

July 7, 2014

Berkeley City College
2050 Center Street
Berkeley, CA 94704

Attn: Debbie Budd, Ed.D.

Re: 2118 Milvia - Structural Evaluation
2118 Milvia Street
Berkeley, CA
TM Job No. 2014,065.00

Dear Debbie,

As requested, we have conducted a structural review of the building located at 2118 Milvia Street, Berkeley, CA. The purpose of the review was to determine the feasibility of converting the building from a private sector office use to a community college classroom use.

The referenced building, which was constructed in 1966, is located at the corner of Milvia and Center streets on a flat lot. It is three stories high and measures about 94' x 120' in plan. The building is categorized in the building code as being Type IIIB construction. The exterior walls are constructed with reinforced masonry units (concrete block) while the roof and floors are constructed with wood joists and plywood sheathing supported primarily by steel beams and columns. The foundation system consists of a concrete slab on grade; isolated spread footings at the interior columns; trench footings at the north, south, and east perimeter walls; and drilled piers at the west perimeter wall.

Documents made available for our review included the following:

1. Original structural drawings prepared by L. L. Freels and Associates, dated 1966
2. Seismic retrofit drawings prepared by Paul Fratessa Associates, Inc., dated 1995
3. Structural report prepared by Thornton Tomasetti dated May 13, 2014
4. Structural report prepared by KPW Structural Engineers, Inc., dated June 19, 2014

Converting the building from a private sector office use to a community college classroom use will require the building to be seismically strengthened to meet the requirements of the Field Act, which is overseen by the Division of the State Architect (DSA). If the existing partial third floor is expanded to align with the floors below, then the entire building will be brought into conformance with a new building.

As a part of the preparation of this report, we met with you and Merideth Marschak, a Principal with Noll & Tam, the project architect, to discuss the project goals. A major goal identified was the need to add more classrooms to the program. To this end, our proposed design calls for relocating four existing columns and filling in the open area on the third floor.

Based on our review of the provided documents, a walk through the building, and limited calculations done by our office, it is our opinion the building can be seismically strengthened to meet DSA criteria. It should be noted, however, that there are several major items that will have to be resolved with the DSA plan checker that could affect the cost and scope of the work required.

Attached for preliminary pricing and space planning use is a seismic strengthening scheme that relies on the addition of interior concrete block walls to resist seismic forces. The idea behind the scheme is to spread the seismic loads out to multiple walls which will be used as classroom dividers. As discussed, there are several valid schemes that can be used to achieve the upgrade.

Please call if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Steven B. Tipping". The signature is written in a cursive style with a large, looped "S" at the beginning.

Steven B. Tipping, SE
President

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND MAY NOT BE REPRODUCED, COPIED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
COPYRIGHT 2015, TIPPING MAR

