GENERAL STRUCTURAL NOTES

GOVERNING CODE: The "International Building Code", 2012 Edition, as adopted and amended by the City of Bothell, Washington shall govern design and construction.

REFERENCE STANDARDS: Reference to ASTM and other standards shall refer to the latest edition in effect as of the bid date of Owner–Contractor agreement except as noted in these documents or designated by the governing code.

GEOTECHNICAL: Criteria outlined in the reports titled "Subsurface Exploration,Geologic Hazards, and Preliminary Engineering Geotechnical Report Proposed Bothell Senior Housing, 18221 Bothell Way Northeast, Bothell, Washington", by Associated Earth Sciences, Inc., dated January 11, 2011 and "Proposed Bothell Senior Housing, Addendum Foundation Design Recommendations, 18221 Bothell Way Northeast, Bothell, Washington" by Associated Earth Sciences, Inc., dated July 3, 2013 and "West Side Shoring Design Recommendations, Proposed Boulevard Place Senior Housing, 18221 Bothell Way Northeast, Bothell, Washington" by Associated Earth Sciences, Inc., dated June 19, 2014 were used in the design of the structure.

PLAN NOTES: Notes on the individual structural drawings shall take priority over structural notes on this sheet.

SPECIFICATIONS: Refer to the specifications for information in addition to that covered by these structural notes and the structural drawings.

DISCREPANCIES: In case of discrepancies between the plans, specifications, reference standards and governing code, the more stringent requirements shall govern. All discrepancies shall be brought to the attention of the Architect and Engineer of Record prior to proceeding with any work involved.

CONTRACTOR RESPONSIBILITIES: The contractor is responsible for safety in and around the site and for the strength and stability of all partially completed structures. The contractor shall at his discretion employ the aid of a Washington State registered structural engineer to design all temporary bracing and shoring necessary to complete the work described in these contract documents. Contractor shall schedule a pre–construction meeting w/ CBDS (City of Bothell Development Services) site inspector prior to the start of excavation.

UTILITY LOCATION: The shoring contractor will determine the location of all adjacent underground utilities prior to any excavation and prior to drilling pile holes, or tieback anchors. The utilities information shown on the plans and details are approximate and not necessarily complete.

LOAD LIMITS: Loads on the structure shall be kept within the limits of the design loads.

SUBMITTALS: Shop drawings shall be submitted to the Architect and Engineer of Record prior to any fabrication or construction for the following structural items: concrete reinforcing steel, structural steel, steel embedments, post–tensioned tendons, anchors, grouts, concrete, engineered floor and roof joists, prefabricated wood roof trusses, prefabricated shear wall holdown system and prefabricated metal stairs. If the shop drawings differ from or add to the design of the structural drawings, they shall bear the seal and signature of the Washington State Registered Structural Engineer who is responsible for the design. Post–tensioned tendon shop drawings and deferred submittals shall be submitted to CBDS (City of Bothell Development Services) bearing review stamp and signature of project architect/structural engineer. Submittals shall include 3 sets of shop drawings with EOR(Engineer of Record) review stamp as part of following CBDS post permit submittal requirements: Post/Tensioning, "Earthbound" hold down system, sprinkler system, and standpipe system.

DEFERRED SUBMITTALS: Submit a complete set of applicable engineered roof truss designs as required by Section 106.3.4.2 to the building department for approval prior to calling for a rough framing inspection. The truss drawings (11" x 17" minimum) shall note all truss connections with allowable loads. Submit a complete set of details for the seismic holdown system as required by Section 106.3.4.2 to the building department along with all ICBO product approvals. Submit a complete set of pre–fabricated metal stair designs as required by Section 106.3.4.2. Project Architect/Engineer of Record shall review the deferred submittals and find them in general conformance with building design before forwarding to the building official.

SPECIAL CONDITIONS: Contractor shall verify all dimensions in the field and shall provide adequate shoring and bracing of all structural members during construction. Contractor shall notify the Architect and Structural Engineer of all field changes prior to installation or fabrication.

INSPECTION: Inspection by an approved testing lab shall be performed for reinforcing placement and concrete placement, All prepared soil–bearing surfaces prior to placement of reinforcing steel and installation of Geopiers shall be inspected by the Soils Engineer. Soils compacting shall be supervised by an approved testing lab. Special inspection is required for concrete construction, anchor bolts, stressing of post–tensioning tendons, structural steel welding, grading/excavation/fill under the building. These items will require inspection reports per IBC Section 1704.2.4. Reference the 2012 International Building Code Section 1704 and 1705.11 for special inspection requirements.

QUALITY ASSURANCE PLAN FOR SEISMIC RESISTANCE: Periodic special inspections of shear walls shall include verifying grade, species, and positioning of wood material. Periodic special inspections are required for nailing, bolting, anchoring, and other fastening of components within the seismic–force system including drag struts, braces, and holddowns except fastening of wood sheathing used for wood shear walls, shear panels, and diaphragms where the fastener spacing is more than 4 inches on center. Periodic special inspection of all piping, mechanical units, electrical equipment for emergency use, ceiling systems, and steel storage racks noted in IBC Section 1705.11 shall also be required. Structural observations shall be performed in the early stages of shear wall construction to ensure that typical shear wall construction is in general compliance with the design documents. Deficiencies noted during the structural observation site visits shall be reported to the contractor and special inspections inspector.

DESIGN CRITERIA

LIVE LOADS:

Roof Snow Load	25 PSF
Roof Snow Drifting Load	Per ASCE 7–10 Section 7.0
Roof Decks/Terraces	100 PSF as noted on plans
Residential	40 PSF
Residential Balconies	60 PSF
Plaza, Stairs, & Corridors	100 PSF
Garage Floor Live Load	50 PSF

SOIL BEARING:

Allowable Soil Bearing Capacity:	5000 PSF

6 INCH DIAMETER STEEL PIPE PILE:

East Property Line Location:	20 Kips Vertical Capacity

PERMANENT CONCRETE ENCASED STEEL SOLDIER PILE:

West Property Line Location:	20 KSF Allowable End Bearing
	0.25 KSF Allowable Skin Friction

LATERAL SOIL PRESSURE:

Basement Wall Location:		35 PCF Unrestrained
	and	50 PCF Restrained
	plus	2' soil surcharge for traffic
	plus	10H psf for seismic surcharge "at–rest"

LATERAL LOADS:
Lateral resisting building system is rated wood sheathing panels above concrete construction. Top of uppermost concrete level is considered base level for Wood Superstructure Seismic Design. Grade Level is considered base level for Wind Design.

SEISMIC:

Occupancy Category =	II	ASCE 7–10, Table 1.5–1
Ie =	1	ASCE 7–10, Table 1.5–2
Ss =	1.265	Per 2008 NEHRP Seismic Design Provisions using Latitude & Longitude
S1 =	0.490	Per 2008 NEHRP Seismic Design Provisions using Latitude & Longitude
Site Class =	E	Per Geotechnical Recommendations
Sds =	0.759	ASCE 7–10, eq. 11.4–3
Sd1 =	0.784	ASCE 7–10, eq. 11.4–4
Category =	D	Based on Short Period Response Accelerations

Wood Superstructure – Equivalent Lateral Force Procedure

Cs =	0.1168	ASCE 7–10, Section 12.8.1.1
R =	6.5	ASCE 7–10, Table 12.2–1, A.13 Bearing Wood Structural Panels
V =	1176	KIPS, ASCE 7–10, eq. 12.8–1

Concrete Substructure – Equivalent Lateral Force Procedure

Cs =	0.1518	ASCE 7–10, Section 12.8.1.1
R =	5	ASCE 7–10, Table 12.2–1, A.2 Bearing Reinforced Concrete Shear Walls
V =	4091	KIPS, ASCE 7–10, eq. 12.8–1

WIND:

