CODE:

2018 EDITION OF THE INTERNATIONAL BUILDING CODE WITH CITY OF FLAGSTAFF AMENDMENTS, AND ALL REFERENCED STANDARDS AND SPECIFICATIONS THEREIN. CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES. CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER OF RECORD OF ANY DISCREPANCIES.

DESIGN LOADS:

PIPE DEAD LOAD	60 PLF CONTROLS DESIGN (12" DIA. 23/50" THICK, DUCTILE IRON PIPE)
WIND LOADS:	
RISK CATEGORY	II
VELOCITY:	
ULTIMATE DESIGN WIND SPEED	101
NOMINAL DESIGN WIND SPEED	79
BUILDING CATEGORY	WALL AND SIGNS
EXPOSURE	"B"
MAIN WIND FORCE RESISTING SYSTEM:	
DESIGN WIND PRESSURE	16 PSF
FLUID LOAD:	NONE
12" DIA. DUCTILE IRON PIPE	120 LBS
18" DIA. CORRUGATED PIPE	382 LBS

FOUNDATIONS:

GEOTECHNICAL CONSULTANT: SPEEDIE AND ASSOCIATES, INC.

REPORT NUMBER: 171250SF

SPREAD FOOTINGS	DESIGN SOIL BEARING VALUE
SPREAD FOOTING BEARING DIRECTLY ON DECOMPOSED MOENKOPI SANDSTONE BEDROCK OR ON CONCRETE SLURRY TO MOENKOPI SANDSTONE BEDROCK.	4,000 PSF

EXTERIOR FOOTING DEPTH = 30".

GEOTECHNICAL ENGINEER TO VERIFY BEARING STRATA, SEE GEOTECHNICAL REPORT AND TYPICAL DETAILS FOR MORE INFORMATION.

CONCRETE:

TYPICAL CONCRETE COMPRESSIVE STRENGTHS		
CONCRETE	MINIMUM 28 DAY COMPRESSIVE STRENGTH	SLUMP AT PLACEMENT
U.N.O., ALL CONCRETE SHALL BE	4,500 PSI	4" MAXIMUM
FOOTINGS GREATER THAN 30" BELOW GRADE	2,500 PSI	4" MAXIMUM

MAXIMUM WATER/CEMENT RATIO FOR ALL CONCRETE SHALL BE 0.45 U.N.O. CONCRETE SLABS SHOULD BE ALLOWED TO CURE ADEQUATELY BEFORE APPLYING MOISTURE SENSITIVE MATERIAL. COORDINATE WITH FLOORING MANUFACTURER FOR ALL REQUIREMENTS.

CNCRETE TO BE DESIGNED AS EXPOSURE CLASS F2 FOLLOWING REQUIREMENTS IN ACI 318-14 SECTION 26.4.2.2.

CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP NOT EXCEEDING 3", TO BE FIELD VERIFIED, PRIOR TO ADDING ADMIXTURE, AND NOT EXCEEDING 8" AT PLACEMENT. ADDITION OF WATER TO THE BATCH WILL NOT BE PERMITTED.

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED.

ALL AGGREGATE SHALL BE TESTED FOR DELETERIOUS MATERIALS USING PETROGRAPHIC ANALYSIS (ASTM C 292) OR THE RAPID MORTAR BAR TEST (ASTM C 1260). AGGREGATE WHICH SHOWS POTENTIAL FOR DELETERIOUS ALKALI-SILICA REACTION SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD AND MITIGATION METHODS WHICH MAY INCLUDE ADDING EITHER CLASS F FLY ASH OR A LITHIUM ADMIXTURE WILL BE REQUIRED.

CONCRETE PLACEMENT AND CURING SHALL BE IN ACCORDANCE WITH ACI RECOMMENDATIONS.

COLD WEATHER PLACEMENT OF CONCRETE:
THE CONTRACTOR SHALL PROVIDE HEATING EQUIPMENT FOR CONCRETE MATERIALS AND PROTECT CONCRETE DURING FREEZING OR NEAR FREEZING WEATHER. ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS AND THE GROUND WITH WHICH THE CONCRETE IS TO COME INTO CONTACT, SHALL BE FREE FROM FROST. FROZEN MATERIALS OR MATERIALS CONTAINING FROST SHALL NOT BE USED. ALL ACI-318 AND I.B.C. PROVISIONS FOR COLD WEATHER PLACEMENT OF CONCRETE SHALL APPLY.

FREEZING AND THAWING EXPOSURE:
NORMAL WEIGHT CONCRETE EXPOSED TO FREEZING AND THAWING OR DE-ICING CHEMICALS SHALL BE AIR-ENTRAINED WITH AIR CONTENT INDICATED IN TABLE 19.3.3.1 OF THE ACI 318-14. TOLERANCE ON AIR CONTENT AS DELIVERED SHALL BE +/- 1.5%. FOR SPECIFIED COMPRESSIVE STRENGTH F'c GREATER THAN 5,000 PSI, AIR CONTENT INDICATED MAY BE REDUCED BY 1%.

REINFORCING:

TYPICAL REINFORCING BAR STRENGTHS	
#3 OR LARGER	ASTM A615 (GR60) DEFORMED

TYPICAL CONCRETE COVERAGES	
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"
ALL OTHERS PER LATEST EDITION OF ACI 318.	

ALL REINFORCING TO BE WELDED SHALL BE WELDED IN ACCORDANCE WITH AWS D1.4. NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY.

LAP SPLICES IN CONCRETE:
UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, WALLS, AND SLABS SHALL BE CLASS "B" TENSION LAP SPLICES AND LAP SPLICES IN CONCRETE COLUMNS SHALL BE STANDARD COMPRESSION LAP SPLICES PER THE LATEST EDITION OF ACI 318. STAGGER ALTERNATE SPLICES A MINIMUM OF ONE LAP LENGTH. LAPS IN WELDED WIRE FABRIC SHALL BE MADE SO THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES.

ALL SPLICE LOCATIONS SUBJECT TO APPROVAL. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS. REINFORCING BAR SPACINGS GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. CONCRETE COLUMN DOWEL EMBEDMENT SHALL BE A STANDARD COMPRESSION DOWEL EMBEDMENT LENGTH ACCORDING TO THE LATEST EDITION OF ACI 318.

MASONRY:

HOLLOW CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 GRADE N, TYPE 1, F'm=2,000 PSI, RUNNING BOND, MORTAR TYPE S 1,800 PSI, GROUT 2,000 PSI.

MECHANICALLY VIBRATE GROUT IN VERTICAL SPACES IMMEDIATELY AFTER POURING AND AGAIN AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED (ABOUT 5 MINUTES AFTER FIRST VIBRATION). PROVIDE CLEAN OUTS IF GROUT LIFT EXCEEDS 4'-0" IN BLOCK WALLS. MAXIMUM GROUT LIFT SHALL BE 8'-0" UNLESS NOTED OTHERWISE ON THE PLANS.

UNLESS NOTED OTHERWISE ON THE PLANS, PLACE CONTROL JOINTS IN MASONRY WALLS SUCH THAT NO STRAIGHT RUN OF WALL EXCEEDS 24'-0".

MASONRY REINFORCING:

VERTICAL REINFORCING: #5 BARS - TYPICAL UNLESS NOTED OTHERWISE

IN CENTER OF GROUT AT CENTER OF WALL, CONTINUOUS FULL HEIGHT OF WALL WITH ONE BAR AT ALL CORNERS, INTERSECTIONS, WALL ENDS, BEAM BEARINGS, JAMBS AND EACH SIDE OF CONTROL JOINTS AND AT INTERVALS NOT TO EXCEED 48" O. C. UNLESS NOTED OTHERWISE. TIE AT 8'-0" VERTICALLY, WITH SINGLE WIRE LOOP TIE BY A. A. PRODUCTS COMPANY. LAP SPLICES SHALL BE 40 BAR DIAMETERS FOR GRADE 40 BARS AND 48 BAR DIAMETERS FOR GRADE 60 BARS. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION WITH DOWELS TO MATCH VERTICAL WALL OR COLUMN REINFORCING.

MASONRY REINFORCING (CONT.):

HORIZONTAL REINFORCING: #5 BARS - TYPICAL UNLESS NOTED OTHERWISE

TWO BARS IN MINIMUM 8" DEEP GROUTED CONTINUOUS BOND BEAM AT ROOF AND ELEVATED FLOOR LINES. ONE BAR IN MINIMUM 8" DEEP GROUTED CONTINUOUS BOND BEAM AT TOP OF PARAPET OR TOP OF A FREE-STANDING WALL. PLACE THESE BARS CONTINUOUS THROUGH CONTROL JOINT. WRAP MASTIC TAPE FOR 1'-6" EACH SIDE OF CONTROL JOINT. PROVIDE BENT BARS, TO MATCH HORIZONTAL BOND BEAM REINFORCING, AT CORNERS AND WALL INTERSECTIONS TO MAINTAIN BOND BEAM CONTINUITY. LAP SPLICES SHALL BE 40 BAR DIAMETERS FOR GRADE 40 BARS AND 48 BAR DIAMETERS FOR GRADE 60 BARS. STAGGER ALTERNATE SPLICES A MINIMUM OF 40 BAR DIAMETERS. PROVIDE STANDARD WEIGHT (NO. 9 GAUGE WIRE) HOHMANN AND BARNARD LADDER TYPE JOINT REINFORCING AT 16" O.C. IN MASONRY WALLS. IN LIEU OF HOHMANN AND BARNARD, AT CONTRACTOR'S OPTION PROVIDE TWO BARS IN 8" DEEP GROUTED CONTINUOUS BOND BEAM AT 4'-0" O.C. IN MASONRY WALLS.