REVISIONS	DATE	BY

2118 MILVIA ST

2118 Milvia St, Berkeley, Ca

FOUNDATION PLAN

DATE: 07-08-14

SCALE: AS NOTED

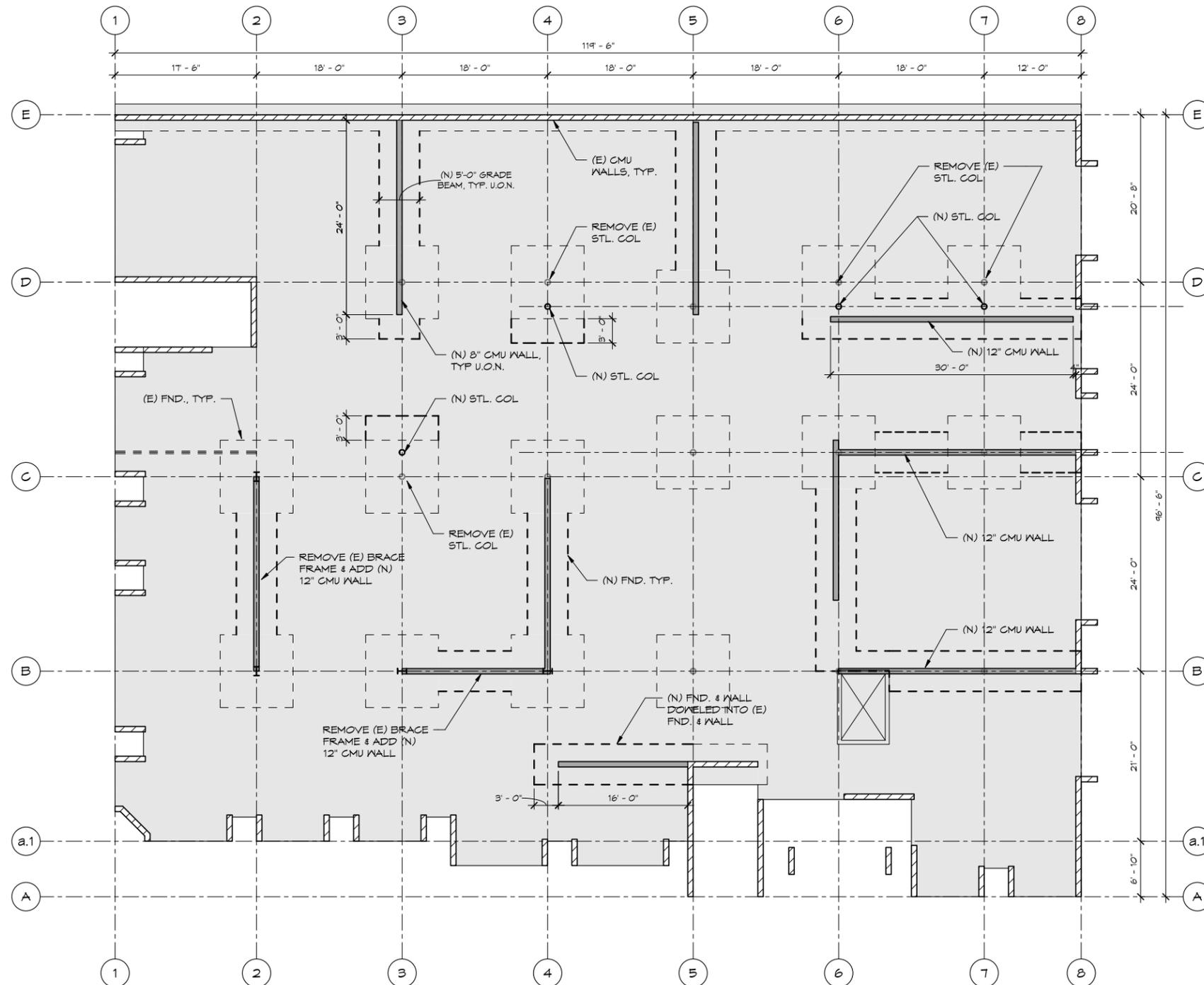
DRAWN: dD

CHECKED: MBS

JOB NO.: 2012,000

SHEET

S1



1 FOUNDATION PLAN
S1 1/8" = 1'-0"

NOTES

1. CMU REINFORCING:
#5 @ 16" O.C. E.V. FOR 8" CMU WALLS
#4 @ 16" O.C. E.V. FOR 12" CMU WALLS

ASSUMPTIONS

1. SOIL BEARING PRESSURES:
D + L = 3,000 psf
D + L + E = 4,000 psf
2. Fm = 2,500 psi FOR 8" CMU WALLS
Fm = 3,000 psi FOR 12" CMU WALLS
3. ALL CMU WALLS ARE FULLY GROUTED U.O.N.
4. ASSUMED LOADING:
ROOF: DL = 20 psf
FLOOR: DL = 24 psf

FOUNDATION PLAN LEGEND

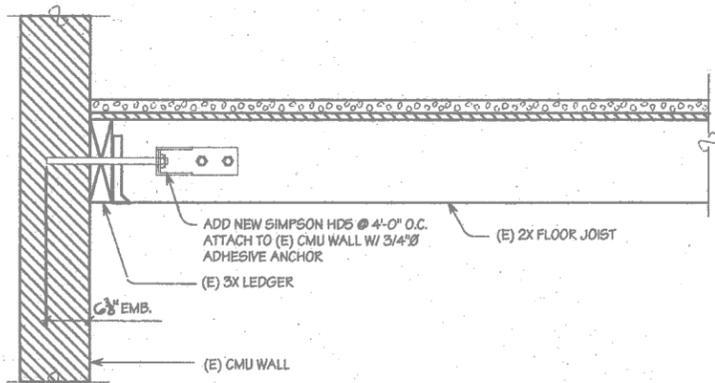
- DENOTES (N) CMU WALL
- DENOTES (E) CMU WALL
- DENOTES CONCRETE SLAB
- DENOTES (E) FOUNDATION
- DENOTES (N) FOUNDATION