Method 2, Exposure B, Case 1 & 2 with Basic Wind Speed(3 sec gust) = 110 MPH		
Vult =	110	ASCE 7–10, Figure 26.5–1A, Category II
Iw =	1.0	ASCE 7–10, Table 1.5–2
Kd =	0.85	ASCE 7–10, Table 26.6–1, Directionality Factor, MWFRS and C&C
Kzt =	1.0	ASCE 7–10, Figure 26.8–1, Topography Factor
h =	64.9	FEET, Building Height
qh =	23.0	PSF, ASCE 7–10 eq. 27.3–1 based on building height, h
GCpi =	±0.55	ASCE 7–10, Figure 26.11–1, Partially Enclosed Buildings

Exterior Component and Cladding Materials (C&C) – Design Pressures(PSF)

Per ASCE 7–05 Figure 6–17	Location	Effective Wind Area(SQ. FT.) 0 – 10	20	50	100	200	500+
Zone 1	Above Roof	–44.8	–42.5	–40.2	–37.9	–35.6	–33.3
Zone 2 & 3	Above Roof	–65.5	–63.2	–58.6	–56.3	–52.9	–49.4
Zone 4(OUT)	All Walls	–33.3	–33.3	–32.2	–31.0	–29.9	–28.7
Zone 5(OUT)	All Walls	–54.0	–54.0	–48.3	–44.8	–40.2	–35.6
Zone 4(IN) & Zone 5(IN)	Wall @ 2nd Floor	26.3	26.3	24.8	24.0	23.2	21.7
	Wall @ 3rd Floor	27.2	27.2	25.6	24.7	23.9	22.3
	Wall @ 4th Floor	28.9	28.9	27.1	26.2	25.3	23.5
	Wall @ 5th Floor	30.2	30.2	28.3	27.3	26.3	24.4
	Wall @ 6th Floor	31.4	31.4	29.3	28.3	27.2	25.1
	Wall @ Roof Level	32.4	32.4	30.2	29.1	28.0	25.8
Parapet(Load Case A)		74.5	72.2	65.2	61.7	57.1	51.3
Parapet(Load Case B)		62.9	62.9	54.7	50.1	44.3	37.3

POST–TENSIONED CONCRETE

REFERENCE STANDARDS: Post–tensioned construction shall conform to ACI 301, Chapter 15, and the PTI Post–tensioning Manual.

POST–TENSIONED MATERIALS:
STRAND: Conform to ASTM A–416, Grade 270, 1/2" diameter seven wire low relaxation type.

ANCHORAGE AND COUPLING: Conform to Section 3.2.3 of the PTI "Specification for Unbonded Single Strand Tendons". Watertight encapsulation of the strand shall be used and shall include design features permitting a watertight shall include design features permitting a watertight connection of the sheathing to the anchorage, watertight closing of the wedge cavity at anchorages, grease cap, and grease filled tubes at all dead ends, intermediate stressing ends, and stressing ends as applicable.

SHEATHING: Conform to Section 3.2.4 of the PTI "Specification for Unbonded Single Strand Tendons". The minimum sheathing thickness shall be 0.04 inches.

CORROSION PREVENTIVE COATING: Conform to Section 3.2.5 of the PTI "Specification for Unbonded Single Strand Tendons".

OTHER MATERIALS: Conform to the notes for "Cast In Place Concrete" and "Concrete Reinforcement" except that all admixtures shall be chloride free unless otherwise approved by the Engineer.

MILL CERTIFICATES: Provide for each coil or pack of strand, certificates containing hear number, chemical analysis, ultimate tensile strength, yield tensile strength at 1% elongation, elongation at failure, modulus of elasticity, diameter and net area of strand, and type of material. Submit to Structural Engineer for review prior to installation of strand.

PLACING: Conform to the following:

DRAPES: Shall be parabolic between supports conforming to controlling points shown on the drawings, unless noted or shown otherwise.

SUPPORTS: Tendons shall be supported and tied to prevent displacement due to construction loads or placing of concrete. Maximum spacing of supports shall be 4'–0".

TENDON BUNDLES: Twisting or entwining of individual tendons within a bundle shall not be permitted.

TOLERANCES: Vertical deviations in tendon location shall not exceed the following limits:
± 1/4 – for tendons in members less than 8" thick
± 3/8 – for tendons in members 8" thick or greater, but less than 24" thick
± 1/2 – for tendons in members 24" thick and greater

TENDON STRESSING: Conform to the following:

CONCRETE STRENGTH: Field compressive strength of concrete shall be a minimum of 3000 psi at time of stressing.

SEQUENCE: Stress uniformly distributed tendons before banded tendons.

HYDRAULIC JACKS: Jacks equipped with calibrated hydraulic pressure gages shall be used to stress post–tensioned tendons. A calibration chart shall accompany each jack.

FORCE AT JACKING: Force required to overcome friction shall not exceed 33 kips.

FORCE AT ANCHORING: Force in tendon immediately following anchoring shall not exceed 28.9 kips.

FINAL FORCE: Tendon final effective force shall not be less than 26.8 kips.

ELONGATIONS: Actual field elongations shall agree with calculated elongations within ± 7%. Discrepancies exceeding ± 7% shall be resolved with the Structural Engineer.

STRESSING RECORDS: A record shall be completed by the special inspector and shall contain the following: date, inspector's name, jack identification number, tendon mark, required elongation, gage pressure required to achieve calculated elongation, actual elongation, and actual gage pressure. Submit records to Structural Engineer for review immediately following stressing.

SHEATHING REPAIR: Repair nicks and tears in sheathing with "No. 226 Black Polyethylene Masking Tape" by the 3M Company.

TENDON FINISHING: Conform to the following:

ENGINEERS APPROVAL: Excess tendon shall not be trimmed without the approval of the Structural Engineer.

CUTTING: Tendon may be cut by means of oxyacetylene cutting, abrasive wheel, or hydraulic shears. When oxyacetylene cutting is used, do not direct flame toward wedges. Tendon length protruding beyond wedges after cutting shall be between 3/4" and 1–1/4".

FILLING STRESSING POCKETS: Fill pockets with a chloride free, nonshrink mortar. Coat inside concrete surface of stressing pocket with a resin bonding agent prior to installing pocket mortar.

INSERTS: Drilled or powder driven fasteners will be permitted when it can be shown that the inserts will not spall the concrete and are located so as to avoid the tendons and anchors.

CAST–IN–PLACE CONCRETE

REFERENCE STANDARDS: Concrete construction shall conform to ACI 301 Specifications for Structural Concrete for Buildings.
MATERIALS:
CEMENT: Conform to ASTM C–150.
AGGREGATE: Conform to ASTM C–33.
ADMIXTURES: Conform to ACI 301, Section 2.2.
FLY ASH: Conform to ASTM C–618, TYPE C.
WATER: Conform to ASTM C–94.

CONCRETE REQUIREMENTS:

Location	Strength (psi)	Test Age (days)	Max. Agg.Size (inch)	Max. W/C Ratio	Air Content (%)	Slump (inch)
Foundations	3000	28	1	0.58	0	5
Walls & Slab–on–grade	4000	28	1	*0.45	***5	5
Columns	6000	56	1	**0.42	***5	4 1/2
Elevated Slabs	5000	28	1	**0.42	***5	4 1/2

*Maintain minimum 4 1/2 sacks of cement per cubic yard of concrete.
**Maintain minimum 5 sacks of cement per cubic yard of concrete.
***Entrained air required only in exterior concrete exposed to earth or weather.
Unless noted on the plans, concrete walls shall have the following minimum reinforcement:

Wall Thickness	Horizontal Bars	Vertical Bars	Location
6"	#4 @ 12" o.c	#4 @ 12" o.c.	@ CL of Wall
8"	#4 @ 10" o.c.	#5 @ 15" o.c.	@ CL of Wall
10"	#4 @ 16" o.c	#4 @ 16" o.c.	@ EF of Wall
12"	#4 @ 12" o.c	#4 @ 12" o.c.	@ EF of Wall

WATER/CEMENT RATIO: W/C ratio shall be calculated on the basis of total cementitious material. (i.e. cement + fly ash). Fly Ash shall be no more than 15% by total weight of cement.

AIR CONTENT: Tolerance for air content shall be ± 1–1/2%.

SLUMP: Slump requirements may be waived, upon approval of the Architect and Engineer of Record, if water/cement (W/C) ratios are maintained. Tolerance for slump shall conform to ASTM C–94.