STRUCTURAL STEEL:

TYPICAL STEEL STRENGTHS	
PLATES, ANGLES, AND MISC.	ASTM A36 (Fy = 36 KSI)
TUBULAR STEEL (HSS)	ASTM A500 GRADE "B" (Fy = 46 KSI)
ANCHOR BOLTS	ASTM F1554-36

LATEST AISC AND AWS CODES APPLY. ALL CONSTRUCTION PER LATEST AISC SPECIFICATIONS. ALL EXPANSION BOLTS SHALL HAVE AN ICC RATING FOR MATERIAL INTO WHICH INSTALLATION TAKES PLACE. SEE TYPICAL DETAIL. ALL REFERENCE TO HEADED STUDS SHALL INDICATE AUTOMATIC WELDED HIGH STRENGTH HEADED STUDS (NELSON OR EQUIVALENT). ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS. ALL HIGH STRENGTH BOLTS SHALL BE TIGHTENED TO THE SNUG -TIGHT CONDITION AS DEFINED BY AISC UNLESS NOTED OTHERWISE. ALL WELDING BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING DONE BY E70 SERIES LOW HYDROGEN RODS. USE E90 SERIES FOR ASTM A706 REINFORCING BARS. ALL WELDING PER AMERICAN WELDING SOCIETY STANDARDS. ALL WELDS ON DRAWINGS ARE SHOWN AS SHOP WELDS. CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. SHOP WELDS OR FIELD WELDS SHALL BE SHOWN ON SHOP DRAWINGS. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY. ALL BEAMS SHALL BE ERECTED WITH THE NATURAL CAMBER UPWARDS.

EXPANSION BOLTS / ADHESIVE ANCHORS:

EXPANSION BOLTS AND ADHESIVE ANCHORS SHALL BE AS SPECIFIED IN TYPICAL DETAILS. ALL CONCRETE OR MASONRY SHALL BE AT ITS SPECIFIED DESIGN STRENGTH AT THE TIME OF INSTALLATION. SPECIAL INSPECTION IS REQUIRED FOR THE INSTALLATION OF EXPANSION BOLTS AND ADHESIVE ANCHORS.

DIMENSIONS:

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS AND ELEVATIONS WITH THE CIVIL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH CIVIL ENGINEER.

SPECIAL INSPECTIONS:

SPECIAL INSPECTION IS REQUIRED DURING THE FOLLOWING OPERATIONS PER I.B.C. SECTION 1704:

CONCRETE:	DURING TAKING OF TEST SPECIMENS AND PLACING OF REINFORCED CONCRETE. SEE PROJECT SPECIFICATIONS FOR FREQUENCY OF TESTING AND STRENGTH REQUIREMENTS. NO SPECIAL INSPECTION IS REQUIRED FOR NON-STRUCTURAL SLABS ON GRADE, ISOLATED SPREAD FOOTINGS, OR CONTINUOUS WALL FOOTINGS SUPPORTING LIGHT FRAMED CONSTRUCTION WHERE f'c IS 2500 PSI OR LESS.
BOLTS INSTALLED IN CONCRETE:	PRIOR TO AND DURING PLACEMENT OF CONCRETE AROUND BOLTS.
WELDING:	DURING ALL STRUCTURAL WELDING INCLUDING WELDING OF REINFORCING STEEL.
EXPANSION BOLTS AND ADHESIVE ANCHORS:	DURING THE DRILLING AND INSTALLATION OF EXPANSION BOLTS AND ADHESIVE ANCHORS.
STRUCTURAL MASONRY:	DURING PLACEMENT OF REINFORCING, INSPECTION OF GROUT SPACE IMMEDIATELY PRIOR TO CLOSING OF CLEAN OUTS AND DURING PLACEMENT OF ALL GROUT. SPECIAL INSPECTION FOR PLACING OF UNITS MAY BE PERFORMED ON A PERIODIC BASIS.
SOILS:	BEARING CAPACITY OF SOIL STRATA, EXCAVATION DEPTH AND BEARING MATERIAL, CLASSIFICATION AND TESTING OF FILL MATERIAL, COMPACTION, AND SUBGRADE PREPARATION.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

1. SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
2. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE ENGINEER OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL.
3. UPON COMPLETION OF THE ASSIGNED WORK, THE ENGINEER SHALL COMPLETE AND SIGN A FINAL REPORT CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:

1. FOR INSPECTION OF CONCRETE, BOLTS IN CONCRETE, REINFORCING STEEL, EXPANSION BOLTS, ADHESIVE ANCHORS, AND STRUCTURAL MASONRY, NOTIFY THE SPECIAL INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.
2. FOR INSPECTION OF WELDING AND CAISSONS NOTIFY THE SPECIAL INSPECTOR FROM THE RESPONSIBLE MATERIALS TESTING LAB THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.
3. ALL WORK REQUIRING SPECIAL STRUCTURAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT IS OBSERVED BY THE SPECIAL STRUCTURAL INSPECTOR.

SHOP DRAWINGS:

SHOP DRAWINGS SHALL BE SUBMITTED AS REQUIRED BY THE SPECIFICATIONS.

THE GENERAL CONTRACTOR WILL REVIEW AND STAMP ALL SHOP DRAWINGS AND PRODUCT DATA FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMISSION. ANY SHOP DRAWINGS OR PRODUCT DATA NOT REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR WILL BE RETURNED WITHOUT REVIEW. ITEMS NOT IN ACCORDANCE WITH THE CONTRACT DRAWINGS SHALL BE SO NOTED UPON THE CONTRACTORS REVIEW.

ANY SHOP DRAWING NOT CHECKED AND INITIALED BY THE SUPPLIER/DETAILER PRIOR TO SUBMITTING FOR ENGINEERING REVIEW, WILL BE RETURNED WITHOUT REVIEW.

ANY CHANGES FROM THE ORIGINAL DRAWINGS SHALL BE NOTED BY THE SUBMITTING PARTY. ANY CHANGES NOT CALLED OUT SHALL BE CONSIDERED NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS UNLESS SPECIFICALLY NOTED OTHERWISE.

SHOP DRAWINGS SHALL NOT REPLACE THE CONTRACT DRAWINGS. ITEMS OMITTED OR SHOWN INCORRECTLY AND NOT NOTED BY THE REVIEWER ARE NOT TO BE CONSIDERED CHANGES TO THE CONTRACT DRAWINGS. REVIEWING IS INTENDED AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. IT IS THE CONTRACTORS RESPONSIBILITY TO ASSURE THAT ITEMS ARE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

ANY ENGINEERING DESIGN PERFORMED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR A SEAL OF AN ENGINEER REGISTERED IN THE APPROPRIATE JURISDICTION AND DISCIPLINE. THE ADEQUACY OF DESIGNS AND LAYOUTS PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING PARTY.

THE CONSTRUCTION DOCUMENTS MAY NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS.

GENERAL:

THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS. CONTRACTOR IS RESPONSIBLE FOR ALL O.S.H.A. REQUIREMENTS, NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES AND/OR CONFLICTS.

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.

ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION. DO NOT PENETRATE ANY STRUCTURAL ELEMENTS (BEAMS, COLUMNS, WALLS, SLABS, ETC.) WITHOUT PRIOR WRITTEN APPROVAL OF STRUCTURAL ENGINEER THROUGH CIVIL ENGINEER.

OPTIONS ARE INTENDED FOR CONTRACTORS CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES DUE TO THE OPTIONS AND SHALL COORDINATE ALL DETAILS.

NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

TYPICAL DETAILS ARE NOT CUT ON DRAWINGS, BUT APPLY UNLESS NOTED OTHERWISE.

WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

TMS 402/602-16 - TABLES 3 & 4

QUALITY ASSURANCE LEVEL REQUIRED: LEVEL 2

MASONRY MINIMUM VERIFICATION REQUIREMENTS

MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE (a)			REFERENCE FOR CRITERIA
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 602
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.	R	R	R	ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC}, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THE CODE.	NR	R	R	ART. 1.4 B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.	NR	R	R	ART. 1.5 & 1.6.3
DURING CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} FOR EVERY 5,000 SQ. FT. (465 SQ. M).	NR	NR	R	ART. 1.4 B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.	NR	NR	R	ART. 1.4 B

(a) R=REQUIRED, NR=NOT REQUIRED

MASONRY MINIMUM SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY (a)			REFERENCE FOR CRITERIA	
	LEVEL			TMS 402	TMS 602
	1	2	3		
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					
a. PROPORTIONS OF SITE-PREPARED MORTAR	NR	P	P		ART. 2.1, 2.6 A, & 2.6 C
b. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P		ART. 2.4 B & 2.4 H
c. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P		ART. 3.4 & 3.4 A
d. PRESTRESSING TECHNIQUE	NR	P	P		ART. 3.6 B
e. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	NR	C(b)/P(c)	C		ART. 2.1 C.1
f. SAMPLE PANEL CONSTRUCTION	NR	P	C		ART. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					
a. GROUT SPACE	NR	P	C		ART. 3.2 D & 3.2 F
b. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P	SEC. 10.8 & 10.9	ART. 2.4 & 3.6
c. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	NR	P	C	SEC. 6.1, 6.3.1, 6.3.6, & 6.3.7	ART. 3.2 E & 3.4
d. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	NR	P	P		ART. 2.6 B & 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:					
a. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	NR	P	P		ART. 1.5
b. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	NR	P	P		ART. 3.3 B
c. SIZE AND LOCATION OF STRUCTURAL MEMBERS	NR	P	P		ART. 3.3 F
d. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	NR	P	C	SEC. 1.2.1 (e), 6.2.1, & 6.3.1	
e. WELDING OF REINFORCEMENT	NR	C	C	SEC. 6.1.6.1.2	
f. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F (4.4°C)) OR HOT WEATHER (TEMPERATURE ABOVE 90°F (32.2°C))	NR	P	P		ART. 1.8 C & 1.8 D
g. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	NR	C	C		ART. 3.6 B
h. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	NR	C	C		ART. 3.5 & 3.6 C
i. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	NR	C(b)/P(c)	C		ART. 3.3 B.9 & 3.3 F.1.b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	NR	P	C		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, & 1.4 B.4

(a) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE. NR=NOT REQUIRED, P=PERIODIC, C=CONTINUOUS
(b) REQUIRED FOR THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY.
(c) REQUIRED AFTER THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY.

ANSI/AISC 360-16

MINIMUM REQUIREMENTS FOR INSPECTION OF STRUCTURAL STEEL BUILDINGS

TASKS IN TABLES N5.4-1 THROUGH N5.4-3 AND TABLES N5.6-1 THROUGH N5.6-3 LISTED FOR QC/QA ARE THOSE INSPECTIONS PERFORMED BY THE QCI/QAI TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

AS A MINIMUM, WELDING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH TABLES N5.4-1 THROUGH N5.4-3. IN THESE TABLES , THE INSPECTION TASKS ARE AS FOLLOWS:
O - OBSERVE THESE ITEMS ON A RANDOM BASIS.
OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
P - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

TABLE N5.4-1

INSPECTION TASKS PRIOR TO WELDING

INSPECTION TASKS PRIOR TO WELDING	QC	QA
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	P	P
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
WELDER IDENTIFICATION SYSTEM[1]	O	O
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) ● JOINT PREPARATION ● DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) ● CLEANLINESS (CONDITION OF STEEL SURFACES) ● TACKING (TACK WELD QUALITY AND LOCATION) ● BACKING TYPE AND FIT (IF APPLICABLE)	O	O
CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
FIT-UP OF FILLET WELDS ● DIMENSIONS (ALIGNMENT, GAPS AT ROOT) ● CLEANLINESS (CONDITION OF STEEL SURFACES) ● TACKING (TACK WELD QUALITY AND LOCATION)	O	O
CHECK WELDING EQUIPMENT	O	--

[1] THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.