Plotted: 7/7/2014 6:44:59 PM File: G:\2014\jobs\2014_065 - 2118 Milvia\Calculations\Rev\1\retrofit floor plan.rvt

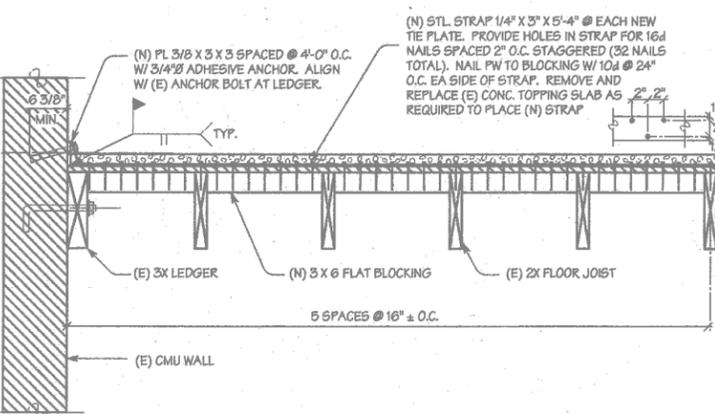
PRELIMINARY
NOT FOR CONSTRUCTION

DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND MAY NOT BE REPRODUCED, COPIED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
COPYRIGHT 2015, TIPPING MAR