MIX DESIGN: Submit a mix design for each class of concrete to the Architect and the Engineer of Record for review prior to construction. Each mix design shall meet the requirement for cement content in sacks per cu. yd. as indicated above but not less that indicated in SBC Table 1905.2 where strength data from trial batches are not available. Design mixes with strengths of f'c=5000 psi or greater shall be submitted to DPD prior to first use.

EMBEDDED ITEMS: Verify the location for embedded items with suppliers or design consultants' drawing, latest revision, before placing concrete. Location of embedded items not conforming with drawings shall be reviewed by the Architect and the Engineer of Record before placing concrete.

MIXING: Concrete shall be batched, mixed and transported in accordance with ACI 301, Chapter 7.

PLACING: Concrete shall be placed as nearly as practicable in its final position to avoid segregation due to flowing.

CONSOLIDATION: Concrete shall be consolidated by suitable means and thoroughly worked around reinforcement, embedded items, and into corners of forms.

CURING: Concrete shall be maintained in a moist condition for a suitable period after placement, in accordance with ACI 301, Chapter 12.

WEATHER CONDITIONS: Adequate precautions shall be taken during hot and cold weather in accordance with ACI 301, Section 12.3.

GROUT: Use a non–shrink grout with ultimate compressive strength at 28 days of 6000 psi minimum, unless noted or shown otherwise.

SHOTCRETE: Refer to IBC Section 1913 for shotcrete concreting requirements which includes requirement of reinforced preconstruction panel test for largest bar size and congestion noted on basement wall elevations as required by IBC Section 1913.4.

TESTING AND EVALUATION:
NUMBER OF TESTS: Make cylinders for each class of concrete based on the most restrictive of the following three conditions:
1) At least one set each day,
2) at least one set per 150 cubic yards placed,
3) at least one set per 5000 square feet of surface area for slabs and walls,
4) At least one set per batch of concrete.

A set of cylinders shall consist of 3 cylinders for 28 day test age. For 28 day test age break one cylinder at 7 days and 2 at 28 days. For 56 day test age break one additional cylinder at 56 days. Provide test results to Structural Engineer for evaluation.

CONCRETE REINFORCEMENT

REFERENCE STANDARDS: Detail reinforcement in accordance with the "ACI Detailing Manual" by the ACI Committee 315, unless noted or shown otherwise.

MATERIALS:
REINFORCING BARS: Use deformed bars. Conform to ASTM A–615, Grade 60, unless noted otherwise.

WELDED WIRE FABRIC: Smooth fabric shall conform to ASTM A–185. Deformed fabric shall conform to ASTM A–497. Deformed wire shall conform to ASTM A–496.

STUDRAILS: As manufactured by "DECON" and installed using chairs provided by manufacturer.

BAR SUPPORTS: Conform to Chapter 3 "CRSI Manual of Standard Practice" (MSP–1).

TIE WIRE: Wire shall be 16–1/2 gage or heavier, black annealed.

BENDING: Bars shall be bent cold. Bars partially embedded in concrete shall not be field bent unless noted or shown otherwise or authorized by the Structural Engineer.

PLACING: Place bars in accordance with CRSI, "Placing Reinforcing Bars". Reinforcement shall be supported and tied to prevent displacement by construction loads or placing of concrete.

PLACING TOLERANCES: Place bars to the following tolerances for depth d, and minimum concrete cover in flexural members, walls, and compression members as follows:

	Tolerance on d	Tolerance on Minimum Concrete Cover
d < or = 8"	± 3/8"	– 3/8"
d > 8"	± 1/2"	– 1/2"

except that tolerance for the clear distance to formed soffits shall be minus 1/4 inch and tolerance for cover shall not exceed minus one third the minimum concrete cover required by the approved plans or specifications.

WELDING: Do not weld bars unless noted or shown otherwise or authorized by the engineer. When authorized, welds shall conform to AWS D1.4.

SURFACE CONDITIONS: Reinforcement shall be free of mud, oil, or other materials that may reduce bond. Rust or mill scale is allowed providing bar weight and dimensions conform to ASTM specifications.

CONCRETE COVER: Minimum concrete cover for reinforcement shall be as follows, unless noted or shown otherwise:

Concrete cast against and permanently exposed to earth:	3"
Concrete exposed to earth or weather:	2"
Slabs and walls:	3/4"
Beams and Columns:	1 1/2"

BAR SPLICES: Refer to drawings for location and length of all splices.

REVIEWED
CWA Consultants, PS
By: _____
Date: _____

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PERMIT SUBMITTAL

3–28–14 PERMIT SUBMITTAL
5–8–14 MISC. REVISIONS
11–10–14 CITY REVISIONS
11–20–14 BID REVISIONS
11–17–16 BID SET
12–28–16 POST PERMIT REVISION

BOULEVARD PLACE SENIOR HOUSING
BOTHELL, WA

GENERAL NOTES AND DESIGN CRITERIA

JEI PROJECT # B01
FILE NAME: B01S3x.dwg
DRAWN BY: NN

S0.1

WOOD FRAMING

REFERENCE STANDARDS: Wood construction shall conform to Chapter 23 of the "International Building Code", and "The Timber Construction Manual" of the American Institute of Timber Construction, and the "National Design Specification for Wood Construction" by the National Forest Products Association.

SAWN LUMBER: Shall be classified in accordance with American Softwood Lumber Standard DOC PS 20, with grades based on Standard Grading Rules for Canadian Lumber U.S. edition, WCLIB, based on Standard Grading Rules No. 17 of the West Coast Lumber Inspection Bureau, and based on Standard Grading Rules of the Western Wood Products Association. All studs to be kiln dried.

MATERIALS:

PLYWOOD: Conform to IBC 2303. Based on Product Standards PS-1 of the Department of Commerce.

BOLTS: Conform to ASTM A-307.

LAG BOLTS: Conform to ASTM A-307.

NAILS AND STAPLES: Conform to ASTM F 1667 as per IBC Section 2303.6.

TIMBER CONNECTORS: Shall be Simpson or equivalent per size shown on drawings.

SAWN LUMBER REQUIREMENTS:

USE	THICKNESS/ WIDTH	LOCATION	SPECIES	GRADE	Fb w/o Cf Factor SINGLE/REP
Light Framing	2x4	–	Hem-Fir	Std or Better	–
Studs	2x4 or 3x4	–	Doug-Fir	No. 2 or Better	900/1035
	2x6 or 3x6	–	Doug-Fir	No. 2 or Better	900/1035
Joists	2x6	–	Doug-Fir	No. 1	1000/1150
	2x8, 2x10	–	Hem-Fir	No. 2 or Better	850/978
Beams	4x	–	Hem-Fir	No. 2	850
	6x	–	Doug-Fir	No. 1	1350
Posts	4x	–	Doug-Fir	No. 2	900
	6x6 or larger	–	Doug-Fir	No. 2	900
Plates	PT 3x @ SHEAR WALLS ON CONC.		Doug-Fir	Std or Better	–
	SLABS except PT 2x @ NON-SHEAR WALLS ON CONC. SLABS		Doug-Fir	Std or Better	–
	2x	Above 3rd Flr	Doug-Fir	Std or Better	–

Sawn Lumber Notes:

1) All pressure treated plates to be Doug-Fir.
2) Doug-Fir may be substituted for Hem-Fir in the Table above where grade is as listed or exceeded without notifying the Structural Engineer of Record.
3) All exterior deck framing shall be pressure treated(P.T.) whether or not noted on plans. Provide hot-dipped galvanized nails per ASTM A153 and connector plates (framing angles, etc.) per ASTM A653 for all connectors in contact with pressure treated framing members.

Fire Retardant-Treated Lumber Notes:

1) All fire retardant-treated structural lumber shall meet AWPA C20 and all plywood shall meet AWPA C27 for Interior Type A Application. All FR-S wood shall bear all stamps and labeling as required by IBC Section 2303.2.1.

