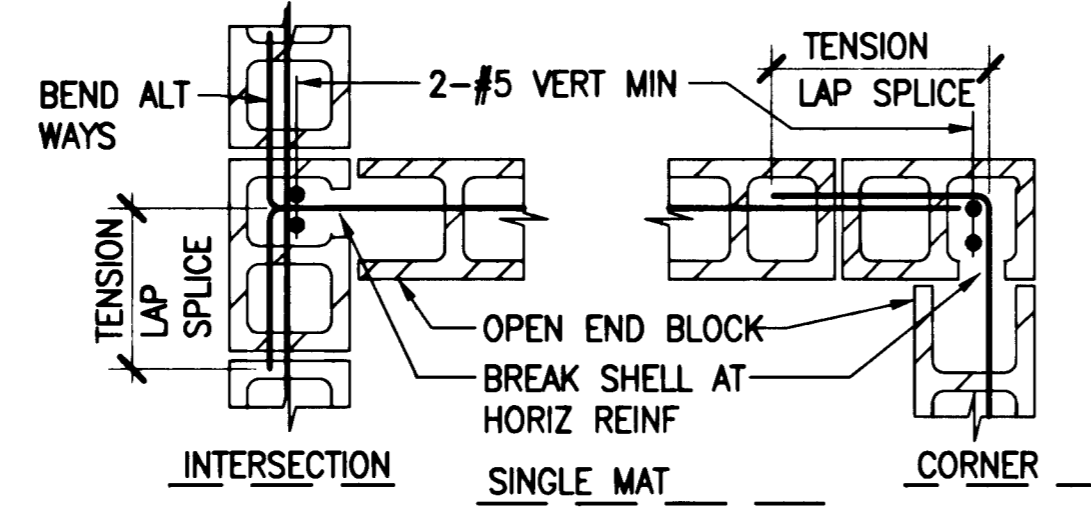
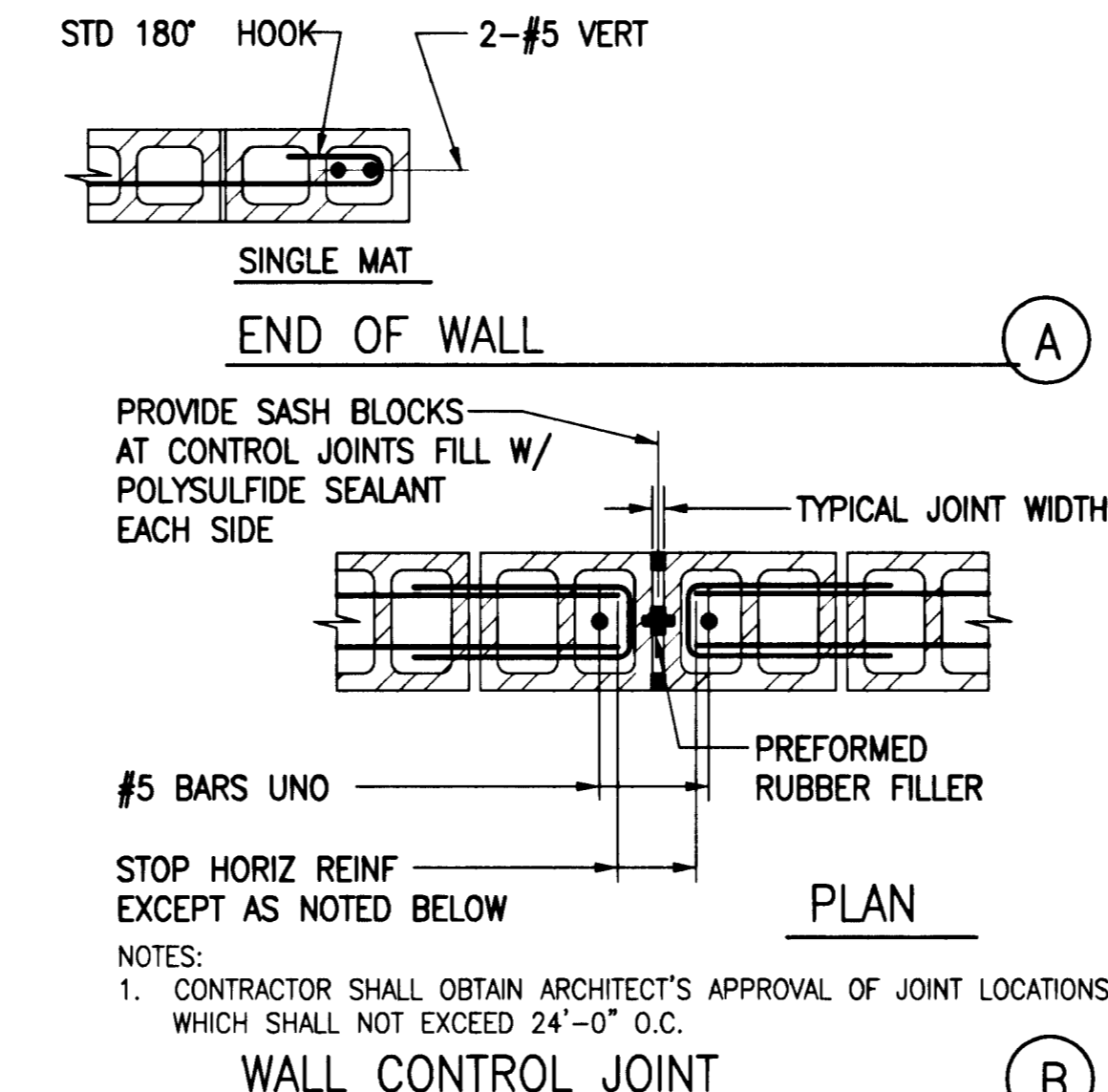