TABLE N5.4-2

INSPECTION TASKS DURING WELDING

INSPECTION TASKS DURING WELDING	QC	QA
USE OF QUALIFIED WELDERS	O	O
CONTROL AND HANDLING OF WELDING CONSUMABLES ● PACKAGING ● EXPOSURE CONTROL	O	O
NO WELDING OVER CRACKED TACK WELDS	O	O
ENVIRONMENTAL CONDITIONS ● WIND SPEED WITHIN LIMITS ● PRECIPITATION AND TEMPERATURE	O	O
WPS FOLLOWED ● SETTINGS ON WELDING EQUIPMENT ● TRAVEL SPEED ● SELECTED WELDING MATERIALS ● SHIELDING GAS TYPE/FLOW RATE ● PREHEAT APPLIED ● INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) ● PROPER POSITION (F, V, H, OH)	O	O
WELDING TECHNIQUES ● INTERPASS AND FINAL CLEANING ● EACH PASS WITHIN PROFILE LIMITATIONS ● EACH PASS MEETS QUALITY REQUIREMENTS	O	O

TABLE N5.4-3

INSPECTION TASKS AFTER WELDING

INSPECTION TASKS AFTER WELDING	QC	QA
WELDS CLEANED	O	O
SIZE, LENGTH AND LOCATION OF WELDS	P	P
WELDS MEET VISUAL ACCEPTANCE CRITERIA ● CRACK PROHIBITION ● WELD/BASE-METAL FUSION ● CRATER CROSS SECTION ● WELD PROFILES ● WELD SIZE ● UNDERCUT ● POROSITY	P	P
ARC STRIKES	P	P
k-AREA[1]	P	P
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P
REPAIR ACTIVITIES	P	P
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P

[1] WHEN WELDING DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED ON THE *k*-AREA, VISUALLY INSPECT THE WEB *k*-AREA FOR CRACKS WITHIN 3 IN. (75MM) OF THE WELD.

2018 IBC - SECTION 1705

REQUIRED VERIFICATION AND INSPECTION OF EXPANSION BOLTS AND ADHESIVE ANCHORS

DURING THE DRILLING AND INSTALLATION OF EXPANSION BOLTS AND ADHESIVE ANCHORS.

2018 IBC - TABLE 1705.6

REQUIRED VERIFICATION AND INSPECTION OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	--	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTHS AND HAVE REACHED PROPER MATERIAL.	--	X
3. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	--	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	--
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	--	X

SPECIAL INSPECTIONS CONTINUED ON SHEET S2

1

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REVISION	DESCRIPTION	DATE
1	ADDITIONS AND MODIFICATIONS	03/04/2025

201 E Birch Ave. Suite 3
Flagstaff, AZ 86001
(928) 774-4046

Peak ENGINEERING, INC.
Connecting Place to People

Digitally signed by Geoffrey D. Wertz
Date: 2025.03.04 15:51:19-07'00'

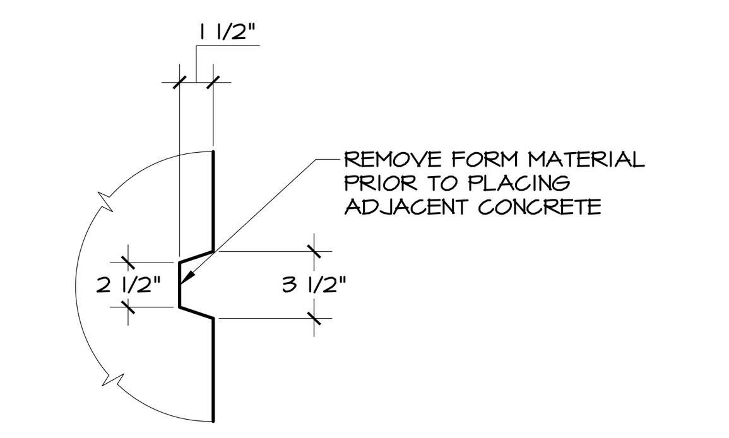
Registered Professional Engineer (Civil)
CERTIFICATE NO. 68636
GEOFFREY D. WERTZ
Date Signed 03/04/2025
ARIZONA, U.S.A.

HUBBARD MERRELL ENGINEERING
1623 N. FIRST ST., STE. 201
FLAGSTAFF, AZ 86004
PHONE: 928.526.6174

HME PROJECT MANAGER: GEOFF WERTZ
HME STRUCTURAL DESIGNER: VICTOR WING
DRAWN BY: VICTOR WING
JOB ORDER #: 24028 1

FINAL PLANS

CITY OF FLAGSTAFF
FUTS - SWITZER CANYON TRAIL 1
DRAINAGE IMPROVEMENTS
COF PROJECT NO. 03-16013 & ST3023 PZ:-23-00058
JOB NO: 16COF03/22COF03
BY: CAL/DCW
DATE: FEBRUARY 2023 1
CHECKED: TES



NOTES:
1. LOCATE KEY AT MID-DEPTH OF CONCRETE SLAB, WALL, FOOTING, ETC.
2. THIS DETAIL APPLIES AT ALL CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.

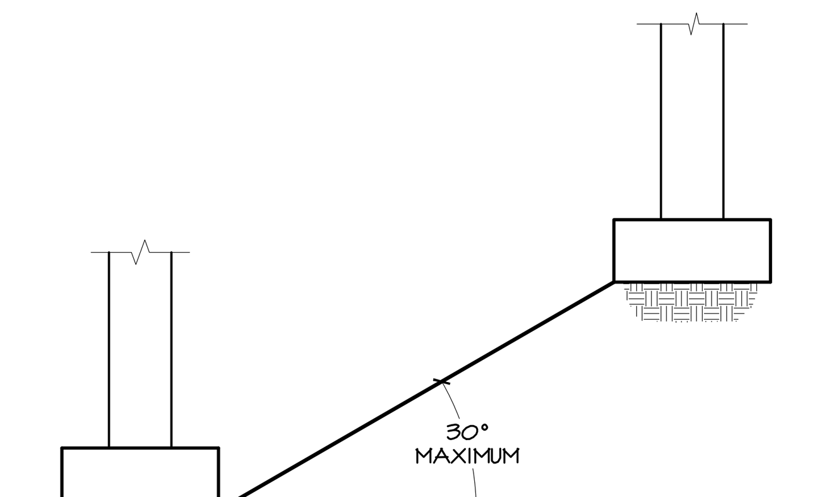
(1) TYPICAL KEY IN CONCRETE
NOT TO SCALE — TC1

BAR SIZE	POSITION	CONCRETE f_c (PSI) AND LAP CLASS											
		2500		3000		3500		4000		4500		5000	
		A	B	A	B	A	B	A	B	A	B	A	B
#3	TOP	18	24	17	23	15	20	14	19	14	19	13	17
	OTHER	14	19	13	17	12	16	12	15	12	15	12	13
#4	TOP	24	32	22	29	20	26	19	25	18	24	17	23
	OTHER	18	24	17	23	16	21	15	20	14	19	13	17
#5	TOP	30	39	27	36	25	33	24	32	22	29	21	28
	OTHER	23	30	21	28	20	26	18	24	17	23	16	21
#6	TOP	36	47	33	43	30	39	28	37	27	36	25	33
	OTHER	27	36	25	33	23	30	22	29	21	28	20	26
#7	TOP	52	68	47	62	44	58	41	54	39	51	37	49
	OTHER	40	52	36	47	34	45	32	42	30	39	28	37
#8	TOP	59	77	54	71	50	65	47	62	44	58	42	55
	OTHER	45	59	42	55	39	51	36	47	34	45	32	42
#9	TOP	66	86	61	80	56	73	53	69	50	65	47	62
	OTHER	51	67	47	62	43	56	41	54	38	50	36	47
#10	TOP	75	98	68	89	63	82	59	77	56	73	53	69
	OTHER	58	76	53	69	49	64	46	60	43	56	41	54
#11	TOP	83	108	76	99	70	91	66	86	62	81	59	77
	OTHER	64	84	58	76	54	71	51	67	48	63	45	59

LAP SPLICES IN INCHES

REBAR LAP SPLICE TABLE NOTES:
1. "d_b" DENOTES BAR DIAMETER.
2. ALL SPLICES SHALL BE CLASS B UNLESS OTHERWISE NOTED.
3. VALUES APPLY TO ALL BARS WITH MINIMUM CONCRETE COVER OF $2d_b$ AND MINIMUM CENTER-TO-CENTER SPACING OF $4d_b$.
4. FOR BARS WITH COVER BETWEEN d_b AND $2d_b$, MULTIPLY VALUES BY 1.4.
5. FOR BARS WITH CENTER-TO-CENTER SPACING BETWEEN $3d_b$ AND $4d_b$, MULTIPLY VALUES BY 1.4.
6. FOR BARS NOT MEETING ABOVE REQUIREMENTS, MULTIPLY BY 2.0.
7. FOR LIGHTWEIGHT CONCRETE, DIVIDE VALUES BY 0.75.
8. FOR EPOXY COATED BARS, MULTIPLY VALUES BY 1.5.
9. TOP BAR IS DEFINED AS HORIZONTAL BAR WITH MORE THAN 12 INCHES OF CONCRETE BELOW.
10. FOR VERTICAL BARS, USE VALUES FOR "OTHER" POSITION.
11. BASED ON ACI 318-14

(2) REINFORCING BAR LAP SPLICE TABLE (Fy = 60 ksi)
NOT TO SCALE — TC8

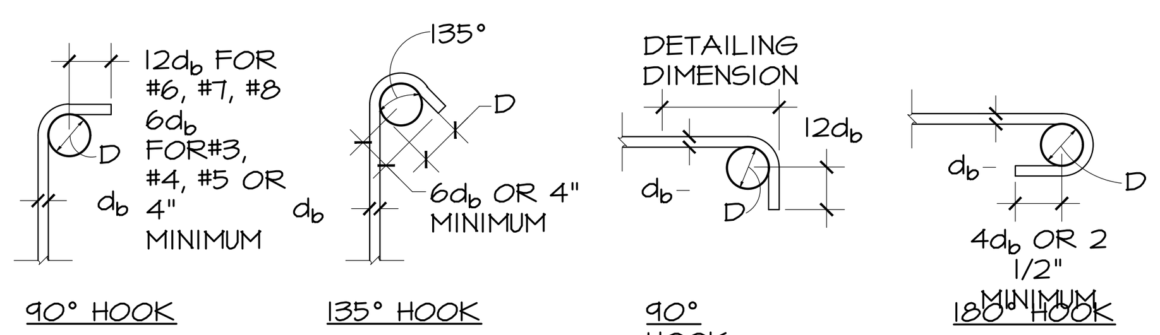


MAXIMUM SLOPE BETWEEN BOTTOMS OF FOOTINGS SHALL BE 30 DEGREES. STEP FOOTINGS AS REQUIRED. SEE TYPICAL STEPPED FOOTING DETAIL.