PRESSURE TREATING: All lumber in contact with concrete will be pressure treated, as noted on the drawings, with 0.25 pounds per cubic foot of waterborne (ACZA) preservatives in accordance with AWPA Pressure-Treatment Retentions for Western Species only and the corresponding ALSC Quality Assurance Procedure associated with the AWPA Standard. Products shall bear the ALSC certified agency mark.
Borate pressure treated lumber (SBX) with 0.17 pounds per cubic foot minimum may be used as an alternate pressure treatment for use above ground and continuously protected from liquid water in accordance with AWPA Pressure-Treatment Retentions for Western Species only and the corresponding ALSC Quality Assurance Procedure associated with the AWPA Standard. Products shall bear the ALSC certified agency mark.

PREMANUFACTURED OPEN WEB WOOD TRUSSES: Shall be of the size and profile shown on the drawings. The trusses shall be compatible with the load, dimensional, and fire rating requirements of the project. Trusses shall be designed in accordance with the IBC and loads described herein by a Structural Engineer, licensed in the State of Washington, who is regularly engaged in the design of plate connected wood trusses. In addition, they shall be analyzed for snow drifting requirements per ASCE 7 Section 7.7 and "Wind Loads" per ASCE 7 Chapter 30 for C&C requirements using the wind design criteria as described in the Structural Notes. Trusses using press plates shall be fabricated by a manufacturer who is a member of the Truss Plate Institute.

Trusses shall be supplied with the proper bracing to provide lateral stability of all truss members and trusses, tie-down connections from trusses to wall tops and beams. Trusses shall be supplied with tapered hardwood shimming so that every chord bears on the full width of every support without notching the truss members. Hangers shall be provided by the truss supplier where support conditions require it.

TJI, MICRO-LAM BEAMS ,PARALLAM BEAMS, OR TIMBERSTRAND RIM BOARD:

Premanufactured TJI Truss Joist by TRUS-JOIST MACMILLAN, shall be blocked at all supports. MICRO=LAM LVL or PARALLAM PSL Beams by TRUS-JOIST MACMILLAN, shall be designated "LVL" for MICRO=LAM LVL or "PSL" for PARALLAM PSL beams on the drawings. All joists and beams shall be the size indicated on the drawings and shall be installed per manufacturers requirements and recommendations.
For LVL (Fb=2600 psi, E=1800 ksi) and PSL (Fb=2900 psi, E=2000 ksi).

TIMBERSTRAND LSL Rim Board by TRUS-JOIST MACMILLAN, shall be designated "LSL" on the drawings. LSL rim joists shall be 1-1/4" wide and shall match depth of floor framing.

PLYWOOD OR PERFORMANCE RATED SHEATHING:

Plywood panels (sheathing) shall conform to the requirements of the latest edition of "U.S. Product Standard PS-1 for Construction and Industrial Plywood". Performance rated sheathing shall conform to "Performance Standards and Qualification Policy for Structural-Use Panels", PRP-108 June, 2001. Each panel shall bear the APA grade trademark of the American Plywood Association. Stamps shall show panel grade, span-rating, thickness & exposure classification. Sheathing shall be as follows:

Roof Sheathing:
5/8" 32/16 APA-Rated Sheathing

Floor Sheathing:
23/32" T&G APA-RATED STURD-I-FLOOR 48/24 EXP 1 glued and nailed

Shear Wall Sheathing Scheduled:
15/32" APA-RATED STRUCTURAL I SHEATHING EXT except
15/32" APA-RATED SHEATHING EXT ok where indicated on shear wall schedule on sheet S8.1.
19/32" APA-RATED SHEATHING EXT

Unless noted otherwise in the drawings, the following shall apply: all roof sheathing and sub-flooring shall be installed face grain perpendicular to supports or as indicated on the drawings; roof and sub-flooring sheathing shall be blocked per schedule; sub-flooring sheathing shall be glued and nailed; shear wall sheathing shall be blocked with 2x framing at all panel edges unless noted otherwise; nails shall be driven flush, but shall not fracture the surface of sheathing; nailing not shown shall be as indicated on Table 2304.9.1 of the IBC; all nails shall be common.

STANDARD STUD CONSTRUCTION: Follow the 2009 IBC Section 2320 for "Conventional Light-Frame Construction" All interior walls to be 2x4 @ 16" o.c. All exterior walls to be 2x6 @ 16" o.c. Provide treated 2x wood sill plate at all walls on slab on grade. Except as noted in Shear Wall Schedule, anchor all wood stud walls to concrete slab with 5/8" diameter A307 anchor bolts x 7" long embedment @ 48" o.c. maximum.
All exterior wall headers to 6x8 U.N.O. All interior wall headers to be 4x8 where joists frame over headers U.N.O. All interior wall headers to be per plan where joists flush frame to headers. Provide double top plates at all exterior/party walls, bearing and non-bearing. Also, provide double top plates at all interior, non-bearing shear walls. Standard construction dictates double top plates at all bearing walls-typical.

STAMPS: Each piece shall bear a stamp showing the following:

SAWN LUMBER: Grading association, mill number, grade, species, and moisture content at time of surfacing if applicable.

GLUE-LAMINATED TIMBER: Conformance to AITC A-190 and shall be accompanied by an AITC Certificate of Performance and/or Certificate of Inspection & Fabrication by an approved agency. Inspection certificates shall be presented to Building Official prior to framing inspection.

PLYWOOD: Panel grade, span-rating, thickness & exposure classification.

PERFORMANCE RATED SHEATHING: Span-rating, thickness & exposure classification.

NAILING: Provide minimum nailing in accordance with IBC Table 2304.9.1.

HOLES AND NOTCHES: Conform to IBC Section 2308.8.2, 2308.9.10, and 2308.9.11.

MOISTURE CONTENT: All 2x studs and plates shall be KILN dried. Contractor shall take measures to minimize exposure of sawn lumber and engineered wood products to moisture during construction. Excessive changes in moisture content during construction may result in swelling and shrinkage of a single story level in the magnitude of 1/2 inch.
All wood framed construction shall have maximum moisture content not to exceed 12% before insulation and interior drywall installation is performed. In addition, pre-loading the entire wood building with the interior drywall is recommended before hanging drywall.

ELECTRICAL, MECHANICAL, AND PLUMBING SYSTEMS:
All full building height electrical, mechanical, and plumbing systems shall be designed for shrinkage of 1/2 inch per floor for each wood framed floor level above concrete foundation or concrete slab for accumulated shrinkage of 1/2" x number of wood framed levels.

STRUCTURAL STEEL

REFERENCE STANDARDS: Steel construction shall conform to the AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings", 14th Edition, and the AISC "Code of Standard Practice for Steel Buildings and Bridges".

STEEL MATERIALS	
Structural Steel (Wide flange)	ASTM A-36
Connection material, embedded items	ASTM A-36 U.N.O. on Plans
Structural Tubing	ASTM A-500, Grade B
Structural framing bolts	ASTM A-325X
Anchor Bolts	ASTM A-307
Threaded Rods (without Seismic Tension)	ASTM A-36
Threaded Rods (with Seismic Tension)	ASTM A-449
HALFEN Channels and Connectors	See Plans for Sizes/Grades
Headed Shear Studs	ASTM A-108
Welding Electrodes	E70XX

WELDING: Conform to AWS D1.1 "Structural Welding Code - Steel". Welders shall be certified in accordance with WABO requirements. Use E70 electrodes of type required for materials to be welded.
FABRICATION: Fabricate steel in the shop of a fabricator licensed by the appropriate government agency.

SHOP PAINTING: Steel concealed by building finish or encased with concrete need not be painted. All other steel shall be given one coat of shop paint, in accordance with Section 1.24 of the AISC "Specification" and Section 6.5 of the AISC "Code", unless noted otherwise.

TOLERANCES: The steel frame shall be carried up true and plumb within the limits defined in Section 7.11 of the AISC "Code".

COLD FORMED STEEL FRAMING

REFERENCE STANDARDS: All cold formed steel framing shall conform to the A.I.S.I. "Specification for the Design of Cold-Formed Steel Framing Members". Cold formed structural tracks and studs 12, 14, and 16 gage materials shall be formed from ASTM A-446, Grade D or ASTM A-570, Grade 50 steel with a minimum Fy=50 ksi. Cold formed structural tracks and studs 18 gage and lighter shall be formed from ASTM A-446, Grade A or ASTM A-570, Grade 33 with a minimum Fy=33 ksi. All studs and tracks shall be galvanized. Fastenings shall be as shown on the drawings. Fastenings not shown shall be as recommended by the manufacturer.

