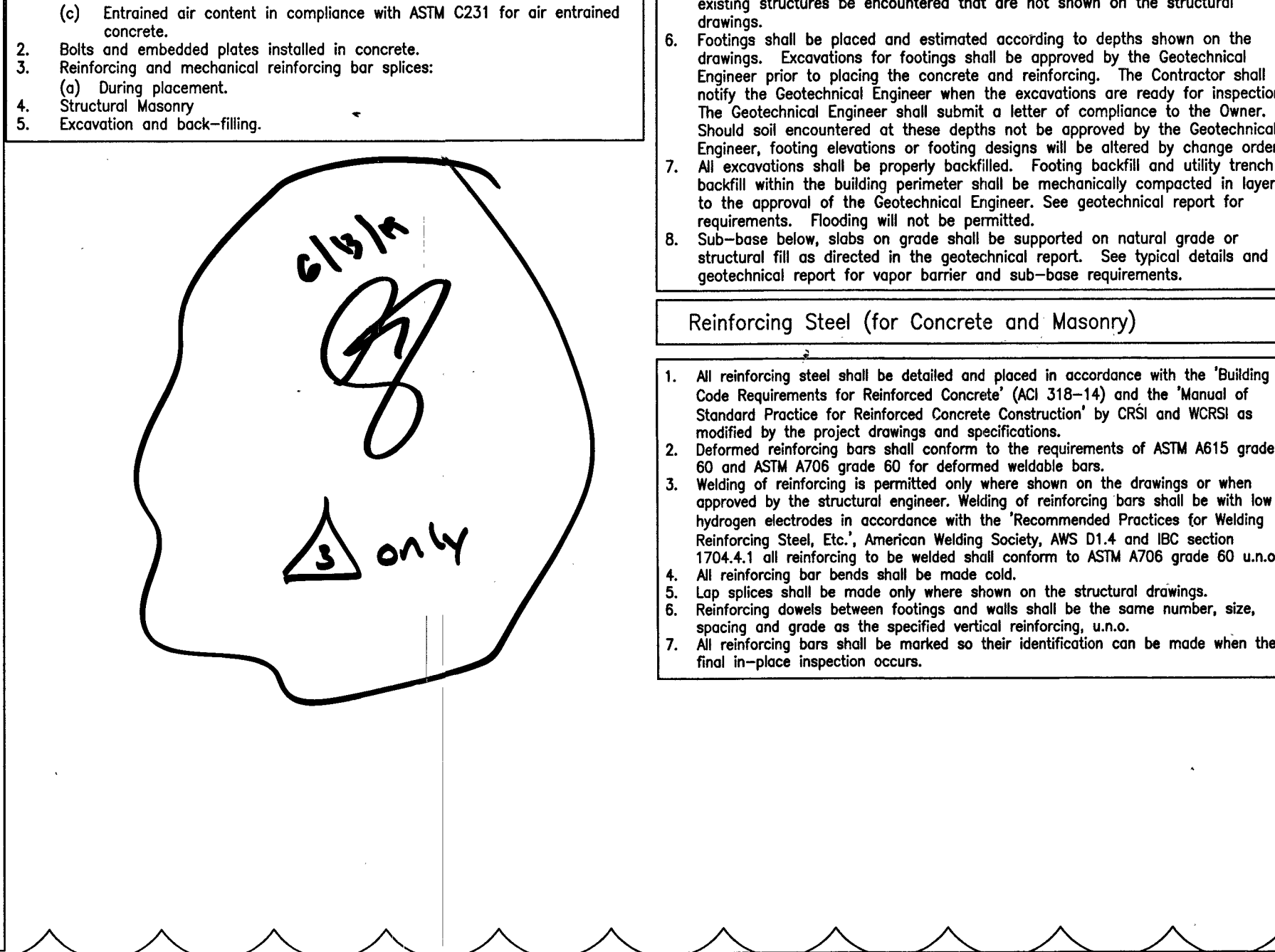