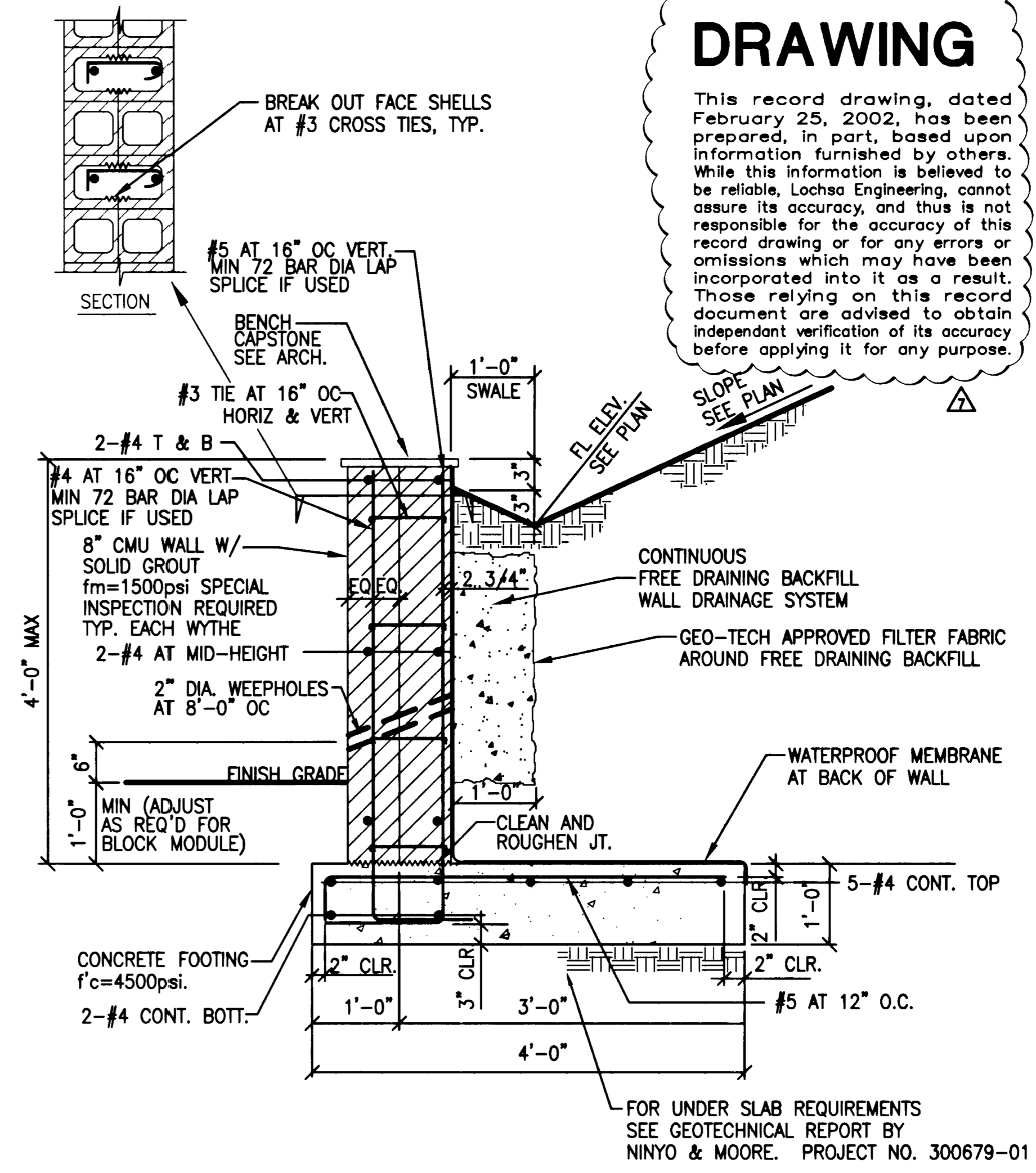
STEPPED FOOTING
NO SCALE



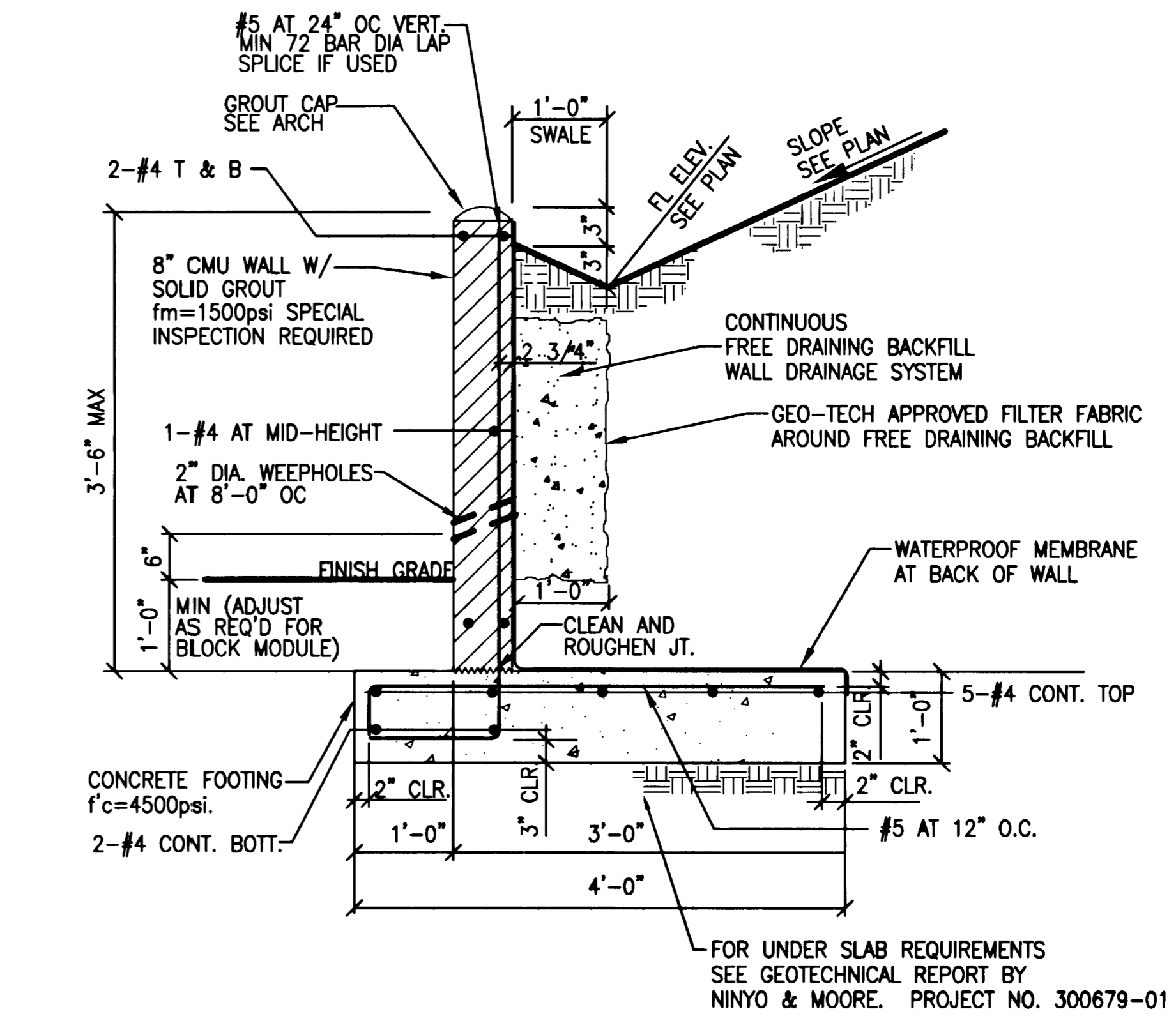
CMU WALL INTERSECTIONS
NO SCALE



MASONRY WALL DETAILS
NO SCALE



WALL SECTION AT PLAZA
NO SCALE



WALL SECTION BEHIND RESTROOM BUILDING
NO SCALE

AS-BUILT DRAWING

This record drawing, dated February 25, 2002, has been prepared, in part, based upon information furnished by others. While this information is believed to be reliable, Loehsa Engineering, cannot assure its accuracy, and thus is not responsible for the accuracy of this record drawing or for any errors or omissions which may have been incorporated into it as a result. Those relying on this record document are advised to obtain independent verification of its accuracy before applying it for any purpose.