SIZE AND PROFILE: Cold formed steel framing members shall be as manufactured by "Steeler Inc." per ICBO report #4389P or equivalent. Size and profile shall be as shown on the drawings with the following minimum section properties:

Location	Size/Spacing	S (in.3)
Non-Bearing 6" Interior Stud Wall (20' Max. Unbraced Length)	6" x 20 GA SS Stud @ 16" U.N.O.	0.489
Non-Bearing 3.5" Interior Stud Wall (16' Max. Unbraced Length)	3.5" x 16 GA SS Stud @ 16" U.N.O.	0.3650
Non-Bearing 3.5" Interior Stud Wall (18.5' Max. Unbraced Length)	3.5" x 14 GA SS Stud @ 16" U.N.O.	0.453
Tracks	Match Width and Gauge of Studs	--

TRACK TO SLAB FASTENING: Attach tracks to slab with RAWL powder actuated fastening system or equivalent using 3/4" x .300 diameter head drive pin with top hat. Typical spacing shall be 12" on center with minimum distance between fasteners of 3" and minimum distance between fastener and a free edge of 3". Follow manufacturer's recommendations for installation.

WELDING: Arc welds on steel where at least one of the connected parts is 0.18 inch or less in thickness shall be made in accordance with AWS D-1.3. (Section A6). Welders and welding procedures shall be qualified as specified in AWS D-1.3 and Section E2 of the AISI "Specification for the Design of Cold-Formed Steel Framing Members".

PREFAB TRUSS NOTES:

1) REFER SHEET S0.2 FOR PREMANUFACTURED OPEN WEB WOOD TRUSS NOTES.
2) DESIGN ROOF TRUSSES FOR LOADS NOT LESS THAN 16 PSF DL AND 25 PSF LL. IN ADDITION, HVAC ROOF TOP UNIT LOADS SHALL BE ADDED TO OTHER DESIGN LOADINGS WHERE OCCUR PER ROOF PLAN. ALL ROOF TRUSSES SHALL BE LIMITED TO A TOTAL DL + LL VERTICAL DEFLECTION OF L/480 EXCEPT ROOF TRUSSES WITH 100 PSF DESIGN LL OR GREATER SHALL BE LIMITED BY L/360 LL VERTICAL DEFLECTION AND 3/4" TOTAL DL + LL VERTICAL DEFLECTION. (5) IN ADDITION, ROOF TRUSSES WITH 24' MAXIMUM SPANS DESIGNED TO SUPPORT 25 PSF LL MAXIMUM, MAY BE DESIGNED SUCH THAT DEFLECTION IS LIMITED TO THE LESSER OF TOTAL DL + LL VERTICAL DEFLECTION OF L/360 AND 3/4" TOTAL DL + LL VERTICAL DEFLECTION.
3) REFER SHEET S8.3 AND S8.4 FOR ROOF TRUSS SUPPORT DETAILS.
4) PREFAB TRUSS SUPPLIER SHALL SUPPLY ALL HANGERS FOR TRUSS TO TRUSS SUPPORT.
5) TRUSS DEPTH SHALL BE DETERMINED BASED ON 16" MINIMUM OVER THE CORRIDOR WALLS ON THE ROOF PLAN UTILIZING DRAINAGE PLAN AS ESTABLISHED ON ARCHITECTURAL DRAWINGS.

BRICK VENEER

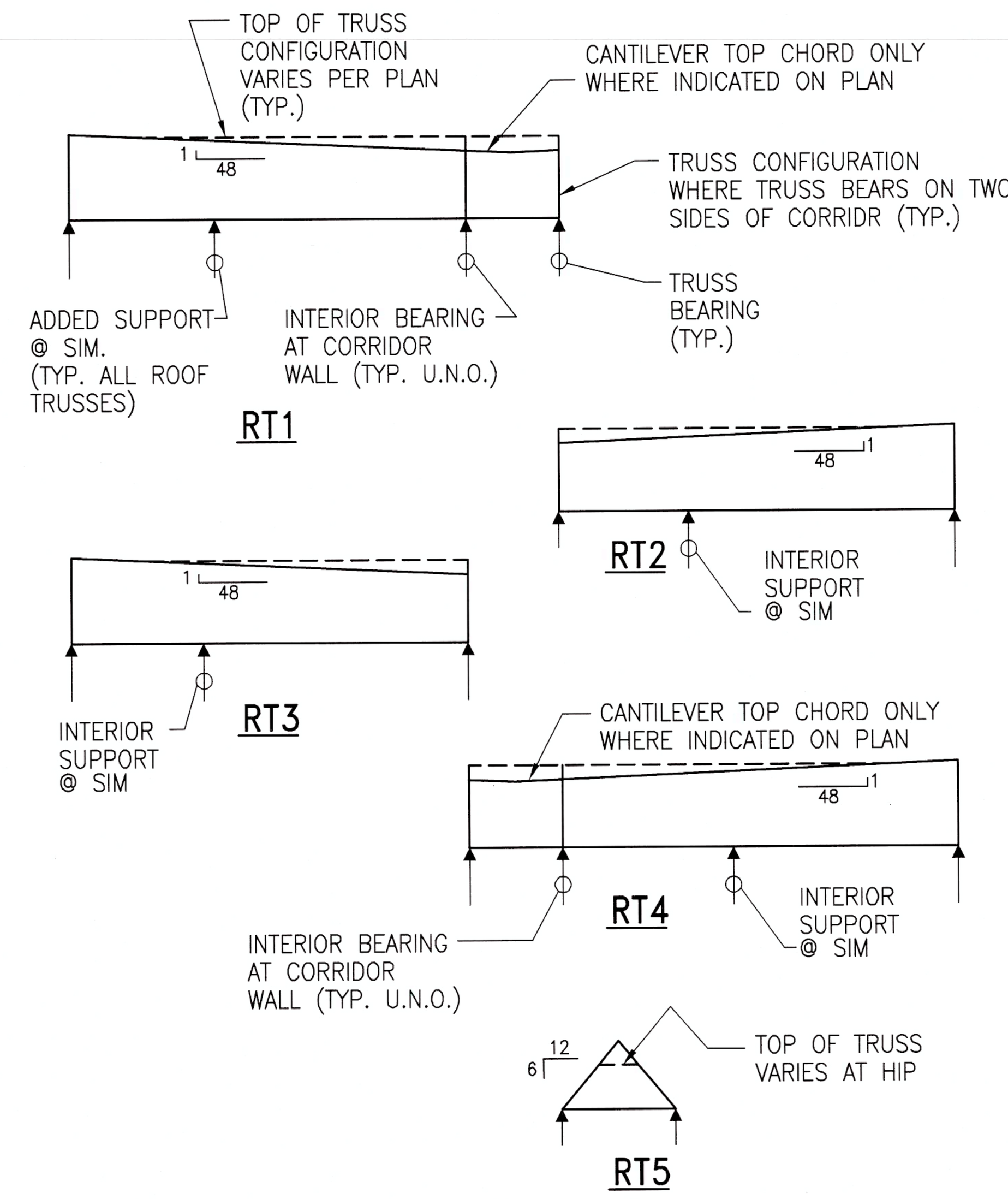
REFERENCE STANDARDS: IBC Section 1405.5. Refer Architectural drawings for vertical expansion joint locations and joint details.

BRICK AND MORTAR: Brick shall conform to ASTM C216, Grade SW, Type FBX with brick sampled for efflorescence using test per ASTM C67. Mortar shall be type "S" (f'm 1800 psi in 28 days) meeting ASTM C270 using low-alkali cement with limited admixtures to reduce efflorescence.