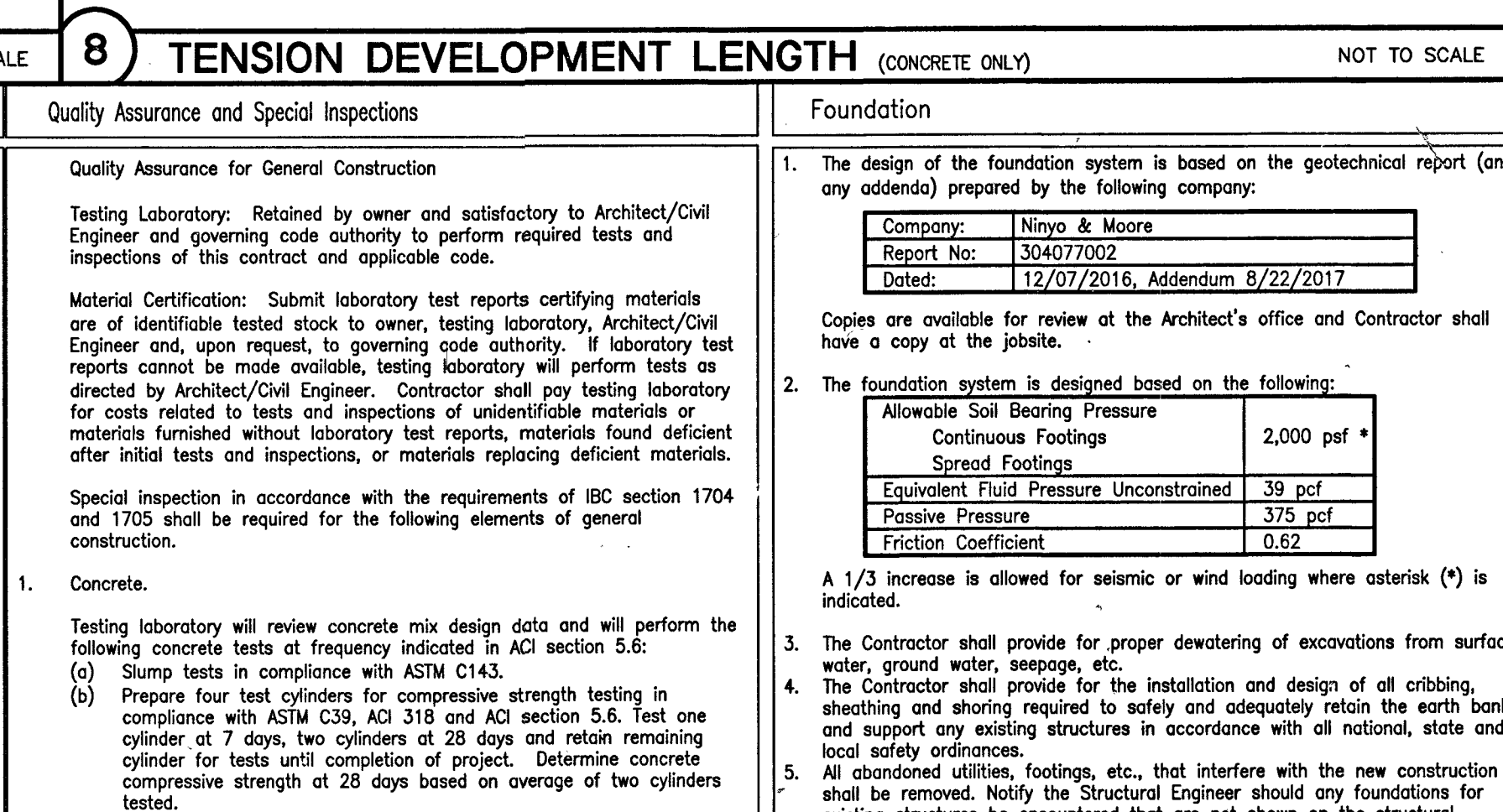
