORT +8" (TYP. ALL AROUND) -#4 BARS AT 12" EACH WAY 1" CLR. -ANCHOR (TYP.) -6"LEG (TYP.) -ROUGHEN SURFACE -#4 BARS AT 12" (TYP.) PLACE VERTICAL LÈG IN 34" DIA. DRILLED HOLE FILLED WITH NON-SHRINK GROUT. DOWELS ONLY REQUIRED FOR MECHANICAL EQUIPMENT. DOWELS CAN BE OMITTED FOR THE TANK HOUSE KEEPING PROVIDE PADS FOR EQUIPMENT SUPPORTED ON STRUCTURAL OR ELEVATED SLABS AND ELECTRICAL AND MECHANICAL EQUIPMENT WEIGHING LESS THAN 5000 LBS. TYPICAL EQUIPMENT PAD DETAIL

-ANGLE (AS REQ'D) (CUT VERT. LEG AS REQ'D

GALVANIZED ANGLE FOR GALVANIZED GRATING.

-SEE PLANS ON DWG.

00S-03 AND 00S-04

FOR GRATING DETAILS

L2½×2½×¾-

 $2\frac{3}{4}$ " EMB. FOR Q = 60" TO 84"

STAINLESS STEEL

SURFACE MOUNTED SUPPORT

KWIK-BOLTS @ 24"

 $\frac{1}{2}$ " DIA. x $\frac{2}{4}$ " EMB. FOR

UP TO 60", %" DIA. x

CLEAR SPAN

GRATING DETAILS

DEPTH

- GALVANIZED STEEL GRATING:

EMBEDDED FRP CONCRETE

CURB ANGLE, SIZE AS REQ'D

FRP GRATING:

EMBEDDED SUPPORT

1"x¼" BAR ANCHOR @24" C/C

FRP CONCRETE CURB ANGLE FOR FRP GRATING

TO MAKE FLUSH W/CONCRETE & GRATING)

AGENT AS REQUIRED. CONSTRUCTION JOINT DETAIL

NFORCEMENT LAP	LENGTH	S							
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR *	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"	5'-1"	7'-6"	9'-6"	11'-8"
OTHER BAR	1'-4"	1'-7"	1'-11"	2'-4"	3'-1"	3'-11"	5'-9"	7'-4"	9'-0"
TOP BAR *	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	7'-8"	9'-4"
OTHER BAR	1'-4"	1'-7"	1'-11"	2'-4"	2'-9"	3'-1"	4'-8"	5'-10"	7'-2"
S AND COLUMNS	S								
TOP BAR *	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-3"	7'-6"	9'-6"	11'-8"
OTHER BAR	1'-4"	1'-7"	1'-11"	2'-4"	2'-9"	3'-3"	5'-9"	7'-4"	9'-0"
	BAR SIZE CING TOP BAR * OTHER BAR TOP BAR * OTHER BAR IS AND COLUMN TOP BAR *	BAR SIZE #3 TOP BAR * 1'-6" OTHER BAR 1'-4" TOP BAR * 1'-6" OTHER BAR 1'-4" IS AND COLUMNS TOP BAR * 1'-6"	BAR SIZE #3 #4 TOP BAR * 1'-6" 2'-0" OTHER BAR 1'-4" 1'-7" TOP BAR * 1'-6" 2'-0" OTHER BAR 1'-4" 1'-7" IS AND COLUMNS TOP BAR * 1'-6" 2'-0"	BAR SIZE #3 #4 #5 TOP BAR * 1'-6" 2'-0" 2'-6" OTHER BAR 1'-4" 1'-7" 1'-11" TOP BAR * 1'-6" 2'-0" 2'-6" OTHER BAR 1'-4" 1'-7" 1'-11" IS AND COLUMNS TOP BAR * 1'-6" 2'-0" 2'-6"	BAR SIZE #3 #4 #5 #6 TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" IS AND COLUMNS TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0"	BAR SIZE #3 #4 #5 #6 #7 TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 4'-0" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 3'-1" TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 2'-9" IS AND COLUMNS TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6"	BAR SIZE #3 #4 #5 #6 #7 #8 TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 4'-0" 5'-1" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 3'-1" 3'-11" TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" 4'-0" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 2'-9" 3'-1" MS AND COLUMNS TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" 4'-3"	BAR SIZE CING #3 #4 #5 #6 #7 #8 #9 TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 4'-0" 5'-1" 7'-6" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 3'-1" 3'-11" 5'-9" TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" 4'-0" 6'-0" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 2'-9" 3'-1" 4'-8" IS AND COLUMNS TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" 4'-3" 7'-6"	BAR SIZE #3 #4 #5 #6 #7 #8 #9 #10 TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 4'-0" 5'-1" 7'-6" 9'-6" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 3'-1" 3'-11" 5'-9" 7'-4" TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" 4'-0" 6'-0" 7'-8" OTHER BAR 1'-4" 1'-7" 1'-11" 2'-4" 2'-9" 3'-1" 4'-8" 5'-10" MS AND COLUMNS TOP BAR * 1'-6" 2'-0" 2'-6" 3'-0" 3'-6" 4'-3" 7'-6" 9'-6"

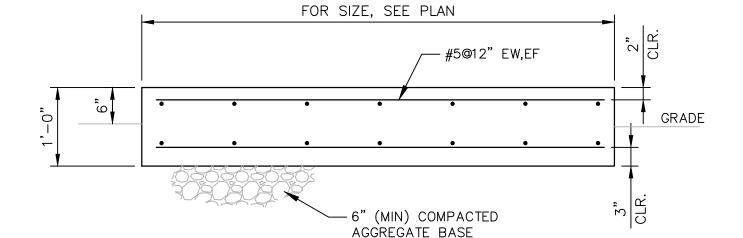
9" EXPANSION STYLE

STOP 2/3 OF REINFORCING

EACH SIDE OF CONTROL

PVC WATERSTOP

* TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TO BE TOP BARS.



STANDARD EQUIPMENT OR HOUSEKEEPING PAD DETAIL

LAP LENGTH TABLE

				PROJECT MANAGER -
DR				
ingineering, Inc.				
	ISSUE	DATE	DESCRIPTION	PROJECT NUMBER - 240563

HWR GOFF STORAGE SYSTEM NORWICH, OH

STRUCTURAL GENERAL NOTES AND DETAILS 1" 2" FILENAME 00S-01.DWG SHEET

SCALE NTS

00S-01