ACCESSORIES:

1) Metal Tie Reinforcement: Joint reinforcement factory fabricated from cold-drawn steel wire, ASTM A 82, truss or ladder design, with 9 gage deformed steel wire longitudinal rods welded to 9 gage steel wire cross ties spaced 16 inches oc; width 1-1/2 to 2 inches less than total wall thickness. Hot dip galvanize with 1.5 oz per sq ft after fabrication per ASTM A 153, Class B-2.
2) Flexible Anchors: 1.5 oz per sq ft hot dipped galvanized steel anchors which will permit horizontal and vertical movement of masonry but will maintain lateral restraint, and as follows:
   A) For Anchorage To Concrete Framework: 2 piece anchors with 14 gage sheet steel dovetail section and rectangular or vee-shaped 3/16 inch dia wire tie section sized to extend to within one inch of face of masonry.
   B) For Anchorage To Steel Framework: 2 piece anchors with crimped 1/4 inch dia bar for welding to steel and rectangular or vee-shaped 3/16 inch dia wire tie section sized to extend to within one inch of face of masonry. All screw attachments shall be made using baked-on polymer coated screws.
   C) For Anchorage To Wood Construction: Corrugated Wall Ties of 22 gage corrugated steel, 7/8 inch wide, 7 inches long, ASTM A 153, Class B-2, 1.5 oz per sq ft hot dipped galvanized after fabrication. All attachments shall be made using 8d hot-dipped galvanized common nails per ASTM A 153.
3) Dovetail Anchor Slot Concrete Inserts: 20 gage galvanized steel, with filler strip; slot sized to fit dovetail anchor.

APPLICATION: Anchor ties shall be corrosion resistant, as noted above. Anchor ties shall be spaced so as to support not more than 1.77 square feet of wall area but not more than 16 inches on center horizontally or vertically.
Anchor ties shall have a lip or hook on the extended leg that will engage or enclose a horizontal joint reinforcement wire of No. 9 gauge or equivalent. The joint reinforcement shall be continuous with butt splices between ties permitted. In order to maintain an air space of at least 1-inch between the backing and the veneer, case spot bedding at all ties shall be of cement mortar



ROOF TRUSS LEGEND & NOTES (1)
SCALE: NONE

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BOULEVARD PLACE SENIOR HOUSING
18221 BOTHELL WAY NE
BOTHELL, WA

GENERAL NOTES AND DESIGN CRITERIA

JEI PROJECT # B01
FILE NAME: B01S3x.dwg
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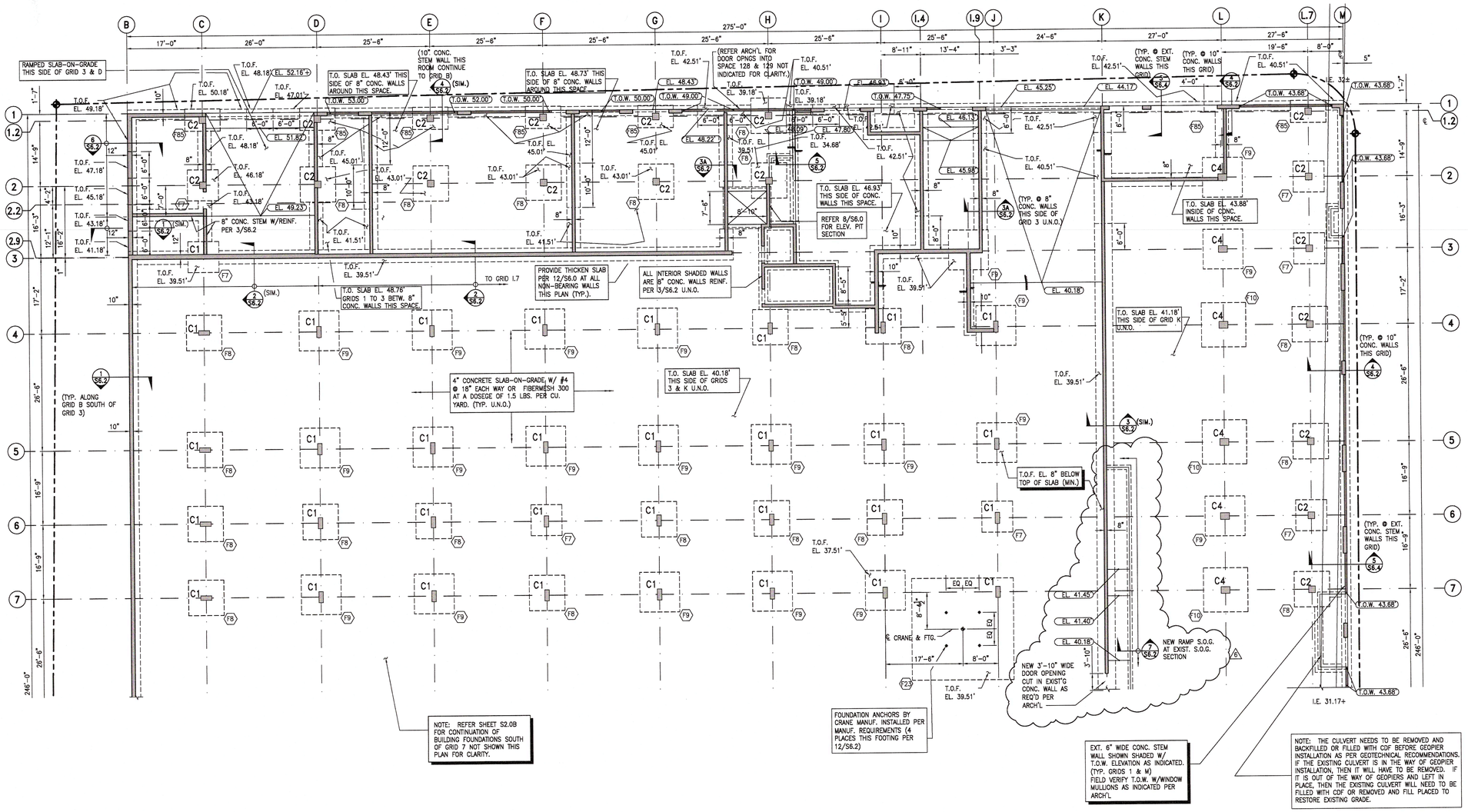
S0.2



LEVEL P2 PARKING FOUNDATION & BASEMENT PLAN (NORTH END)

SCALE: 3/32" = 1'-0"

PLAN NOTES:

1) VERIFY ALL DIMENSIONS AND FLOOR ELEVATIONS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DETAILS, ETC. SLOPE GARAGE SLABS PER ARCHITECTURAL PLANS.

2) REFER SHEET S0.1 FOR STRUCTURAL NOTES AND MATERIALS.

3) (F1) INDICATES FOOTING MARK PER SCHEDULE ON SHEET S8.2. CENTERLINE OF FOOTING AT CENTERLINE OF COLUMN EACH DIRECTION TYPICAL U.N.O. ON PLAN. CENTERLINE OF COLUMN AT CENTERLINE OF GRID.

4) REFER SHEET S6.0 FOR TYPICAL FOUNDATION DETAILS.

5) REFER SHEET S6.2 FOR CONCRETE WALL SECTIONS.

6) C1 INDICATES CONCRETE COLUMN MARK PER CONCRETE COLUMN ELEVATIONS ON SHEET S6.3.

THE GEOTECHNICAL ENGINEER SHALL INSPECT ALL PREPARED SOIL BEARING SURFACES PRIOR TO PLACEMENT OF FOUNDATION FOOTING REINFORCING STEEL VERIFYING THAT CONDITIONS ARE SUITABLE TO SUPPORT BUILDING FOUNDATION LOADINGS USING ALLOWABLE BEARING PRESSURES AS PROVIDED BY THE GEOTECHNICAL RECOMMENDATINS INDICATED ON THE STRUCTURAL GENERAL NOTES SHEET S1.0. WHERE GEOPIERS, SOILS COMPACTION OR CDF FILL IS NOT AN APPROPRIATE ACTION TO DEAL WITH UNSUITABLE SOIL BEARING CONDITIONS TO SUPPORT GEOTECHNICAL RECOMMENDED ALLOWABLE SOIL BEARING PRESSURES ON GLACIAL TILL, FOUNDATIONS MAY BE LOWERED AS FIELD CONDITIONS DICTATE PER GEOTECHNICAL RECOMMENDATIONS. (TYP.)