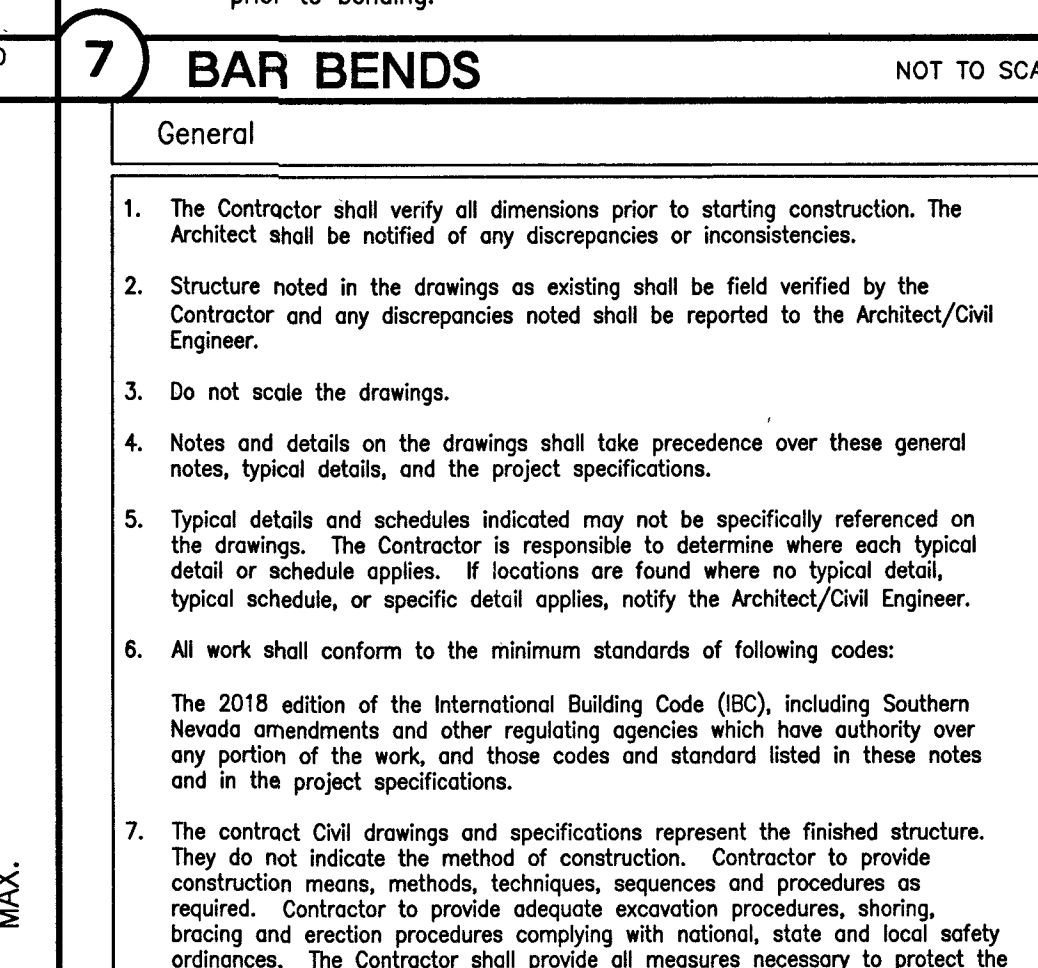
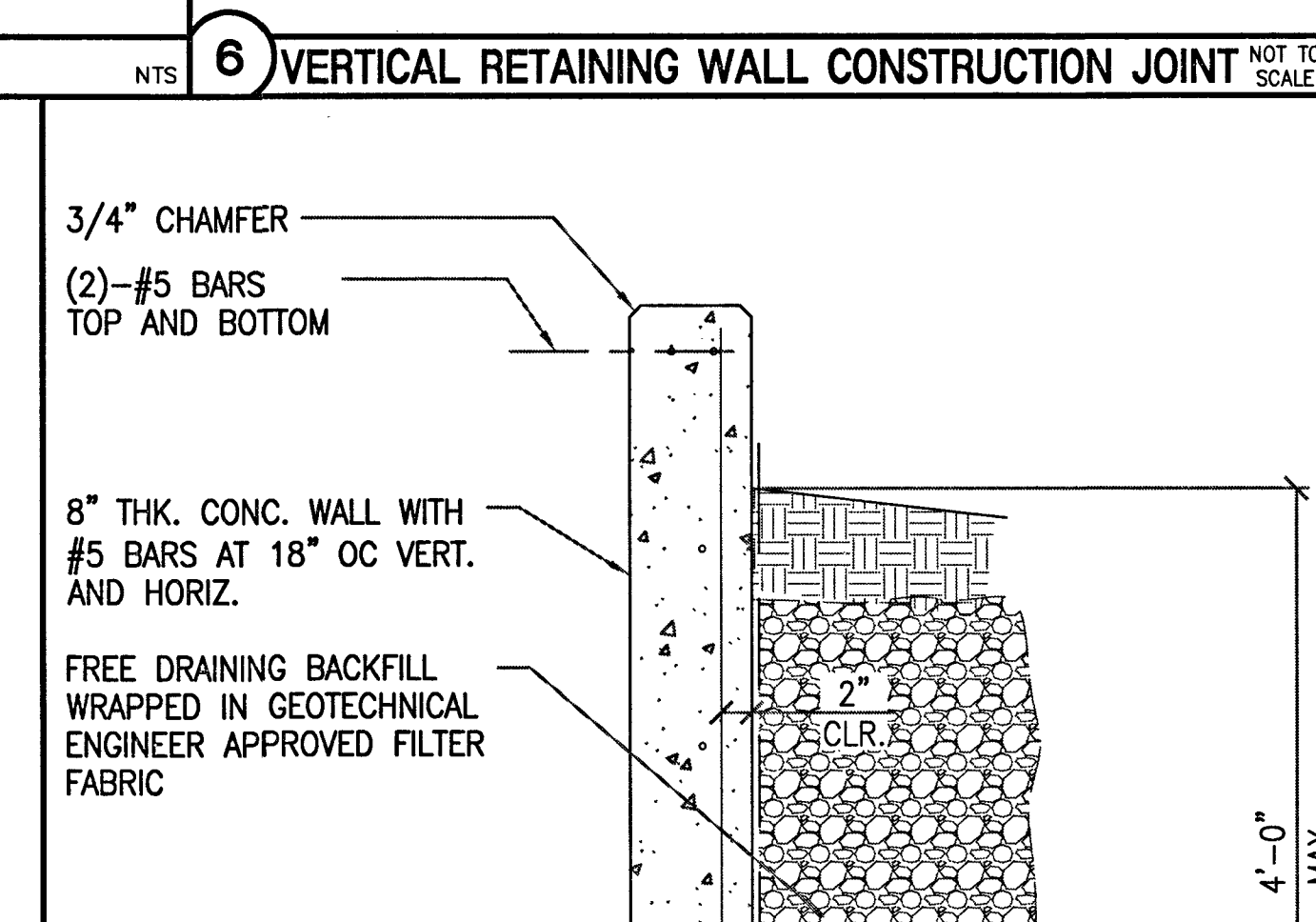