REVISIONS	DATE	BY



3 NEW WALL TIES WHERE (E) JOISTS ARE PERPENDICULAR TO WALL
1" = 1'-0"

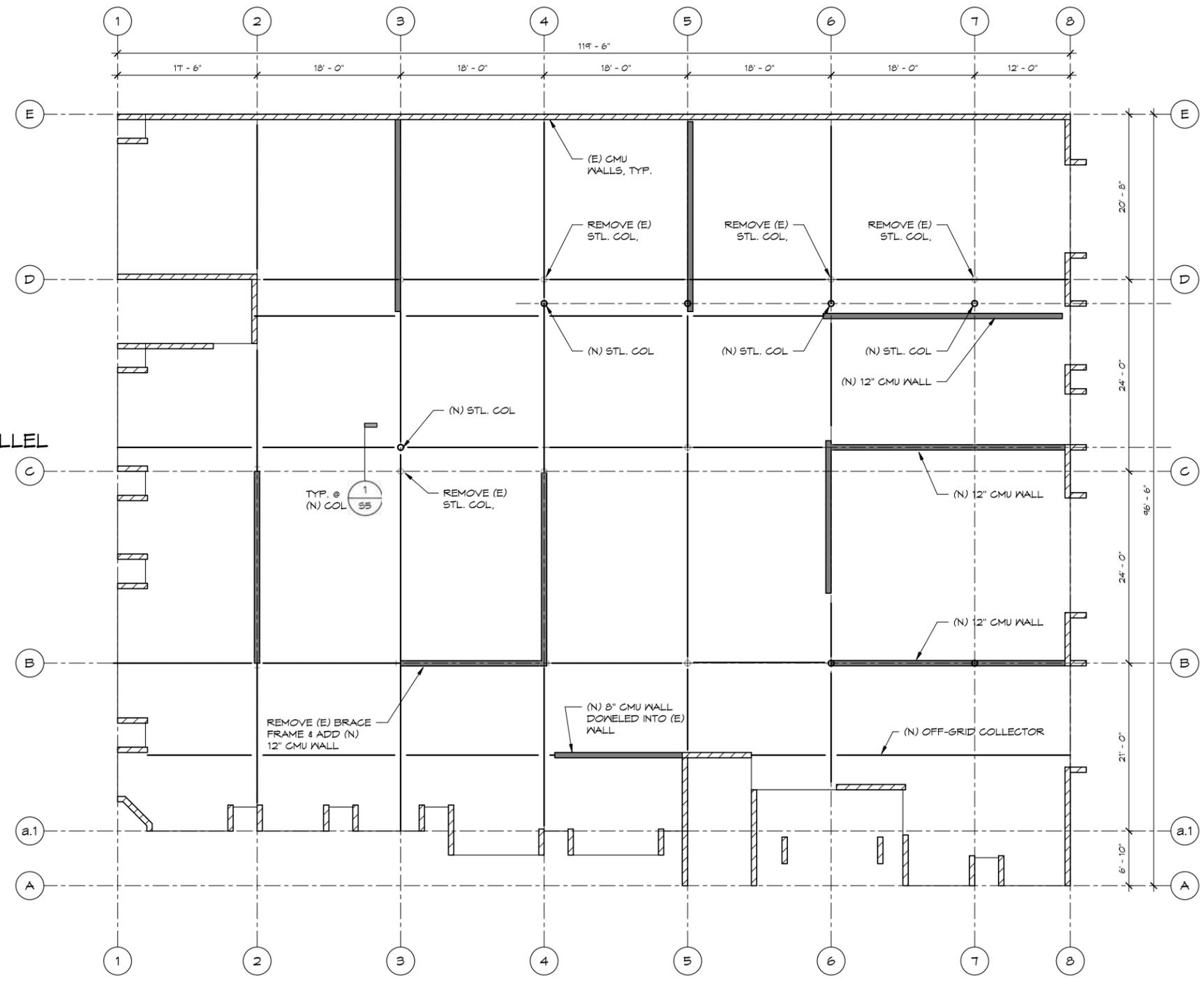


2 NEW WALL TIE WHERE (E) JOISTS ARE PARALLEL TO WALL
1" = 1'-0"

- NOTES**
- RE-NAIL ENTIRE FLOOR W/ 10d @ 6" O.C. @ PLYNEED EDGES
 - (N) COLLECTOR LINES OFF WIDE-FLANGE GRID: PROVIDE SOLID 4x BLKS + CONT. 3" NAILED STRAP
 - (N) COLLECTORS AT (E) WF BEAMS: ADD CONTINUITY PLATES @ BEAM SPLICES
 - WALL TIES: PROVIDE DETAILS 2/- @ 3/- @ 24" O.C. EVERYWHERE ALONG CMU WALLS

PLAN LEGEND

	DENOTES (N) CMU WALL
	DENOTES (E) CMU WALL



1 TYPICAL FLOOR PLAN
1/8" = 1'-0"

2118 MILVIA ST

2118 Milvia St, Berkeley, Ca

TYPICAL FLOOR PLAN

DATE:	07-08-14
SCALE:	AS NOTED
DRAWN:	Author
CHECKED:	Checker
JOB NO.:	2012.000
SHEET	