APPROVED
Building Division
Any changes to these plans shall be approved through the Building Division prior to implementation.
City of Bothell

8 4 0 8 16
SCALE: 3/32" = 1'-0"

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03-28-14		PERMIT SUBMITTAL

LEVEL "A" PARKING FOUNDATION & BASEMENT PLAN (NORTH END)

BOULEVARD PLACE SENIOR HOUSING

18221 BOTHELL WAY NE
BOTHELL, WA

JEI PROJECT # B01
FILE NAME: B01S2x.dwg
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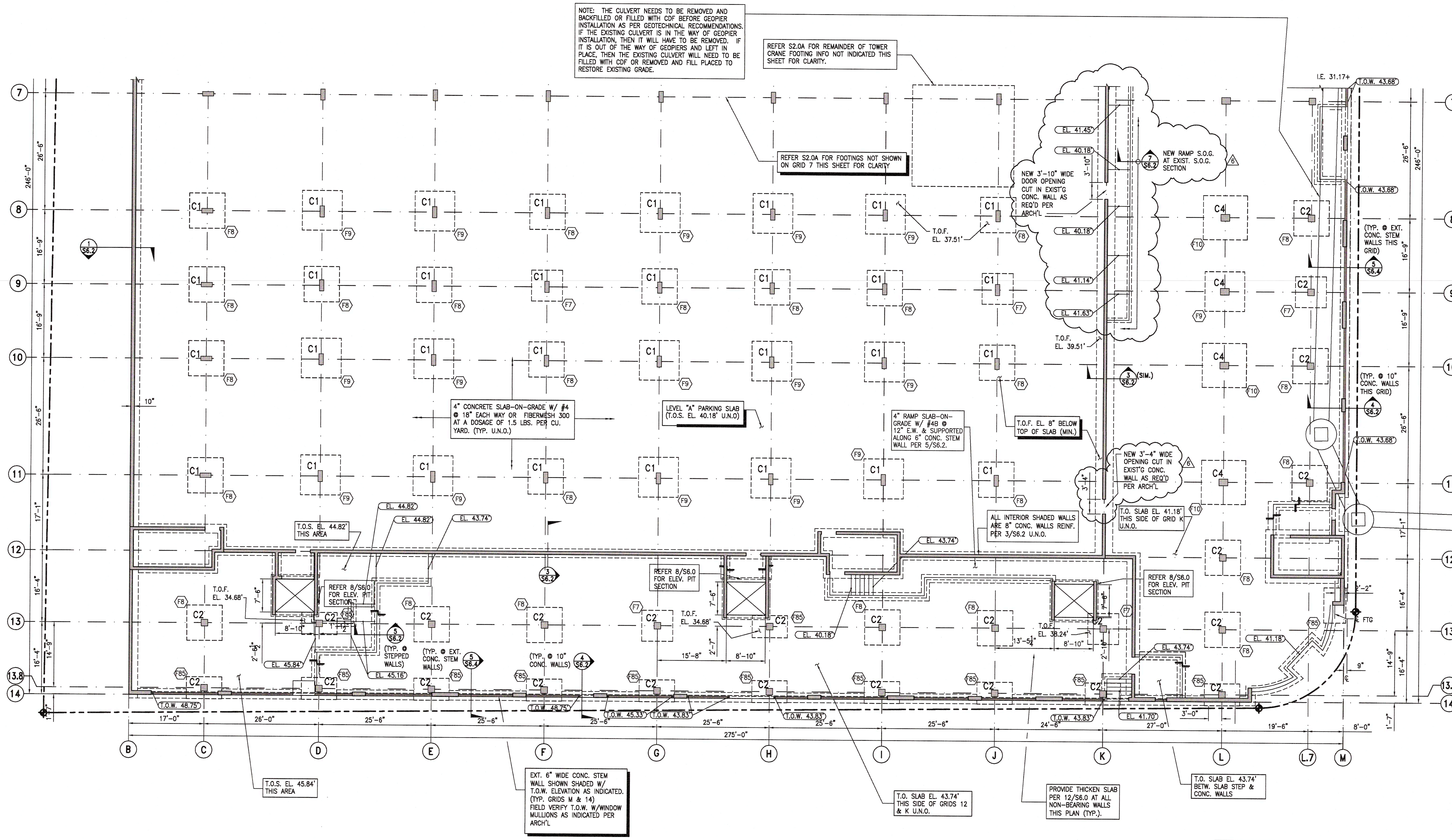

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LEVEL P-2 PARKING FOUNDATION & BASEMENT PLAN (SOUTH END)

SCALE: 3/32" = 1'-0"

1/S2.0B

PLAN NOTES:

1) VERIFY ALL DIMENSIONS AND FLOOR ELEVATIONS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DETAILS, ETC. SLOPE GARAGE SLABS PER ARCHITECTURAL PLANS.

2) REFER SHEET S0.1 FOR STRUCTURAL NOTES AND MATERIALS.

3) ⟨F1⟩ INDICATES FOOTING MARK PER SCHEDULE ON SHEET S8.2. CENTERLINE OF FOOTING AT CENTERLINE OF COLUMN EACH DIRECTION TYPICAL U.N.O. ON PLAN. CENTERLINE OF COLUMN AT CENTERLINE OF GRID.

4) REFER SHEET S6.0 FOR TYPICAL FOUNDATION DETAILS.

5) REFER SHEET S6.2 FOR CONCRETE WALL SECTIONS.

6) C1 INDICATES CONCRETE COLUMN MARK PER CONCRETE COLUMN ELEVATIONS ON SHEET S6.3.

APPROVED
Building Division
Any changes to these plans shall be ... through the Building Division ... implementation

SCALE: 3/32" = 1'-0"

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BOULEVARD PLACE SENIOR HOUSING
18221 BOTHELL WAY NE
BOTHELL, WA

LEVEL "A" PARKING FOUNDATION & BASEMENT PLAN (SOUTH END)

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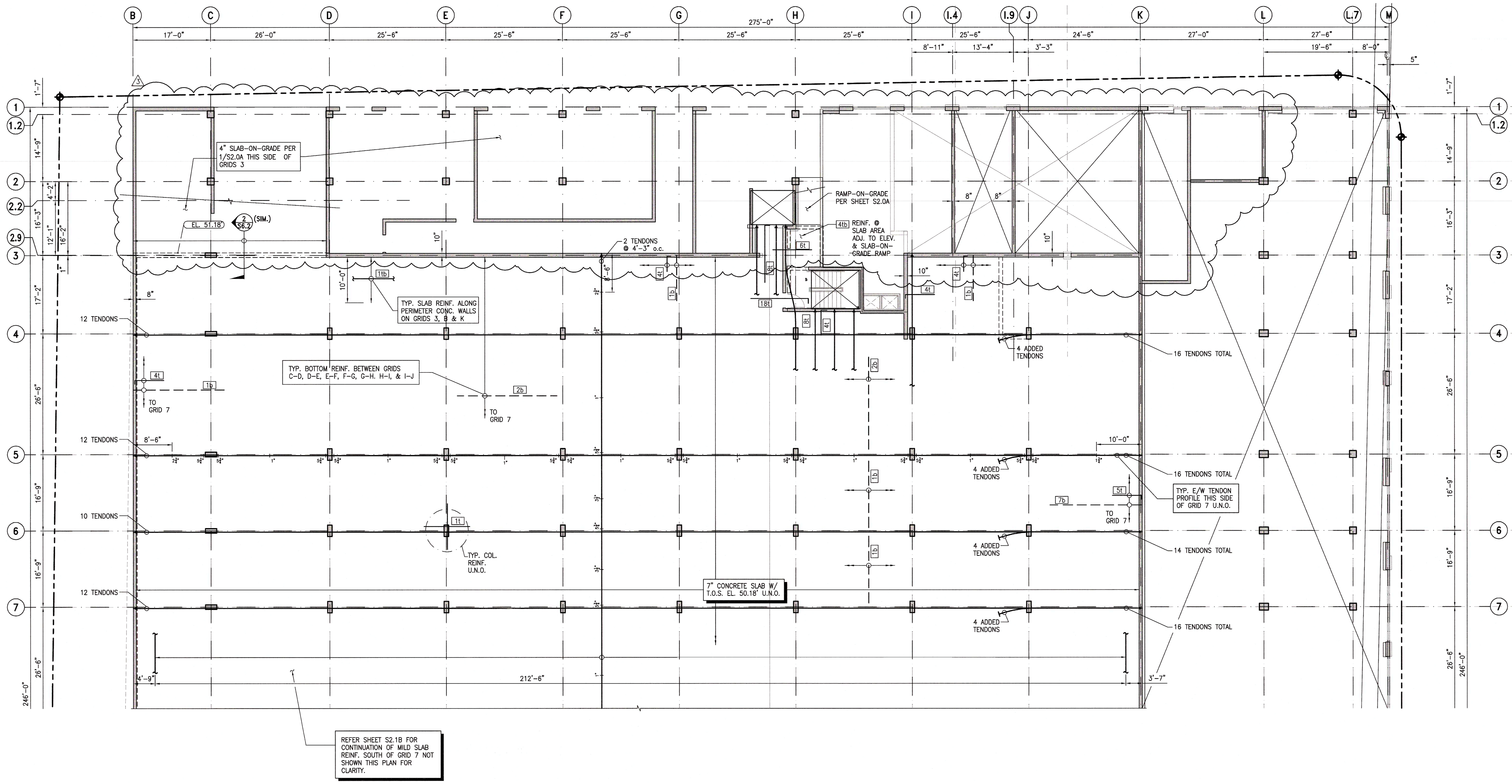