(3) MAXIMUM SLOPE BETWEEN ADJACENT FOOTINGS
NOT TO SCALE — TF1

BAR SIZE	BEND DIA "D" (INSIDE OF BAR)
#3 THRU #5	$4d_b$
#6 THRU #8	$6d_b$

BAR SIZE	BEND DIA "D" (INSIDE OF BAR)
#3 THRU #8	$6d_b$
#9, #10, #11	$8d_b$
#14 AND #18	$10d_b$

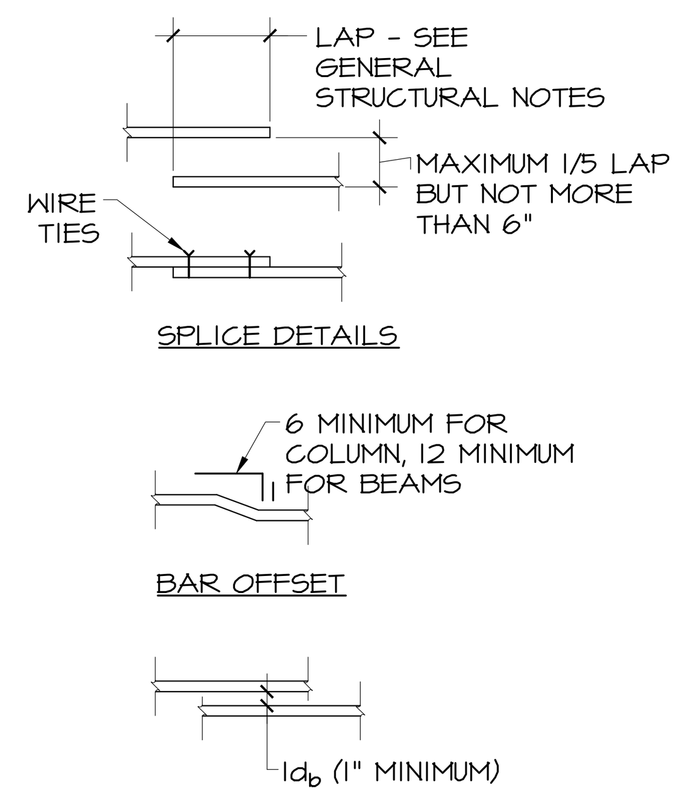


NOTE: ALL REINFORCING SHALL BE BENT COLD - TYPICAL

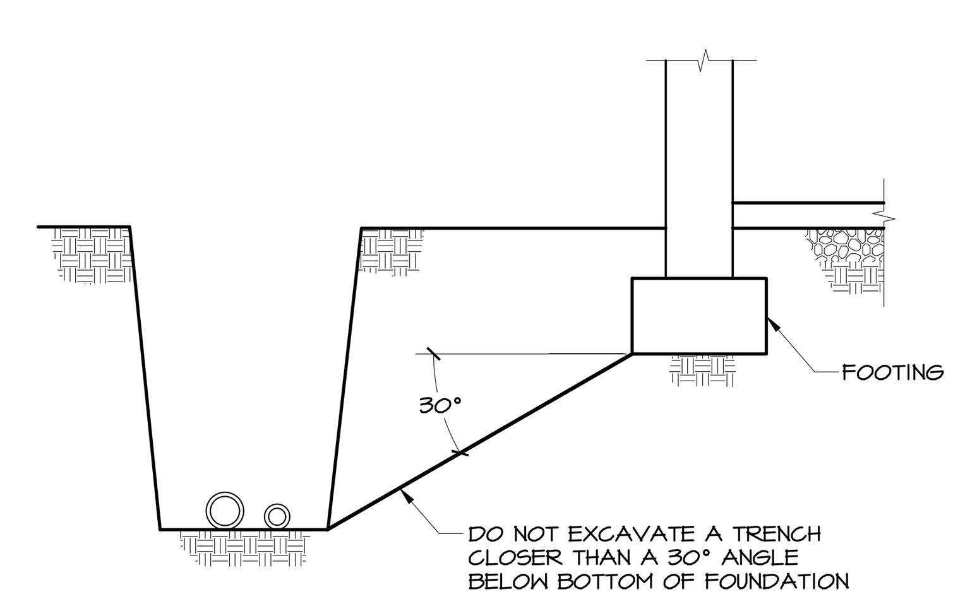
STANDARD HOOKS FOR STIRRUPS AND TIE REINFORCING

NOTE: ALL REINFORCING SHALL BE BENT COLD - TYPICAL

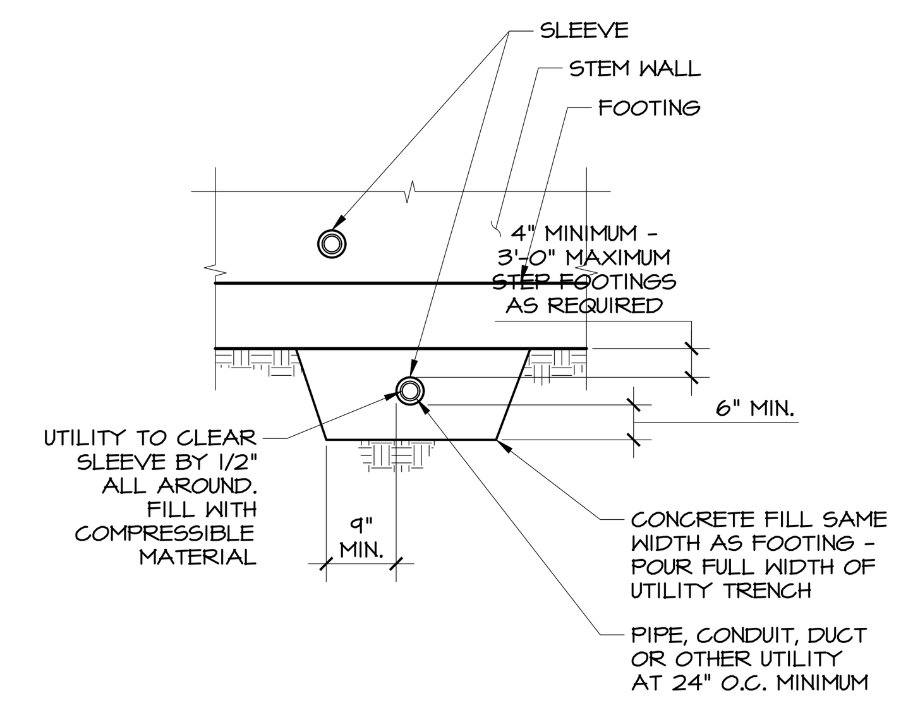
STANDARD HOOKS FOR PRIMARY REINFORCING



(4) TYPICAL REINFORCING BAR DETAILS
NOT TO SCALE — TC9



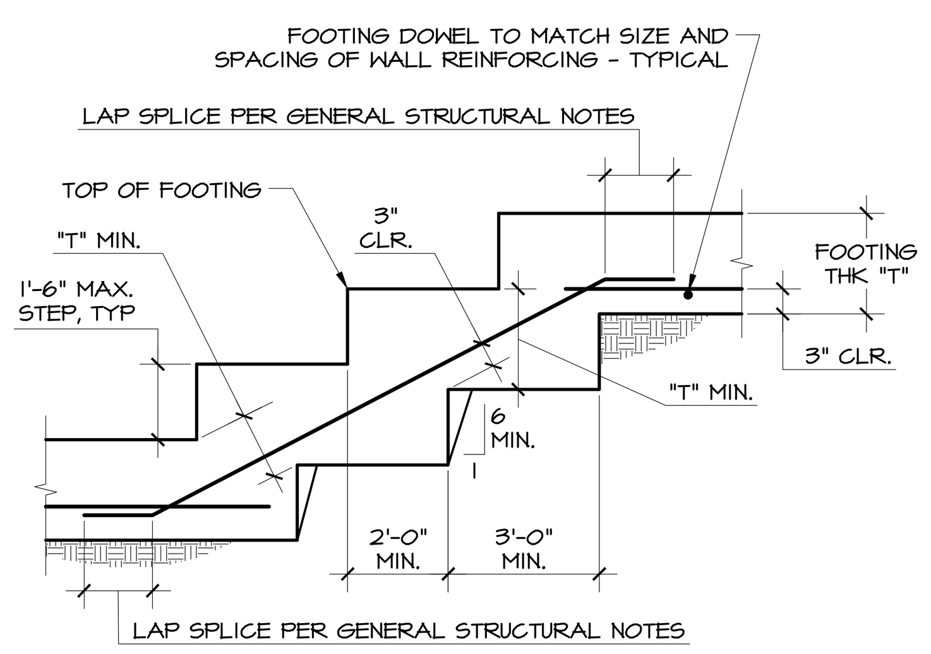
(5) TRENCH DETAIL
NOT TO SCALE — TF2



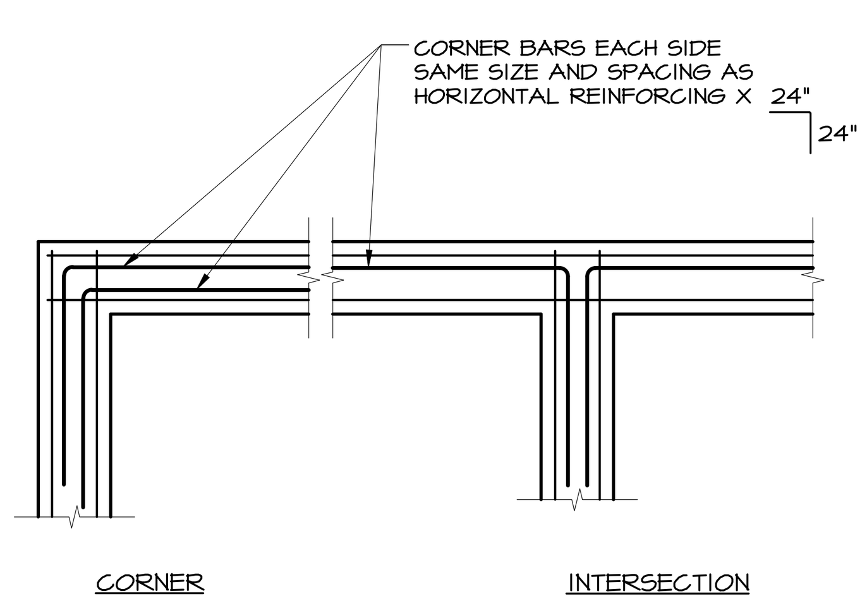
NOTES:
1. NO UTILITIES SHALL PASS THROUGH FOOTING OR THROUGH OR UNDER COLUMN FOOTINGS.
2. PROVIDE 4" MINIMUM SPACING BETWEEN MULTIPLE PIPES.