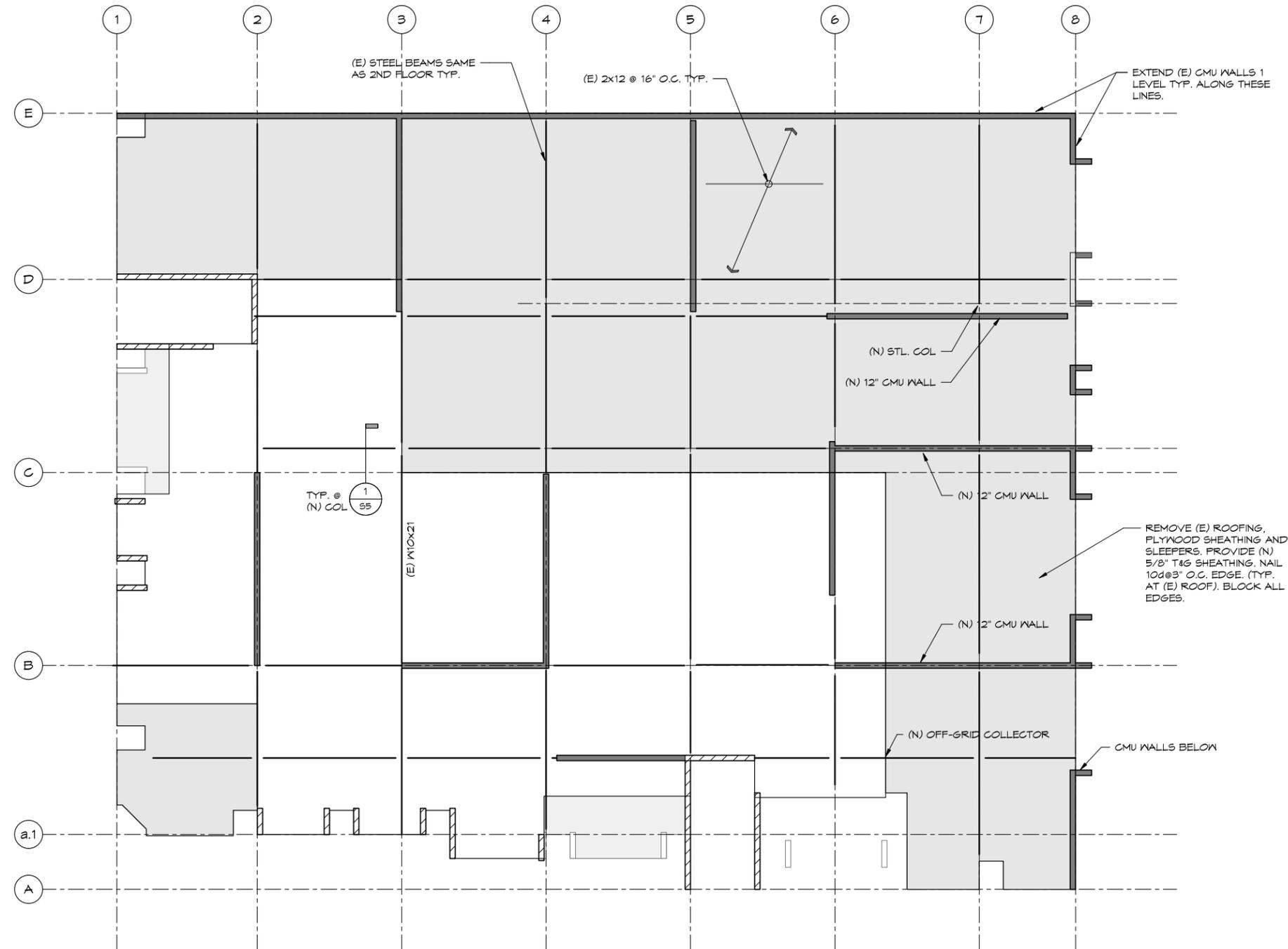
S2

Plotted: 7/7/2014 6:45:12 PM File: 6-13014\jobs\2014\065 - 2118 Milvia\Calculations\Revit\retrofit floor plan.rvt

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND MAY NOT BE REPRODUCED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
COPYRIGHT 2015, TIPPING MAR

REVISIONS	DATE	BY



- NOTES**
- RE-NAIL ENTIRE FLOOR W/ 10d @ 6" O.C. @ FLYNEED EDGES
 - (N) COLLECTOR LINES OFF WIDE-FLANGE GRID. PROVIDE SOLID 4x BLKS + CONT. 3" NAILED STRAP
 - (N) COLLECTORS AT (E) WF BEAMS: ADD CONTINUITY PLATES @ BEAM SPLICES
 - WALL TIES: PROVIDE DETAILS 2/52 & 3/52 @ 24" O.C. EVERYWHERE ALONG CMU WALLS

PLAN LEGEND

	DENOTES (N) CMU WALL
	DENOTES (E) CMU WALL

1 THIRD FLOOR FRAMING PLAN
SS 1/8" = 1'-0"

2118 MILVIA ST

2118 Milvia St, Berkeley, Ca

THIRD FLOOR FRAMING PLAN

DATE:	07-08-14
SCALE:	AS NOTED
DRAWN:	Author
CHECKED:	Checker
JOB NO.:	2012,000
SHEET	

53

Plotted: 7/7/2014 7:24:32 PM File: G:\2014\jobs\2014_065 - 2118 Milvia\Calculations\Rev\1\retrofit floor plan.rvt

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND MAY NOT BE REPRODUCED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
COPYRIGHT 2015, TIPPING MAR