BAR SIZE	LAP CLASS	f'c = 4500 psi			
		TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2
#3	A	19	28	15	22
	B	24	36	19	28
#4	A	25	37	19	29
	B	32	48	25	37
#5	A	31	47	24	36
	B	40	60	31	47
#6	A	37	56	29	43
	B	48	72	37	56
#7	A	54	81	42	63
	B	70	106	54	81
#8	A	62	93	48	71
	B	80	121	62	93
#9	A	70	105	54	81
	B	91	136	70	105
#10	A	79	118	61	91
	B	102	153	79	118
#11	A	87	131	67	101
	B	113	170	87	131

- NOTES
- TABLE FOR USE WITH NORMAL WEIGHT HARDROCK CONCRETE AND GRADE 60 UNCOATED REINFORCING BARS. FOR LIGHTWEIGHT AGGREGATE USE 1.3 Q.
 - CLASS A - HALF OR LESS OF THE BARS ARE SPLICED WITHIN A REQUIRED LAP LENGTH.
 - CLASS B - MORE THAN HALF OF THE BARS ARE SPLICED WITHIN A REQUIRED LAP LENGTH.
 - TOP BARS ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST IN THE MEMBER BELOW THE BAR.
 - FOR BARS ENCLOSED IN STANDARD COLUMN SPIRALS, USE 0.75 Q OR 12" MIN.
 - LAP SPLICES FOR INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE 1.2 Q FOR THAT BAR IN A 3-BAR BUNDLE AND 1.33 FOR A 4-BAR BUNDLE. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED AT THE SAME LOCATION. SPLICES FOR INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE STAGGERED SUCH THAT THEY DO NOT OVERLAP Q.
 - 6 Q - BASIC LAP LENGTH, SHOWN AT LEFT.
 - 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.