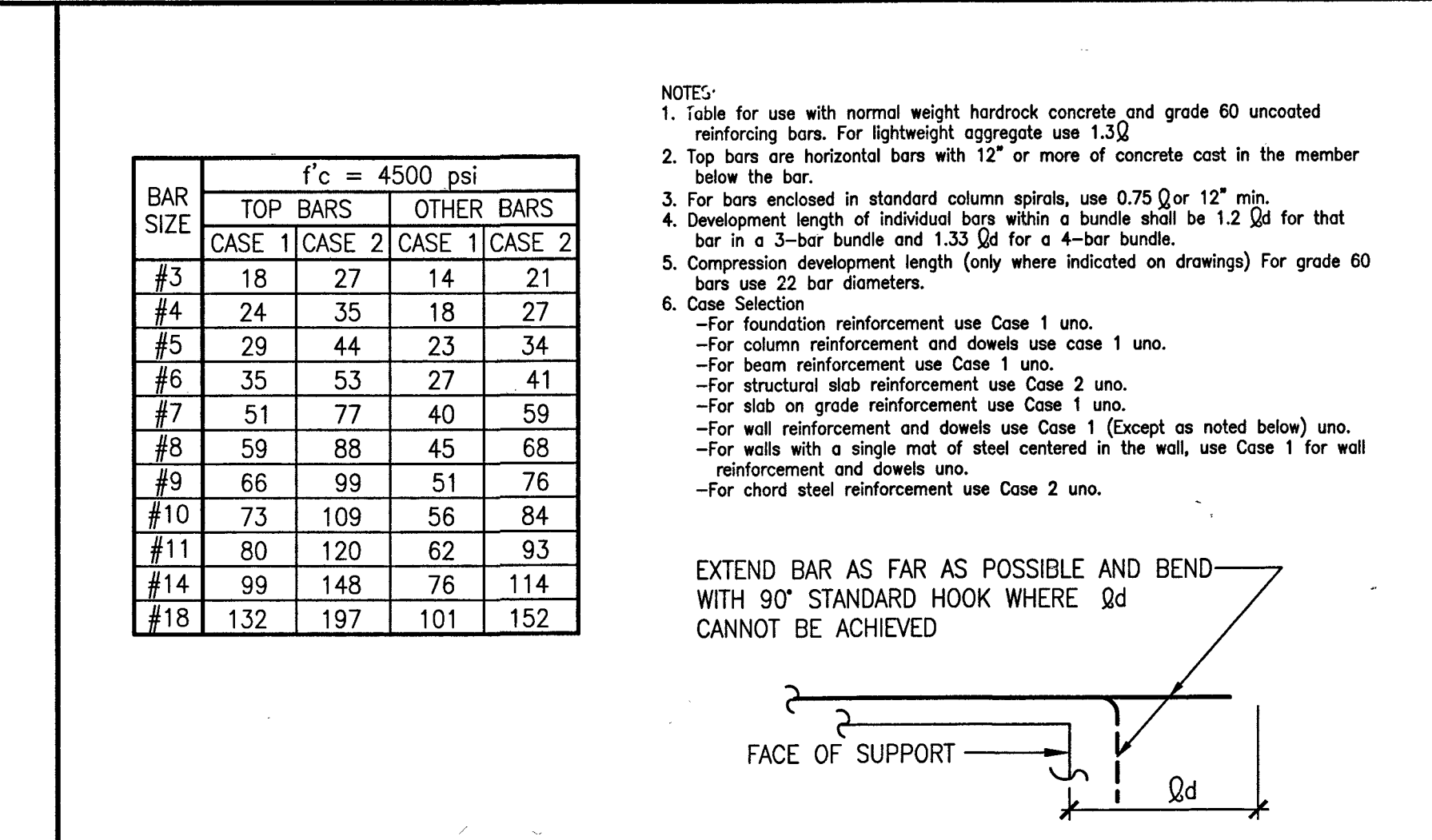