REVISIONS	DATE	BY

2118 MILVIA ST

2118 Milvia St, Berkeley, Ca

ROOF FRAMING PLAN

DATE: 07-08-14

SCALE: AS NOTED

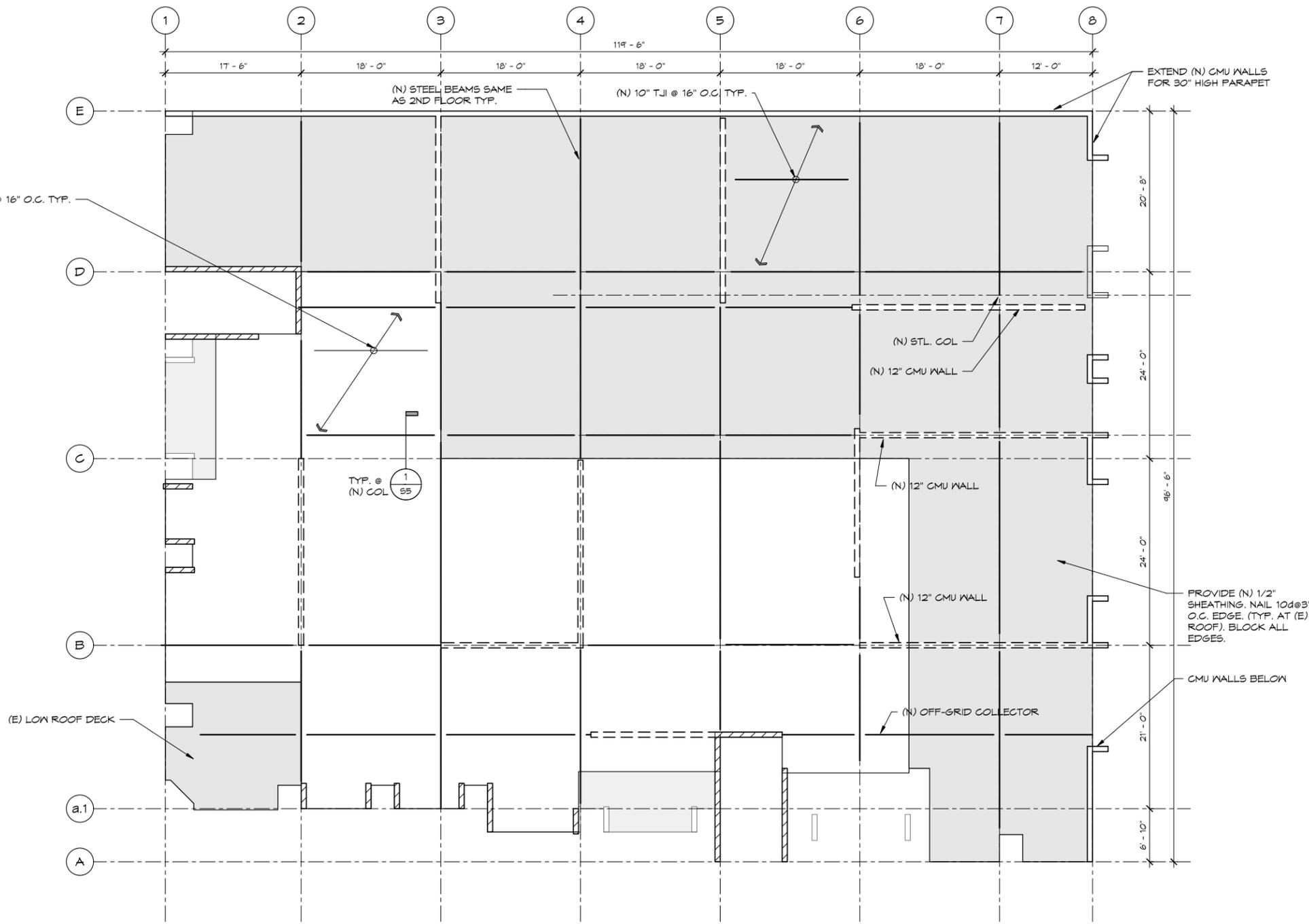
DRAWN: Author

CHECKED: Checker

JOB NO.: 2012.000

SHEET

S4



- NOTES**
- RE-NAIL ENTIRE FLOOR W/ 10d @ 6" O.C. @ FLYWEED EDGES
 - (N) COLLECTOR LINES OFF WIDE-FLANGE GRID. PROVIDE SOLID 4x BLKS + CONT. 3" NAILED STRAP
 - (N) COLLECTORS AT (E) WF BEAMS. ADD CONTINUITY PLATES @ BEAM SPLICES
 - WALL TIES: PROVIDE DETAILS 2/S2 & 3/S2 @ 24" O.C. EVERYWHERE ALONG CMU WALLS