(6) UTILITIES THROUGH/UNDER FOUNDATION
NOT TO SCALE — TF3

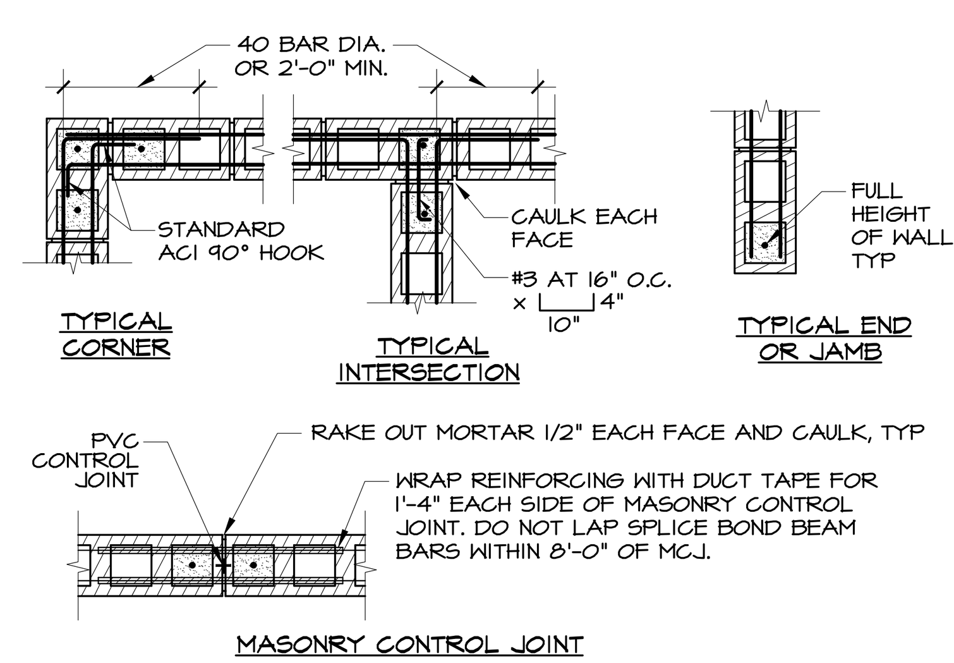
NOTES:
1. THIS DETAIL SHALL BE USED AS REQUIRED TO MAINTAIN FOOTING DEPTHS SHOWN ON PLANS OR DETAILS AND MAY NOT SPECIFICALLY BE REFERENCED.
2. SEE PLANS FOR REINFORCING AND FOOTING SIZES.
3. BOTTOM OF FOOTINGS SHALL BE STEPPED - SLOPING FOOTING BOTTOMS ARE NOT PERMITTED.



(7) TYPICAL STEPPED FOOTING
NOT TO SCALE — TF4

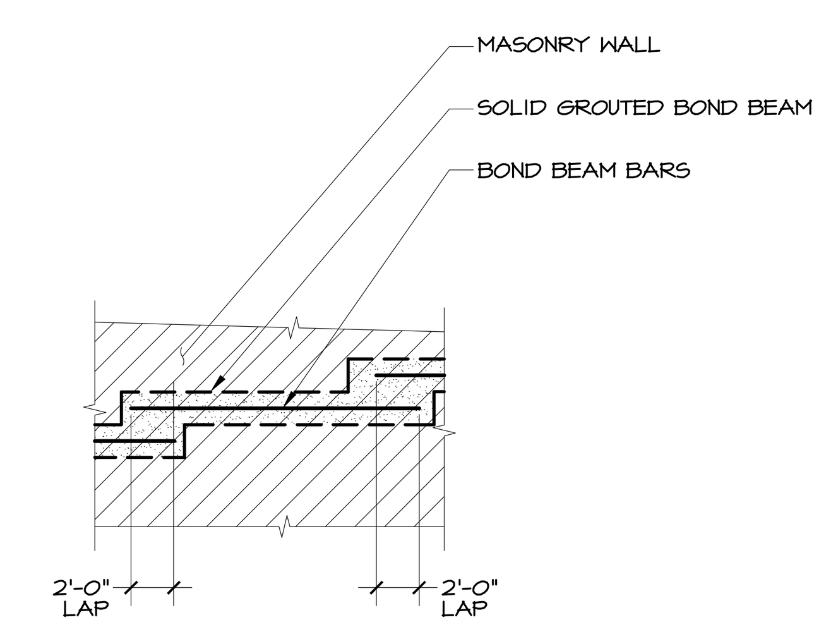


(8) CORNER REINFORCING IN CONCRETE FOOTING
NOT TO SCALE — TF10

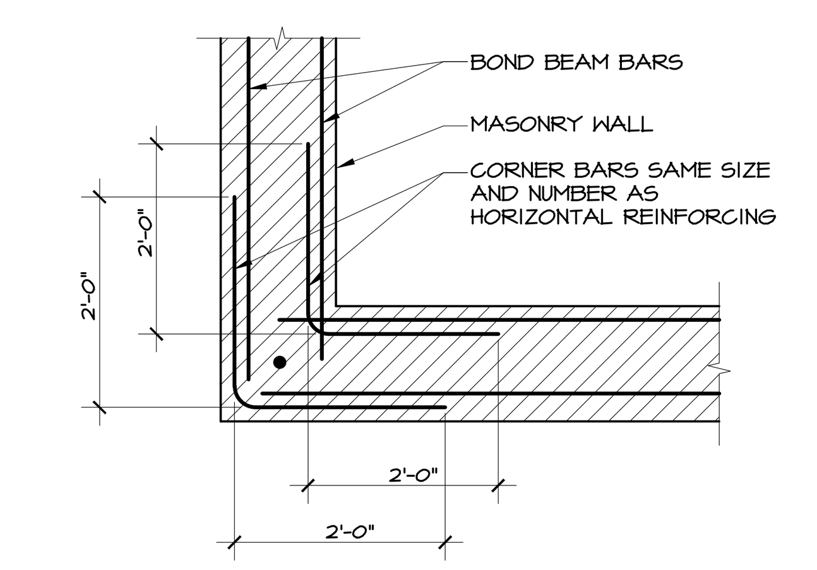


NOTES:
1. SEE DETAILS FOR REINFORCING U.N.O.
2. ALL CELLS AND BOND BEAMS WITH REINFORCING SHALL BE GROUTED.
3. MASONRY CONTROL JOINTS SHALL EXTEND FULL HEIGHT OF MASONRY WALL. TERMINATE ALL HORIZONTAL REINFORCING, INCLUDING JOINT REINFORCING, AT MASONRY CONTROL JOINTS EXCEPT BOND BEAM REINFORCING.
4. BARS SHALL BE ACCURATELY LOCATED AT CENTERLINE OF WALL U.N.O.

