



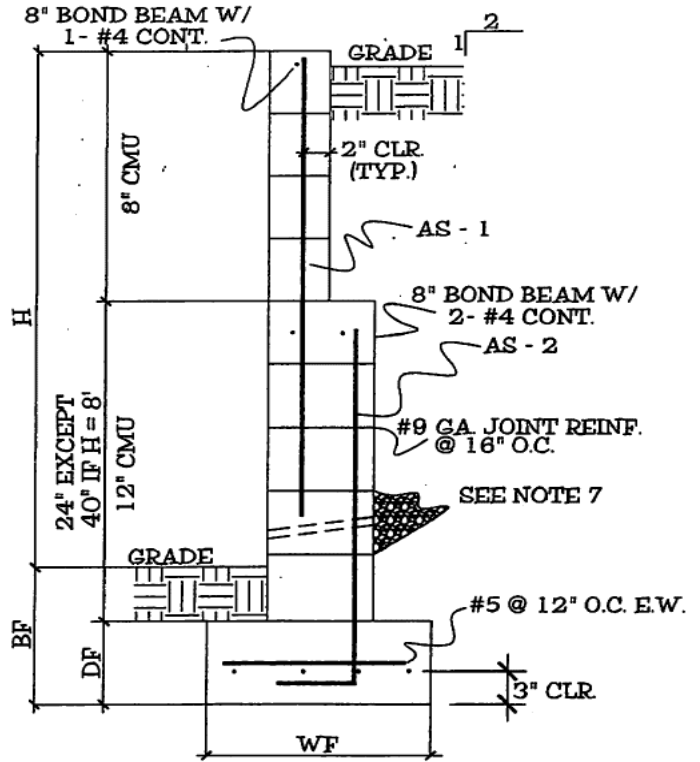
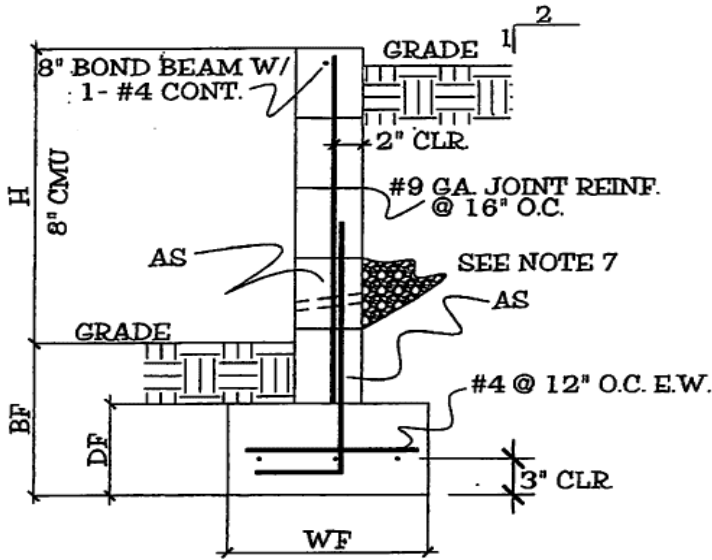
LAKE HAVASU CITY
DEVELOPMENT SERVICES DEPARTMENT
RESIDENTIAL MASONRY RETAINING WALL DESIGN