- FOUNDATION
- The design of the foundation system is based on the geotechnical report prepared by the following company:
Project no: 300679-01 Dated: Jan 8, 2001
Copies are available for review at the Architect's office.
The foundation system is designed based on an allowable soil pressure of 2000 PSF for gravity loads.
 - The contractor shall provide for proper dewatering of excavations from surface water, ground water, seepage, etc.
The Contractor shall provide for the installation and design of all cribbing, sheeting and shoring required to safely and adequately retain the earth banks and support any existing structures.
All abandoned utilities, footings, etc., that interfere with the new construction shall be removed. Notify the Civil Engineer should any foundations for existing structures be encountered that are not shown on the civil drawings.
 - Footings shall be placed and estimated according to depths shown on the drawing. Excavations for footings shall be approved by the Geotechnical Engineer prior to placing the concrete and reinforcing. The Contractor shall notify the Geotechnical Engineer when the excavations are ready for inspection. The Geotechnical Engineer shall submit a letter of compliance to the Owner. Should soil encountered at these depths not be approved by the Geotechnical Engineer, footing elevations or footing designs will be altered by change order.

- All excavations shall be properly backfilled. See geotechnical report for requirements. Flooding will not be permitted.
- The Contractor shall not backfill behind retaining walls before the retaining walls have reached full design strength. The Contractor shall provide for the design, any required permits and the installation of such bracing and protection.

- MASONRY
- The masonry units shall conform to ASTM C90 grade N-1 and U.B.C. Standard 21-4.
 - Mortar and grout shall comply with the provisions of Section 2103 of the U.B.C. Mortar mix shall conform to requirements for U.B.C. Table 21-A, Type S. Grout shall be coarse grout. Use sufficient water for grout to flow into all joints of the masonry without segregation. Mortar and grout mix designs shall be submitted to the Engineer for review. All mix designs shall be designed by a qualified testing laboratory and be wet stamped by a Civil Engineer licensed in the State of Nevada.
 - The design strength f'm shall be 1500 psi unless noted otherwise in the drawings. The f'm shall be verified by the prism method (U.B.C. Section 2105.3.2). The minimum required 28-day compressive strengths for grout, mortar, and block shall be as follows:
MASONRY DESIGN STRENGTH - f'm = 1500 psi
GROUT - 2000 psi MORTAR - 1800 psi BLOCK (*) - 2000 psi
* Minimum compressive strength at 28-days on the net area.
Note---These strengths are minimum requirements only. If greater strengths are required to reach the required f'm for the combined system, these greater strengths shall be used.
 - All masonry shall be solid grouted unless noted otherwise on the drawings. Grout lift provisions shall be in accordance with U.B.C. Section 2104.6.
 - Placement of reinforcing bars shall conform to U.B.C. Section 2104.5. A minimum of 1/2 inch grout between the main reinforcing and masonry units shall be provided.
 - Minimum dimensions of grout spaces and cells shall be in accordance with U.B.C. Table 21-C. All cells shall be in vertical alignment and footing dowels shall align with cells containing vertical reinforcing steel.
 - Unless noted otherwise all vertical reinforcing shall have a minimum tension lap splice of 72-bar diameters. When two bars occur in one cell, the splice shall be increased to 94-bar diameters. All horizontal reinforcing shall have a minimum lap splice of 48-bar diameters, stagger all horizontal rebar splices.