(9) CMU WALL REINFORCING
NOT TO SCALE — TM1



(10) STEPPED MASONRY WALL BOND BEAM
NOT TO SCALE — TM4



(11) REINFORCING IN MASONRY WALL BOND BEAM AT CORNER
NOT TO SCALE — TM6

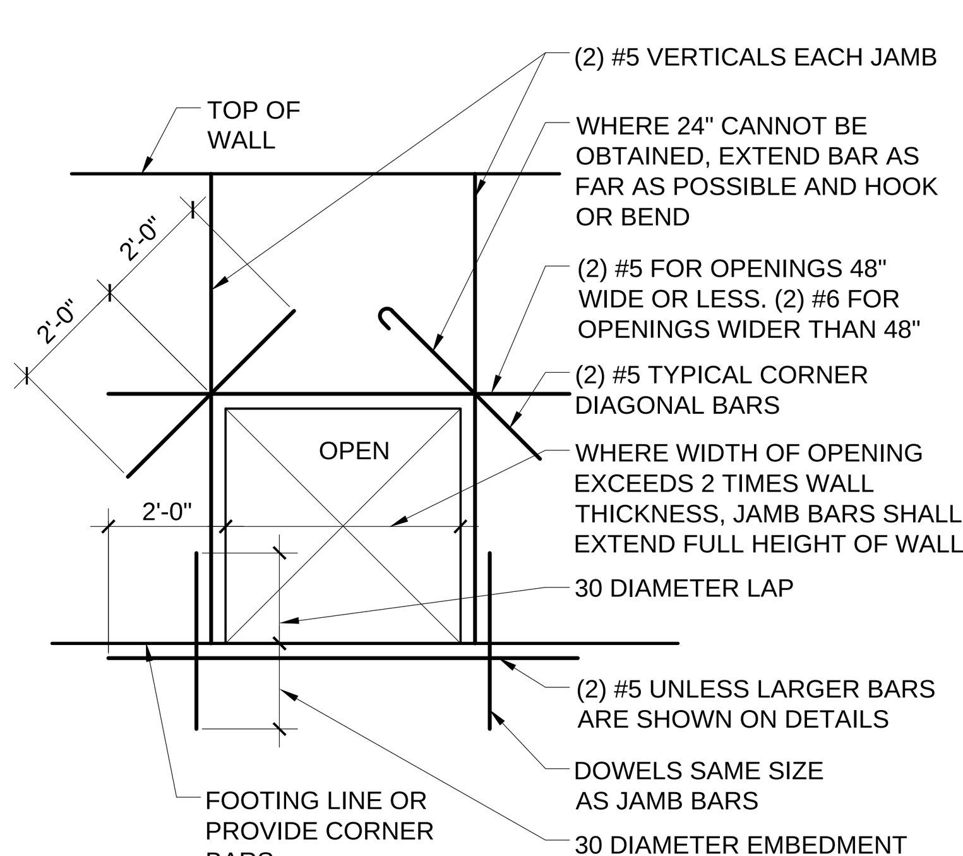
1

2018 IBC - TABLE 1705.3 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION				
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]	IBC REFERENCE
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.	--	X	ACI 318: 3.5, 7.1-7.7	1910.4
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2, ITEM 2b.	--	--	AWS D1.4 ACI 318: 3.5.2	--
3. INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	--	X	ACI 318: 8.1.3, 21.2.8	1908.5, 1909.1
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS[b].	--	X	ACI 318: 3.8.6, 8.1.3, 21.2.8	1909.1
5. VERIFYING USE OF REQUIRED DESIGN MIX.	--	X	ACI 318: Ch. 4, 5.2-5.4	1904.2, 1910.2, 1910.3
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	--	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	--	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	--	X	ACI 318: 5.11-5.13	1910.9
9. INSPECTION OF PRESTRESSED CONCRETE:				
a. APPLICATION OF PRESTRESSING FORCES.	X		ACI 318: 18.20	
b. GROUTING OF BONDED PRE-STRESSING TENDONS IN THE SEISMIC FORCE-RESISTING SYSTEM.	X	--	ACI 318:18.18.4	--
10. ERECTION OF PRECAST CONCRETE MEMBERS.	--	X	ACI 318: Ch.16	--
11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	--	X	ACI 318: 6.2	--
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	--	X	ACI 318: 6.1.1	--

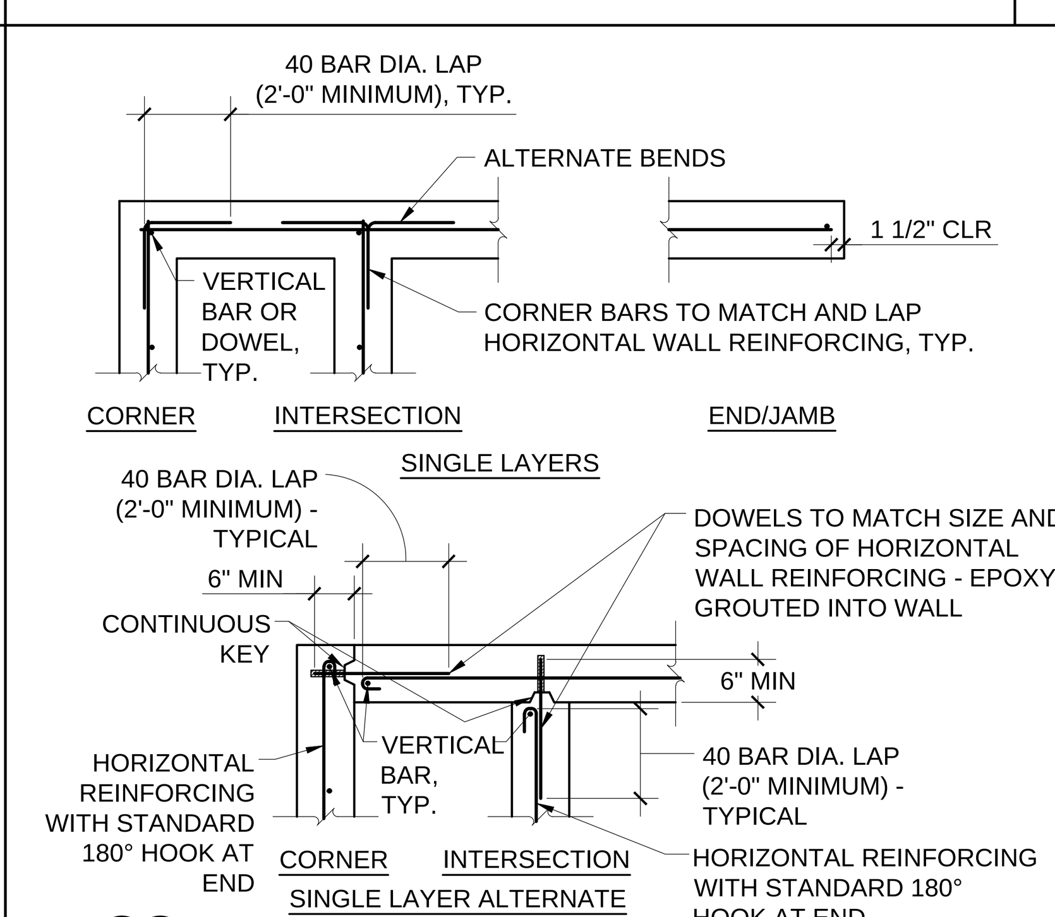
FOR SI: 1"=25.4 MM.

[a] WHERE APPLICABLE, SEE ALSO SECTION 1705.11, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

[b] SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH ACI 355.2 OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.



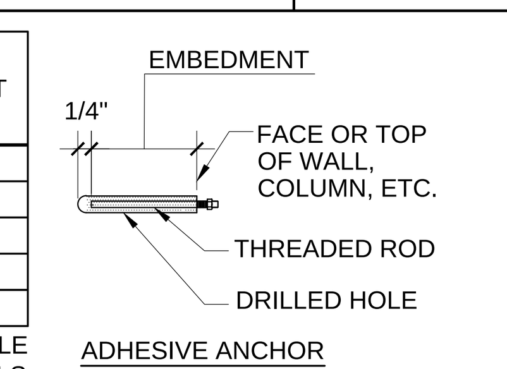
(12) TYPICAL OPENING IN CONCRETE WALL
NOT TO SCALE — TC7



(13) PLAN VIEW - TYPICAL CONCRETE WALL REINFORCING
NOT TO SCALE — TC3

ANCHOR DIAMETER	GROUT FILLED CMU EMBEDMENT LENGTH	CONCRETE EMBEDMENT LENGTH
1/2"	5"	4 1/4"
5/8"	6"	5"
3/4"	6 5/8"	6 3/4"
7/8"	--	7 7/8"
1"	--	9"

PROVIDE ADHESIVE ANCHORS PER THIS SCHEDULE UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.



ADHESIVE ANCHORS SHALL BE USED ONLY WHERE SPECIFICALLY SHOWN ON THE DRAWINGS OR WHEN APPLICATION IS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

ADHESIVE ANCHORS IN GROUT-FILLED CMU AND CONCRETE SHALL BE 1/2", 5/8", 3/4", 7/8 OR 1" DIA. THREADED RODS ANCHORED WITH:
1. HILTI HIT HY200 (ICC ESR NO. 3187) (CONCRETE ONLY)
2. SIMPSON SET-3G EPOXY (ICC ESR NO. 4844) ANCHORS IN GROUTED CMU SHALL BE LOCATED A MINIMUM OF 4" FROM ANY FREE EDGE OF WALL AND MAY BE LOCATED IN THE GROUTED CELL, BED JOINT, CROSS WEB OR ANY COMBINATION OF THE ABOVE.

NO INSTALLATION WITHIN 2" OF HEAD JOINT.

ADHESIVE ANCHORS IN MULTI-WYTHE BRICK MASONRY, HOLLOW CMU, BRICK WITH HOLES, OR CLAY TILE SHALL BE 1/2", 5/8" OR 3/4" DIA. THREADED RODS IN A SCREEN TUBE FILLED WITH:
1. HILTI HIT HY70 ADHESIVE (ICC ESR NO. 2682/3342)
2. SIMPSON ET-HP EPOXY (ICC ESR NO. 3638) (UNREINFORCED BRICK ONLY)
3. SIMPSON SET-3G EPOXY (ICC ESR NO. 4844) (UNREINFORCED BRICK ONLY)

ANCHORS SHALL BE LOCATED A MINIMUM OF 12" FROM ANY FREE EDGE OF WALL AND 4 5/8" FROM HEAD JOINT AND SHALL BE LIMITED TO ONE ANCHOR PER CELL.