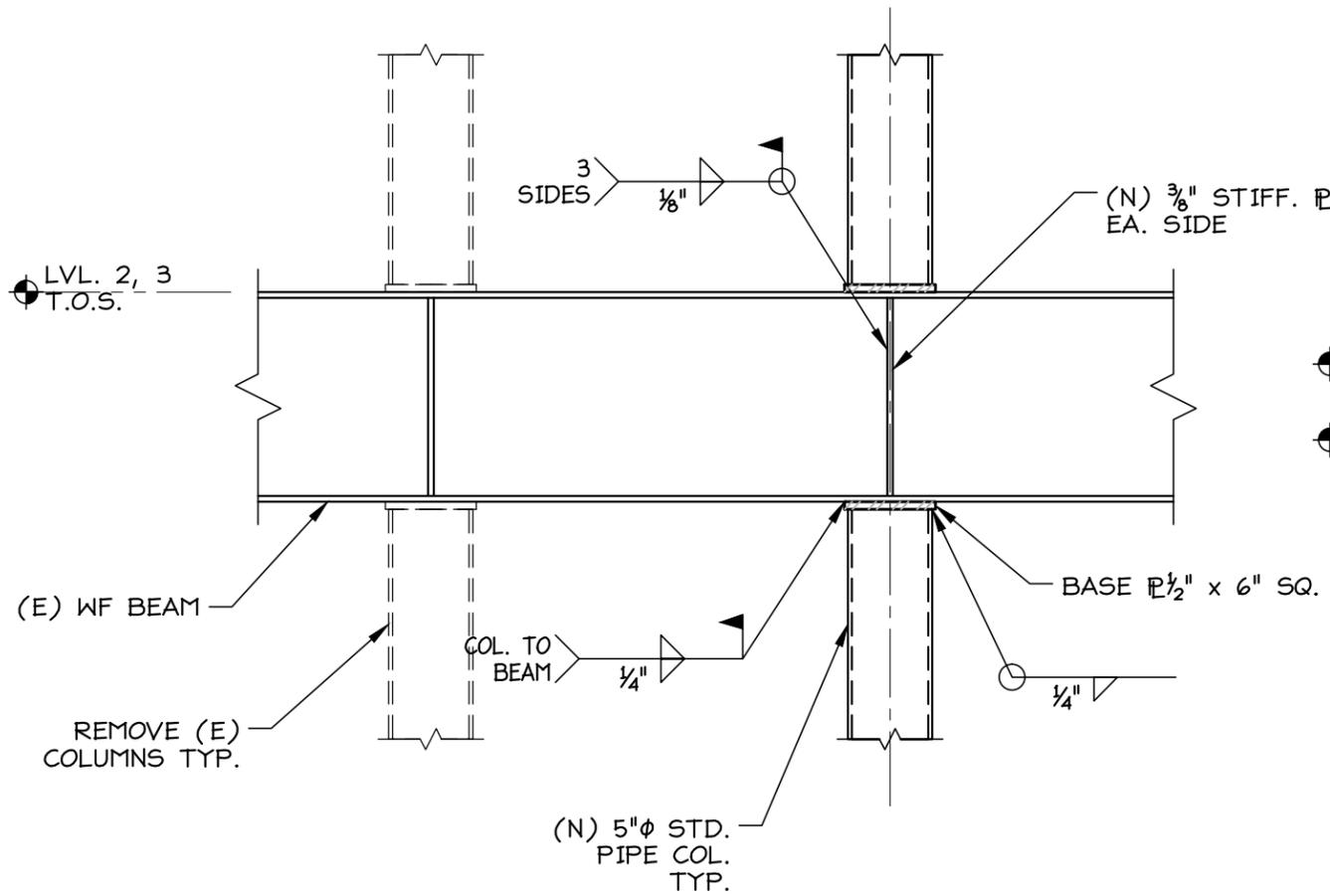
1 ROOF FRAMING PLAN
1/8" = 1'-0"