TENSION LAP SPLICE TENSION LAP SPLICE LENGTHS, Q (IN INCHES) FOR GRADE 60 UNCOATED BARS
NO SCALE

- GENERAL
- All work shall conform to the minimum standards of following codes:
The 1997 edition of the Uniform Building Code, and other regulating agencies which have authority over any portion of the work, and those codes and standard listed in these notes and in the project specifications. All specifications and codes noted shall be the latest approved editions and revisions by the governmental agency having jurisdiction over this project.
 - See mechanical, plumbing, and electrical drawings for the following: Pipes, sleeves, and concrete inserts for electrical mechanical or plumbing fixtures.
 - The contract drawings 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 and shoring for loads due to hydrostatic, earth, wind or seismic forces, construction equipment, etc. Observation visits to the site by the Civil Engineer shall not include inspection of the above items.
 - Notify the Civil Engineer when drawings by others show openings, pockets, etc., not shown on the civil drawings, but which are located in the structural members.
 - Contractor shall investigate the site during clearing and earth work operations for filled excavations or buried structures such as cesspools, cisterns, foundations, utilities, etc. If any such structures are found, the Civil Engineer shall be notified immediately.
 - UBC Lateral Loads
Basic Wind Speed = 75 mph, Exposure B
- REINFORCING STEEL (FOR CONCRETE AND MASONRY)
- All reinforcing steel shall be detailed and placed in accordance with the 'Building Code Requirements for Reinforced Concrete' (ACI 318-95) and the 'Manual of Standard Practice for Reinforced Concrete Construction' by CRSI and WCRSI as modified by the project drawings and specifications.
 - Deformed reinforcing bars shall conform to the requirements of ASTM A615 grade 60. Welding of reinf. is not permitted. All bar bends shall be made cold.
 - Reinforcing dowels between footings and walls or columns shall be the same number, size, spacing and grade as the specified vertical reinforcing, u.n.o.
 - All reinforcing bars shall be marked so their identification can be made when the final in-place inspection occurs.
- CONCRETE
- All aspects of work pertaining to the concrete construction shall be in accordance with ACI 318-95, 'Building Code Requirements for Reinforced 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. Concrete mixing operations, etc., shall be in accordance with ASTM C94. Concrete placement shall be in accordance with ACI standard 304 and project specifications. All concrete surfaces against which concrete is to be placed shall be sandblasted.
 - Concrete mix designs shall be submitted to the Civil 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.
 - 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.
 - 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 Civil Engineer.
 - Structural concrete 28-day strengths & types are as follows:
- | LOCATION OF CONCRETE | STRENGTH, PSI | TYPE |
|----------------------|---------------|------------------|
| FOOTINGS | 4500 | HARD ROCK Type V |
- Clear coverage of concrete over reinforcing bars shall be as follows:
MINIMUM COVER INCHES
A) Concrete cast against and Permanently exposed to earth 3
B) Concrete exposed to earth or weather:
No. 6 through No. 18 bar 2
No. 5 bar and smaller 1 1/2
 - Prior to concrete placement, all reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position.
- SPECIAL INSPECTION SHALL BE REQUIRED FOR THE FOLLOWING WORK:
- Concrete.
 - Bolts and embedded plates installed in concrete.
 - Reinforcing and mechanical reinforcing bar splices:
(a) During placement
 - Excavation and back-filling.
 - Structural Masonry



REVISIONS
ADDENDUM #2, 06-10-01
AS-BUILT DRAWINGS



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ELKHORN SPRINGS
NEIGHBORHOOD PARK
BUFFALO DRIVE
RETAINING WALL SECTIONS AND
DETAILS

OWNER: CITY OF LAS VEGAS
DEPARTMENT OF PUBLIC WORKS
ARCHITECTURAL SERVICES

400 EAST STEWART AVENUE
LAS VEGAS, NEVADA 89103
PHONE: (702) 229-6535
FAX: (702) 382-3232
TDD: (702) 386-9108

DRAWN: MHP
FILE: 6464-CMU-RET.DWG
DATE: MARCH 9, 2001
SCALE:
REV NO: 01.15301.16
ELEVING NO: 650.64
20 of 90

C6.3