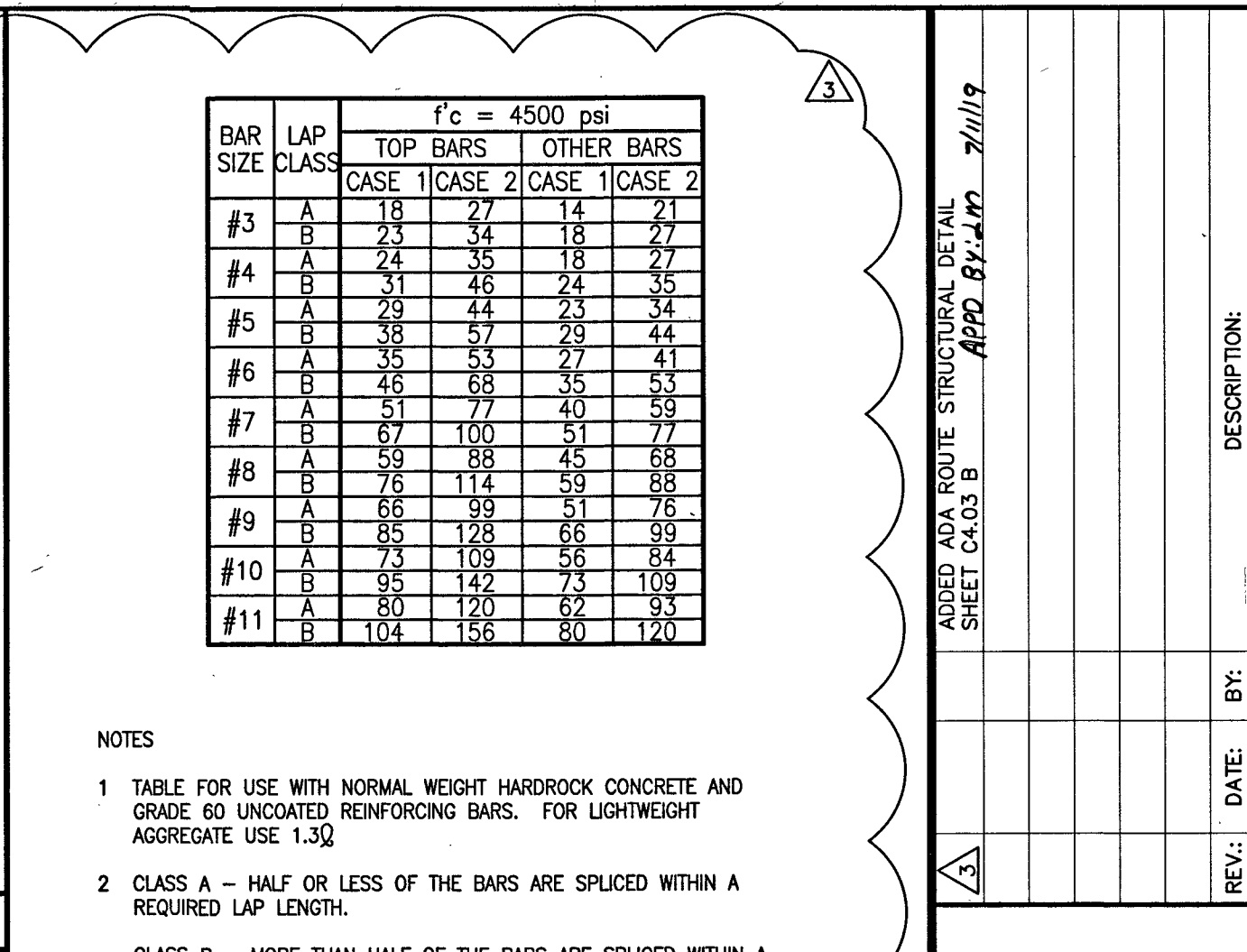