APPLICANT _____
 ADDRESS _____
 RETAINING: Length _____ Height _____

DATE _____
 TRACT _____ BLOCK _____ LOT _____
 SLOPE: None _____ 2:1 _____

Located in an Easement: No Yes, Utility Approvals Attached

SUBMIT WITH A FULLY DIMENSIONED SITE PLAN AND UTILITY APPROVALS WHEN APPLICABLE



H	DF	WF	Slope	Horiz	Slope Max of 2:1
1' - 6"	8"	1' - 0"	As	#4@48	#4@48
			BF	1' - 2"	1' - 2"
2' - 0"	9"	1' - 4"	As	#4@48	#4@48
			BF	1' - 3"	1' - 3"
2' - 6"	9"	1' - 4"	As	#4@48	#4@48
			BF	1' - 3"	1' - 6"
3' - 0"	9"	1' - 10"	As	#4@48	#4@48
			BF	1' - 3"	1' - 7"
3' - 6"	9"	1' - 10"	As	#4@48	#4@40
			BF	1' - 6"	1' - 9"
4' - 0"	9"	1' - 10"	As	#4@48	#4@40
			BF	1' - 9"	1' - 11"
4' - 6"	9"	2' - 0"	As	#4@40	#4@32
			BF	1' - 9"	2' - 1"
5' - 0"	9"	2' - 4"	As	#4@24	#4@16
			BF	1' - 10"	2' - 2"
5' - 6"	9"	2' - 6"	As	#5@24	#5@8
			BF	2'	2' - 4"
6' - 0"	12"	3' - 0"	As	#4@8	N/A
			BF	2' - 1"	N/A

H	DF	WF	Slope	Horiz	Slope Max of 2:1
6' - 0"	12"	3' - 0"	As2	N/A	#4@24
			BF	N/A	2' - 6"
7' - 0"	12"	3' - 6"	As2	#4@16	#4@8
			BF	2' - 4"	2' - 9"
8' - 0"	12"	4' - 0"	As2	#5@16	#6@8
			BF	2' - 6"	3'
As1				#4@24	#4@16

LEGEND					
H:	Top of Footing to Top of Wall Height				
DF:	Depth of Footing				
WF:	Width of Footing				
As:	Vertical Wall Reinforcing				
BF:	Bottom of Footing				
db:	Reinforcing Bar Diameter				

NOTE: See Reverse side for material standards and construction requirements.

MATERIAL STANDARDS AND CONSTRUCTION REQUIREMENTS

1. **Concrete:** Conform to ASTM C 94; Minimum compressive strength $f' c = 2500$ psi at 28 days.
2. **Reinforcing:**
 - a. Conform to ASTM A 615, grade 40, deformed.
 - b. Dowels to have standard hook, match, and lap with vertical wall reinforcing.
 - c. Vertical wall reinforcing to be secured in place prior to grouting by bar positioners spaced at 200 db o.c. max.
 - d. Lap splice length in concrete to be 32 db and 40 db in masonry.
 - e. Wall horizontal joint reinforcing at 16 inches o.c., ladder or truss type, minimum yield strength $F_y = 60$ ksi, consisting of two deformed #9 ga. longitudinal wires with welded #9 ga. cross wires.
3. **Masonry:**
 - a. Specified compressive strength of masonry $f' m = 1500$ psi.
 - b. Concrete block conforming to ASTM C 90, normal weight, type I, 1900 psi block unit compressive strength.
 - c. Mortar conforming to ASTM C 270, type S, 28-day compressive strength $f' c = 2000$ psi, constructed with running bond, all cells filled solid with grout.
 - d. Quality: Prior to or at the time of delivery to the job site, letters of certification from the block manufacturer and grout supplier assuring the materials conform to these requirements shall be forwarded to the Building Department.
4. **Backfill Material:**
 - a. Clean, granular, non-expansive fines.
 - b. Brace wall prior to compaction backfill adjacent to wall.
5. **Bearing Soil:** Class 4, 2000 psf allowable foundation pressure.
6. No surface surcharge loads over backfill material; Wall extensions or support fences that extend above the retaining wall height are not permitted.
7. **Drainage:**
 - a. 1-inch diameter PVC weep pipe at base.
 - b. 48 inches o.c.
 - c. Screen with 1 cubic foot of 1-inch diameter rock.
8. Finished grade shall provide a minimum of 6" coverage over top of footing.
9. Use retaining wall height plus $\frac{1}{2}$ private wall height for retaining wall design.
10. Privacy walls require #4 rebar at 4 ft. o.c. with 1-#4 at top of wall bond beam.
11. PUE/DE, wall/footing encroachments are not allowed without approvals from utility companies.
12. Wall/footing encroachments of adjacent properties are not allowed without common wall agreement.
13. The person making or causing an excavation to be made shall provide written notice to the owners of adjoining buildings advising them that the excavation is to be made and that they should be protected. Said notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.