(14) ADHESIVE ANCHOR SCHEDULE
NOT TO SCALE — TC16

HUBBARD MERRELL ENGINEERING
1623 N. FIRST ST., STE. 201
FLAGSTAFF, AZ 86004
PHONE: 928.526.6174

HME PROJECT MANAGER: GEOFF WERTZ
HME STRUCTURAL DESIGNER: VICTOR WING
DRAWN BY: VICTOR WING
JOB ORDER #: 24028

FINAL PLANS

REVISION	DESCRIPTION	DATE
1	ADDITIONS AND MODIFICATIONS	03/04/2025

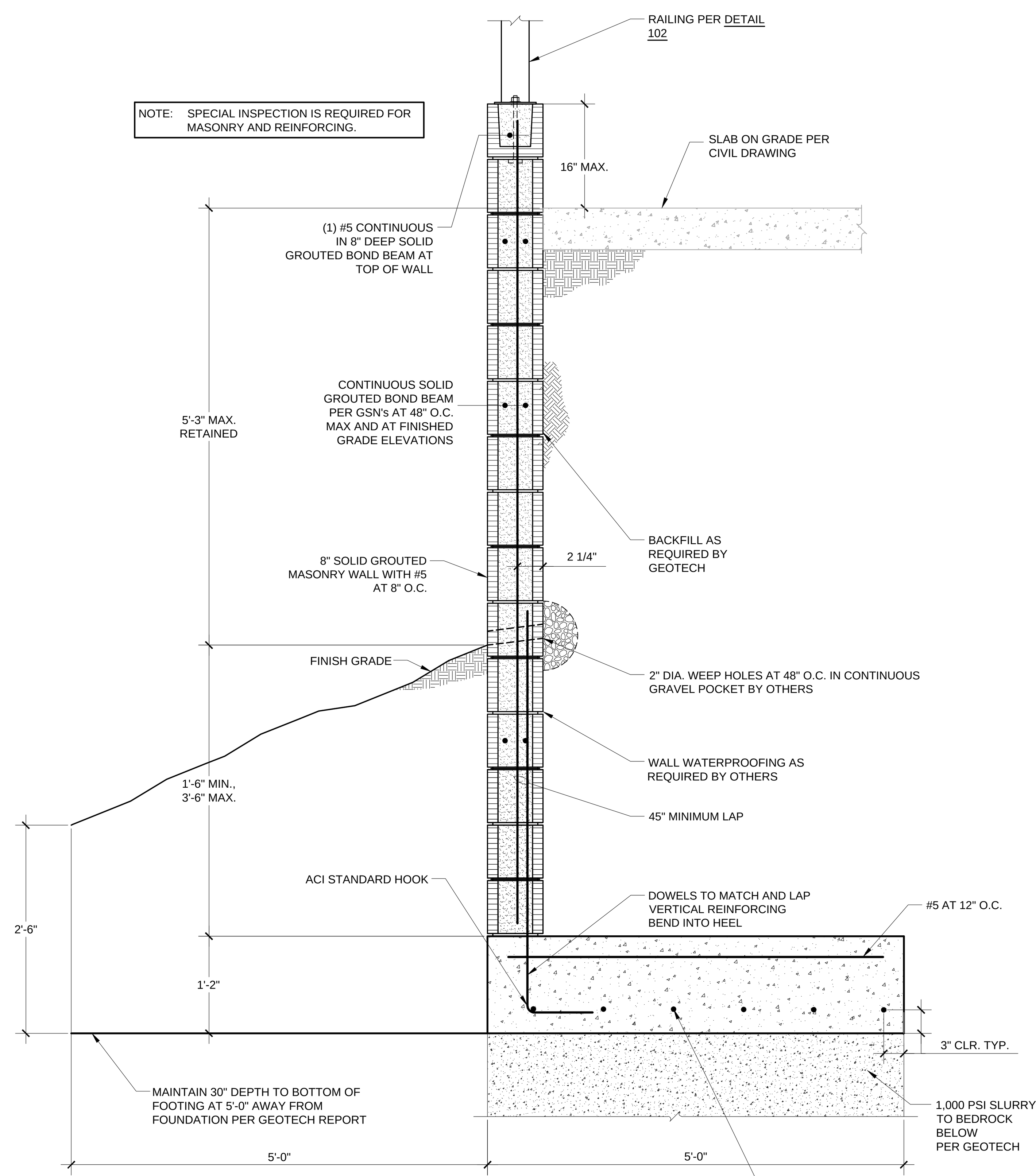
Peak ENGINEERING, INC.
Connecting Place to People
201 E Birch Ave. Suite 3
Flagstaff, AZ 86001
(928) 774-4046

Registered Professional Engineer (Civil)
CERTIFICATE NO. 68636
GEOFFREY D. WERTZ
Date Signed 03/04/2025
ARIZONA U.S.A.

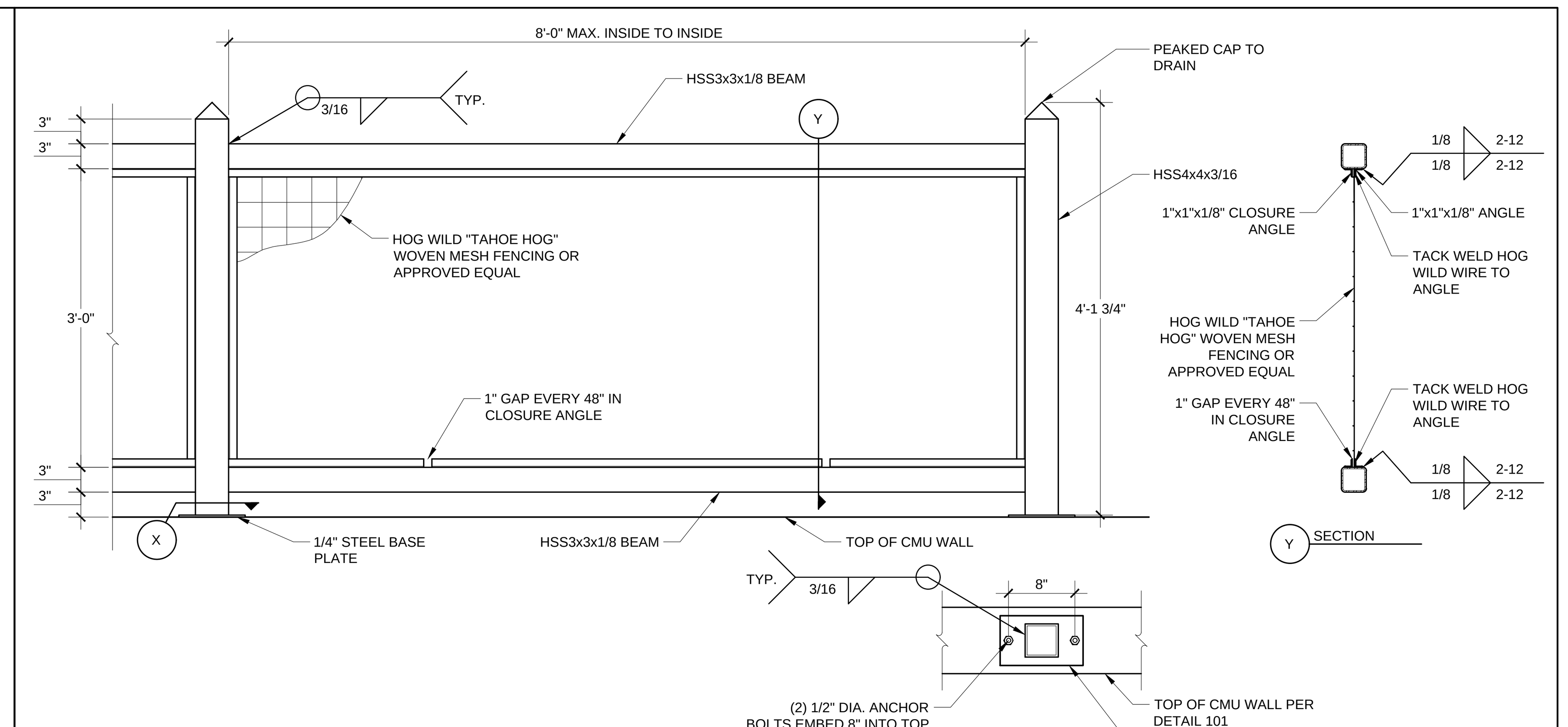
CITY OF FLAGSTAFF
FUTS - SWITZER CANYON TRAIL
DRAINAGE IMPROVEMENTS
COF PROJECT NO. 03-16013 & ST3023 | PZ:-23-00058

JOB NO: 16COF03/22COF03 | BY: CAL/DCW
DATE: FEBRUARY 2023 | CHECKED: TES

S2 OF S4



101 RETAINING WALL
3/4" = 1'-0"



102 SAFETY RAIL ELEVATION
3/4" = 1'-0"

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REVISION	DESCRIPTION	DATE
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Peak ENGINEERING, INC.
Connecting Place to People
201 E Birch Ave. Suite 3
Flagstaff, AZ 86001
(928) 774-4046

Registered Professional Engineer (Civil) CERTIFICATE NO. 60636 GEOFFREY D. WERTZ Date Signed 03/04/2025 ARIZONA, U.S.A.

HUBBARD MERRELL ENGINEERING
1623 N. FIRST ST., STE. 201 FLAGSTAFF, AZ 86004
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FINAL PLANS

CITY OF FLAGSTAFF
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COF PROJECT NO. 03-16013 & ST3023, PZ-23-00058
JOB NO: 16COF03/22COF03 | BY: CAL/DCW | DATE: FEBRUARY 2023 | CHECKED: TES

S3 OF S4

PLAN NOTES

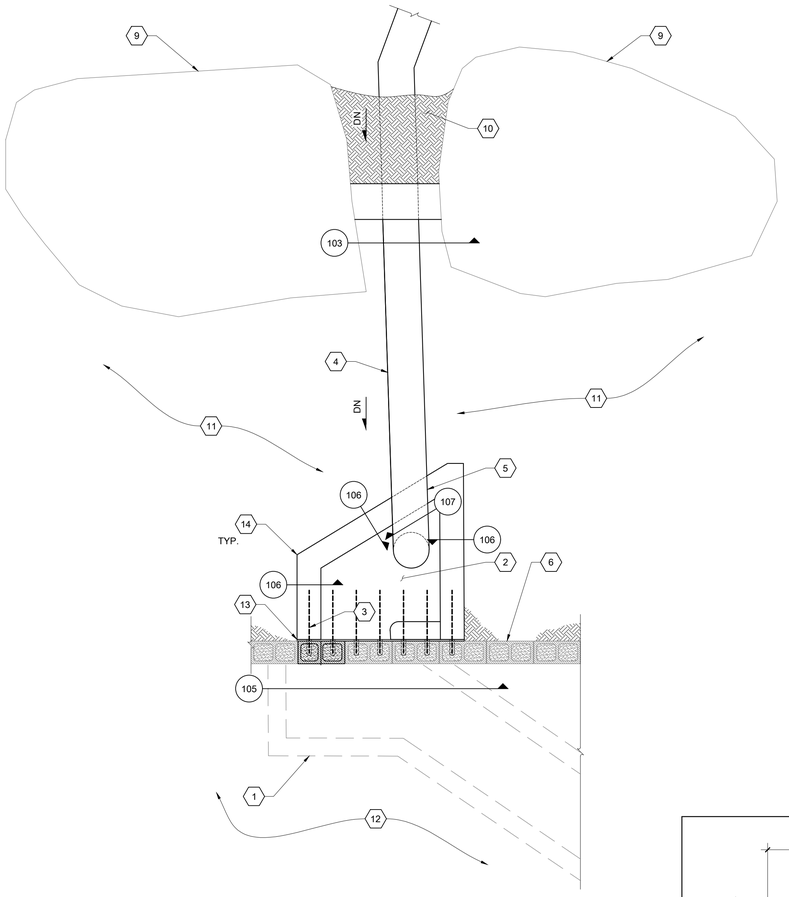
1. CONCRETE SCUPPER BELOW, BY OTHERS.
2. CONCRETE OUTFLOW STRUCTURE, SEE DETAIL 106. SEE CIVIL DRAWINGS FOR DIMENSIONS.
3. ANCHOR NEW CONCRETE OUTFLOW STRUCTURE TO EXISTING/NEW MASONRY WITH #4 x 1'-9" REBAR DOWELS TO MATCH AND LAP HORIZONTAL REINFORCING IN WALLS AND SLAB, EMBED 4" MIN. IN MASONRY WITH SIMPSON SET-3G EPOXY.
4. 12" DIA. DUCTILE IRON STORM DRAIN, PER CIVIL DRAWINGS.
5. PROVIDE A BOND BREAK OR PIPE SLEEVE BETWEEN PIPE AND CONCRETE WALL. CONTRACTOR TO SUBMIT TO ENGINEER OF RECORD FOR APPROVAL.
6. RETAINING SIDE OF EXISTING MASONRY WALL TO REMAIN.
7. 18" CORRUGATED METAL PIPE, PER CIVIL DRAWINGS. PIPE TO BE ANCHORED, BY OTHERS, TO TRANSFER LONGITUDINAL FORCES TO BELOW GRADE PIPE ABOVE.
8. GRATING PER CIVIL DRAWINGS AND ASSOCIATED MAG DETAIL.
9. EXISTING BOULDER TO REMAIN. CONTRACTOR TO NOTIFY EOR IMMEDIATELY IF BOULDER BECOMES LOOSE, SHOWS ANY SIGNS OF POOR STRUCTURAL SUPPORT, OR SHOWS SIGNS OF FISSURING DURING CONSTRUCTION.
10. FILL TO BE PROVIDED TO PREVENT WATER PONDING BEHIND CONCRETE ROCK ANCHOR.
11. HIGH GRADE PER CIVIL DRAWINGS.
12. LOW GRADE PER CIVIL DRAWINGS.
13. 1/2" EXPANSION MATERIAL AND JOINT SEAL PER CIVIL DRAWINGS.
14. SEE TYPICAL DETAILS FOR CONCRETE WALL CORNER REINFORCING, TYP.
15. SURROUNDING GRADE PER CIVIL DRAWINGS.
16. EXISTING BUILDING TO REMAIN. EXISTING FOUNDATION WAS DESIGNED TO BE A PROPERTY LINE FOUNDATION WHERE OUTSIDE OF FOUNDATION SHOULD ALIGN WITH THE OUTSIDE OF WALL. CONTRACTOR TO VERIFY AND NOTIFY EOR OF ANY DISCREPANCIES.
17. EXISTING CONCRETE SCUPPER AT EXISTING BUILDING TO REMAIN. SEE DETAIL 108 FOR TRANSITION BETWEEN EXISTING SCUPPER AND NEW CONCRETE CATCH BASIN.
18. HOLE IN CONCRETE WALL FOR 4" DRAIN PER CIVIL DRAWINGS. PROVIDE 1 1/2" CLEAR CONCRETE BETWEEN PIPE AND WALL REINFORCING. DRAIN LOCATIONS PER CIVIL DRAWINGS.