CLASS "B" - MORE THAN HALF OF THE BARS ARE SPACED WITHIN A REQUIRED LAP LENGTH.

3 TOP BARS ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST IN THE MEMBER BELOW THE BAR.

4 FOR BARS ENCLOSED IN STANDARD COLUMN SPIRALS, USE 0.75 ϕ OR 12" MIN.

5 LAP SPICES OF INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE 1.2 ϕ FOR THAT BAR IN A 3-BAR BUNDLE AND 1.33 ϕ FOR A 4-BAR BUNDLE. ENTIRE BUNDLES SHALL NOT BE LAP SPICED AT THE SAME LOCATION. SPICES FOR INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE STAGGERED SUCH THAT THEY DO NOT OVERLAP.

6 ϕ - BASIC LAP LENGTH, SHOWN AT LEFT.

7 CASE SELECTION

- FOR FOUNDATION REINFORCEMENT USE CASE 1 UNO.
- FOR COLUMN REINF. AND DOWELS USE CASE 1 UNO.
- FOR BEAM REINF. USE CASE 1 UNO
- FOR STRUCTURAL SLAB REINF. USE CASE 2 UNO.
- FOR SLAB ON GRADE REINF. USE CASE 1 UNO.
- FOR WALL REINF. AND DOWELS USE CASE 1 (EXCEPT AS NOTED BELOW UNO).
- FOR WALLS WITH A SINGLE MAT OF STEEL CENTERED IN THE WALL, USE CASE 1 FOR WALL REINFORCEMENT AND DOWELS UNO.
- FOR CHORD STEEL REINFORCEMENT USE CASE 2 UNO.