Plotted: 7/7/2014 7:25:19 PM File: G:\2014\jobs\2014.065 - 2118 Milvia\Calculations\Rev\Rev\retrofit floor plan.rvt

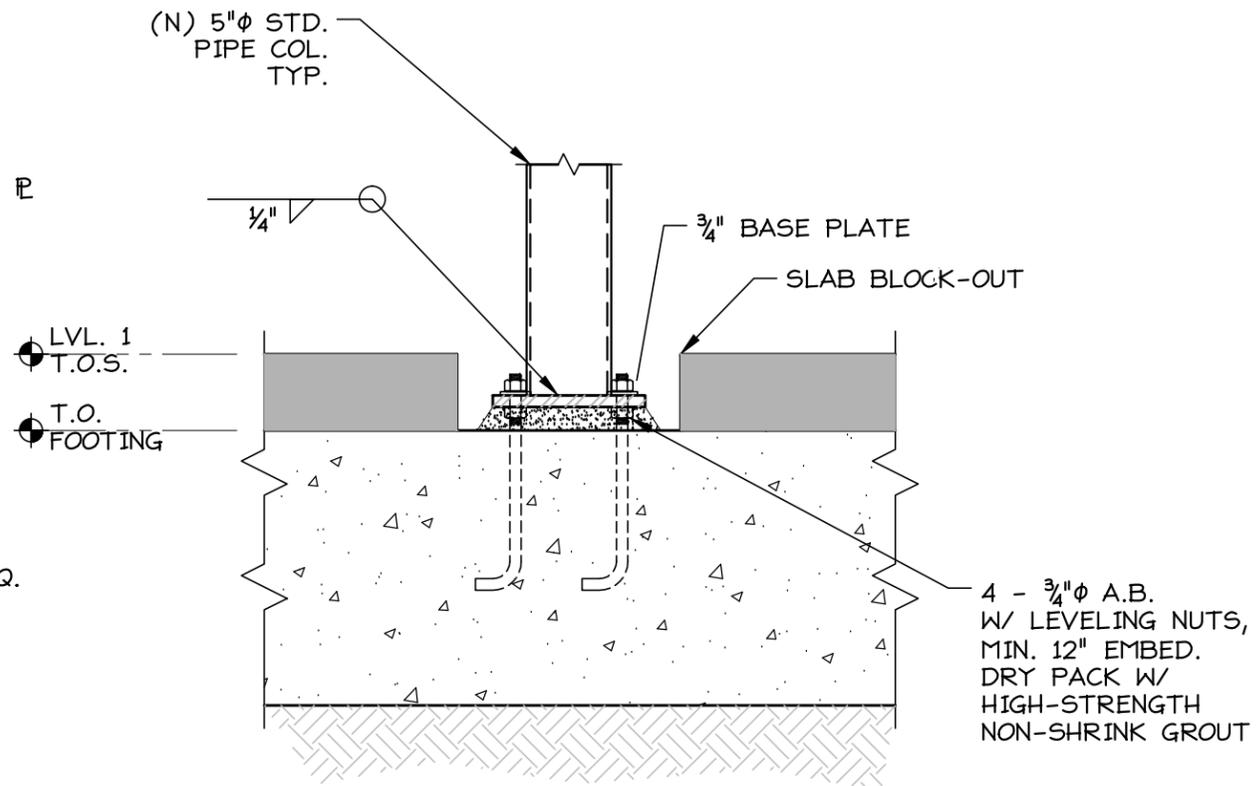
PRELIMINARY
NOT FOR CONSTRUCTION

DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER, AND MAY NOT BE REPRODUCED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
COPYRIGHT 2015, TIPPING MAR

REVISIONS	DATE	BY



A ————— **CONDITION AT UPPER LEVELS**



A ————— **CONN. TO FOUNDATION**

2118 MILVIA ST

2118 Milvia St, Berkeley, Ca

TYPICAL DETAILS

DATE:	07-08-14
SCALE:	AS NOTED
DRAWN:	Author
CHECKED:	Checker
JOB NO.:	2012,000

SHEET

55