TYPICAL DIMENSION NOTE

CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH CIVIL DRAWINGS PRIOR TO CONSTRUCTION.

OBSERVATION AND MAINTENANCE NOTE

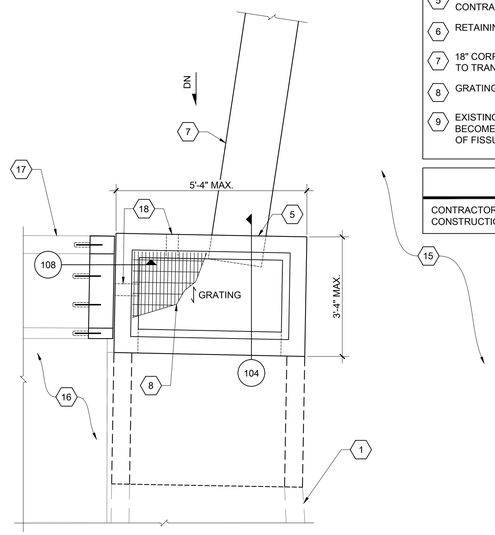
DESIGN DOES NOT ACCOUNT FOR CLOGGING OF PIPES, CATCH BASINS, OR SCUPPERS. FREQUENT OBSERVATION AND MAINTENANCE SHOULD BE PROVIDED TO VERIFY THAT WATER CAN FLOW PER CIVIL REQUIREMENTS AND TO PREVENT PONDING AT STRUCTURES.



WALL STORM DRAIN

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

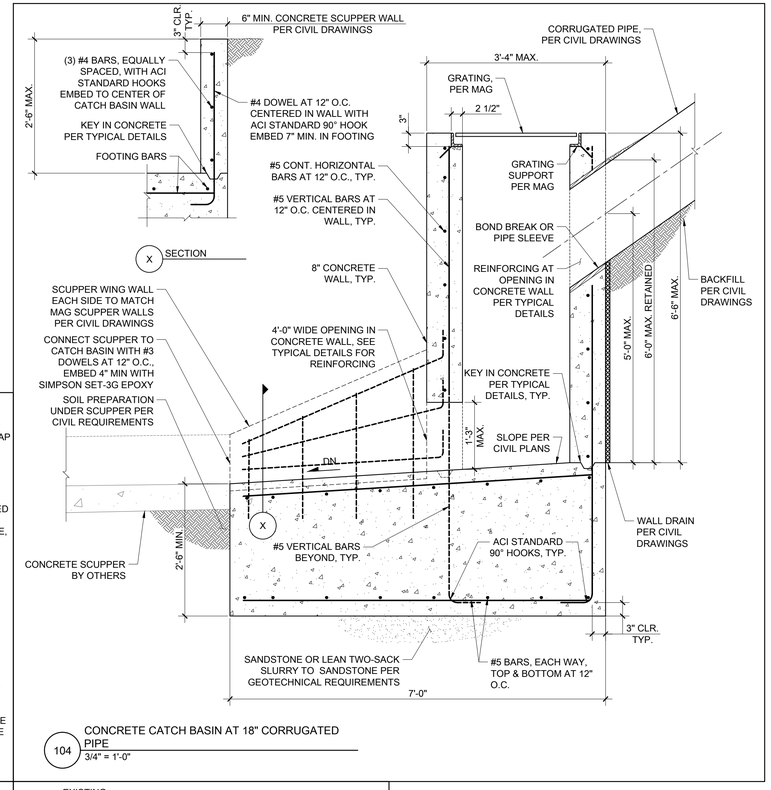
REFERENCE



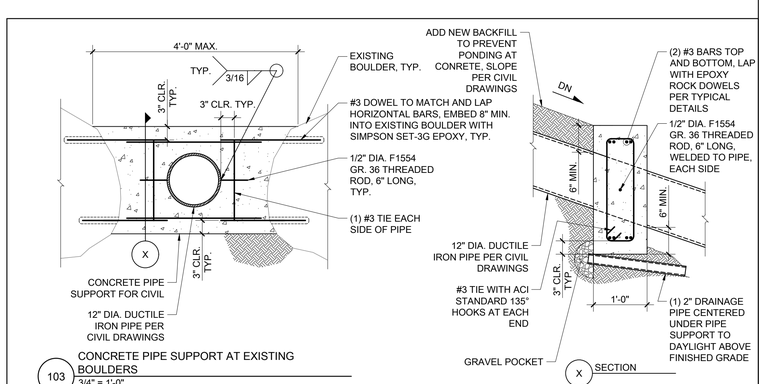
ALLEY STORM DRAIN

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

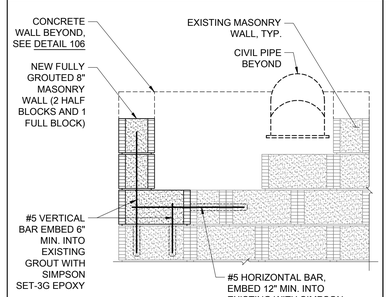
REFERENCE



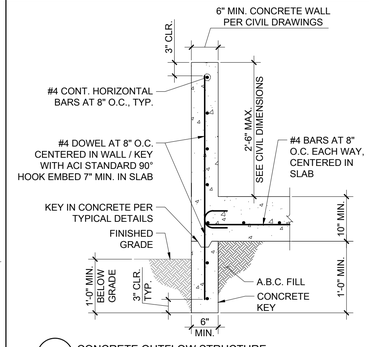
104 CONCRETE CATCH BASIN AT 18" CORRUGATED PIPE
3/4" = 1'-0"



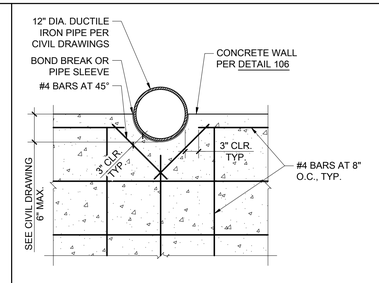
103 CONCRETE PIPE SUPPORT AT EXISTING BOULDERS
3/4" = 1'-0"



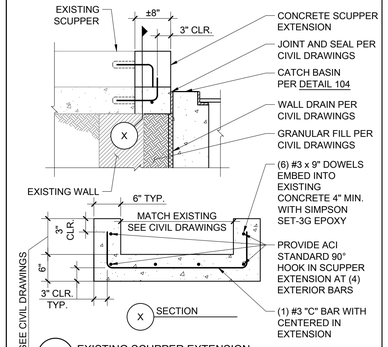
105 NEW MASONRY AT EXISTING WALL
3/4" = 1'-0"



106 CONCRETE OUTFLOW STRUCTURE
3/4" = 1'-0"



107 WALL REINFORING AT CIVIL PIPE
3/4" = 1'-0"



108 EXISTING SCUPPER EXTENSION
3/4" = 1'-0"

HUBBARD MERRELL ENGINEERING
1623 N. FIRST ST., STE. 201 PHONE: 928.526.6174
FLAGSTAFF, AZ 86004
HME PROJECT MANAGER: GEOFF WERTZ
HME STRUCTURAL DESIGNER: VICTOR WING
DRAWN BY: ANDREW LIBBY
JOB ORDER #: 24028

FINAL PLANS

DATE	DESCRIPTION	REVISION

Peak ENGINEERING, INC.
Connecting Place to People
201 E Birch Ave. Suite 3
Flagstaff, AZ 86001
(928) 774-4046

Registered Professional Engineer CERTIFICATE 68636 GEOFFREY D. WERTZ Date Signed 01/09/25 ARIZONA U.S.A.

CITY OF FLAGSTAFF
FUTS - SWITZER CANYON TRAIL
DRAINAGE IMPROVEMENTS

COF PROJECT NO. 03-16013 & ST3023 | PZ-23-00068

JOB NO: 16COF03/22COF03	BY: CAL/DCW
DATE: MARCH 2025	CHECKED: TES

S4 OF S4