**SANCHEZ CIVIL
ENGINEERING**

7844 SOARING BROOKS ST.
LAS VEGAS, NV 89131
#702.340.7927

4	TENSION LAP SPlice IN CONCRETE TENSION LAP SPlice LENGTH, L_d (IN INCHES) FOR GRADE 60 UNCOATED BARS	NOT TO SCALE
	Concrete	
1.	All aspects of work pertaining to the concrete construction shall be in accordance with ACI 318-14, "Building Code Requirements for Structural Concrete" and the latest edition of "Specifications for Structural Concrete for Buildings," ACI 301, with modifications as noted on the project drawings and/or specifications.	
2.	Concrete mix designs shall be submitted to the Structural Engineer for review. All mix designs shall be designed by a qualified testing laboratory and shall be wet stamped by a Civil Engineer licensed in the State of Nevada. Base design mix in field experience or trial mixtures as stipulated in IBC Section 1905.3	
3.	Portland cement conform to ASTM C150 Type V where the concrete is in contact with soil. Concrete will be exposed to sulfate - with severe conditions shall comply with IBC Section 1904.3. Severe (S2) and Very Severe (S3) sulfate exposures as identified in the project geotechnical report, the water cement ratio shall not exceed 0.45 and shall not exceed 150 LBS / CY. Moderate (S1) sulfate exposure. Type II cement shall be used at all other locations in the structure.	
4.	Fly ash may be used in concrete mixes. The fly ash shall conform to ASTM C618 Class F. The loss of ignition shall be limited to 2%. The addition rate for fly ash shall be limited to 15% of the cement weight. The contractor shall submit all certificates showing the fly ash is in accordance with the above criteria.	
5.	Do not use concrete or gravel containing chlorides.	
6.	All concrete exposed to freeze - thaw cycles shall contain 6% +/- 1% of entrained air.	
7.	Hard rock concrete - aggregate shall conform to all requirements and tests of ASTM C33 and project specifications. Exceptions may be used only with approval of the Structural Engineer. Provide concrete mix design with proven shrinkage	

CHARACTERISTICS OF LESS THAN 3,000 PSI CONCRETE, SUCH AS FOLLOWS:

8. Structural concrete slab depth strengths & types are as follows:

Location of Concrete	Strength, psi	Type
Footing	4,500	Hard Rock
Retaining Wall	4,500	Hard Rock

9. The modulus of elasticity of concrete, shall be tested in accordance with ASTM C469 for concrete slabs and beams and shall be at least the value given by the equations in section 8.5.1 of ACI 318-14 for the specified concrete 28-day strength.

10. Concrete mixing operations, etc., shall be in accordance with ASTM C94.

11. Concrete placement shall be in accordance with ACI standard 304 and project specifications. Provide keys in construction joints unless detailed otherwise. Thoroughly clean, remove laitance and thoroughly wet and remove standing water in construction joints before placing new concrete. At vertical joints, flush with a coat of neat cement before placing new concrete.

12. Roughen concrete surface to a full amplitude of 1/4 inch where masonry walls intersect concrete or where new concrete interfaces with existing concrete.

13. Clear coverage of concrete over reinforcing bars shall be as follows:

Location of Concrete	Minimum Concrete Cover
Concrete cast against and permanently exposed to earth	3"
Concrete exposed to earth or weather: #6 through #18 bar #5 bar and smaller	2" 1 1/2"
Concrete not exposed to weather or in contact with ground, UNO: Slabs, walls, joists: #14 and #18 bar #11 bar and smaller.	1 1/2" 3/4"
Beams, columns: Primary reinforcing, ties stirrups, spirals.	1 1/2"

14. Prior to concrete placement, all reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position.

15. Maintain concrete above 50 degrees Fahrenheit and in a moist condition for a minimum of 7 days after placement unless otherwise accepted by Architect/Engineer.

**SANCHEZ CIVIL
ENGINEERING**
7844 SOARING BROOKS ST.
LAS VEGAS, NV 89131
— #702.340.7927

DC PLAZA
8151 FARM ROAD
LAS VEGAS, NEVADA

SHEET	TITLE
PROJECT No.:	FARM AD
DATE:	6/12/2019
SCALE:	1"=20'
DRAWN BY:	JPS
DESIGNED BY:	JPS
CHECKED BY:	LS
	
SHEET NO. C4.03 B SHEET 9B OF 45	
H# 64486 107362734	