P-1 /

LEVEL 1 PARKING SLAB REINFORCING PLAN (NORTH END)

1 / S2.1A

SCALE: 3/32" = 1'-0"

PLAN NOTES:

1) VERIFY ALL DIMENSIONS AND FLOOR ELEVATIONS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DETAILS, ETC. SLOPE GARAGE SLABS PER ARCHITECTURAL PLANS.

2) REFER SHEET S0.1 FOR STRUCTURAL NOTES AND MATERIALS.

3) REFER SHEET S6.1 FOR TYPICAL POST-TENSION SLAB DETAILS AND SHEET S8.0 FOR CRACK MAINTENANCE SCHEME.

4) REFER SHEET S6.2 FOR CONCRETE WALL SECTIONS.

5) [1t] INDICATES MILD SLAB REINFORCING MARK PER SCHEDULE ON SHEET S8.0.

7) C1 INDICATES CONCRETE COLUMN MARK PER CONCRETE COLUMN ELEVATIONS ON SHEET S6.3. REFER PLAN LEVEL BELOW FOR ALL COLUMNS SHOWN BUT NOT INDICATED THIS PLAN FOR CLARITY.

8) REFER SHEET S6.4 FOR CONCRETE SECTIONS AND DETAILS.

REVIEWED
CWA Consultants, PS
By:
Date:

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SCALE: 3/32" = 1'-0"

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12-28-16

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	3-28-14	PERMIT SUBMITTAL
1	5-8-14	MISC. REVISIONS
2	11-10-14	CITY REVISIONS
	11-20-14	BID REVISIONS
	11-17-16	BID SET
3	12-28-16	POST PERMIT REVISION

BOULEVARD PLACE SENIOR HOUSING

BOTHELL, WA

LEVEL 1 PARKING SLAB REINFORCING PLAN (NORTH END)

JEI PROJECT # B01
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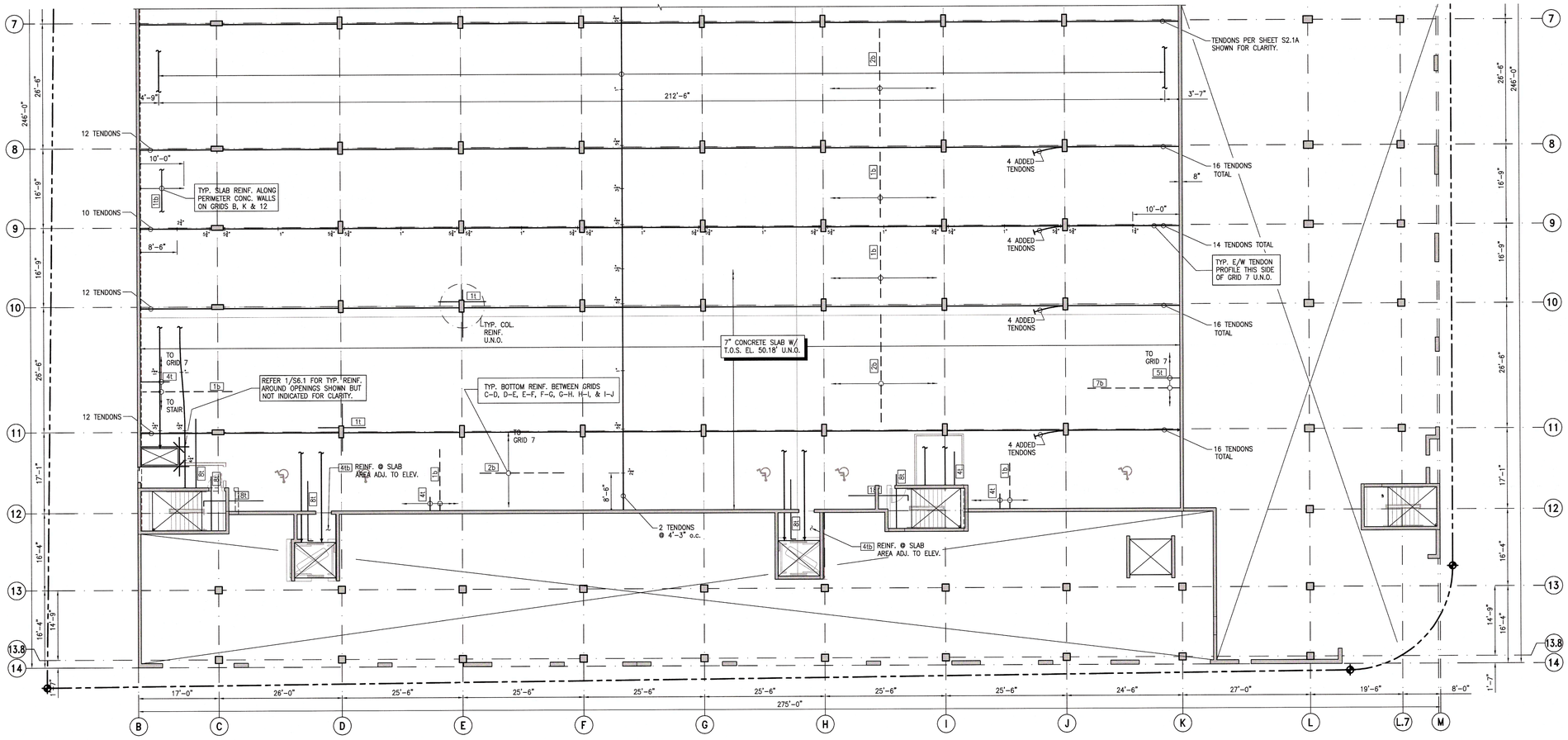

P-1 /

LEVEL 1 PARKING SLAB REINFORCING PLAN (SOUTH END)

SCALE: 3/32" = 1'-0"

PLAN NOTES:

1) VERIFY ALL DIMENSIONS AND FLOOR ELEVATIONS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DETAILS, ETC. SLOPE GARAGE SLABS PER ARCHITECTURAL PLANS.

2) REFER SHEET S0.1 FOR STRUCTURAL NOTES AND MATERIALS.

3) REFER SHEET S6.1 FOR TYPICAL POST-TENSION SLAB DETAILS AND SHEET S8.0 FOR CRACK MAINTENANCE SCHEME.

4) REFER SHEET S6.2 FOR CONCRETE WALL SECTIONS.

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BOULEVARD PLACE SENIOR HOUSING
BOTHELL, WA

LEVEL 1 PARKING SLAB REINFORCING PLAN (SOUTH END)

JEI PROJECT # B01
FILE NAME: B0152x.dwg
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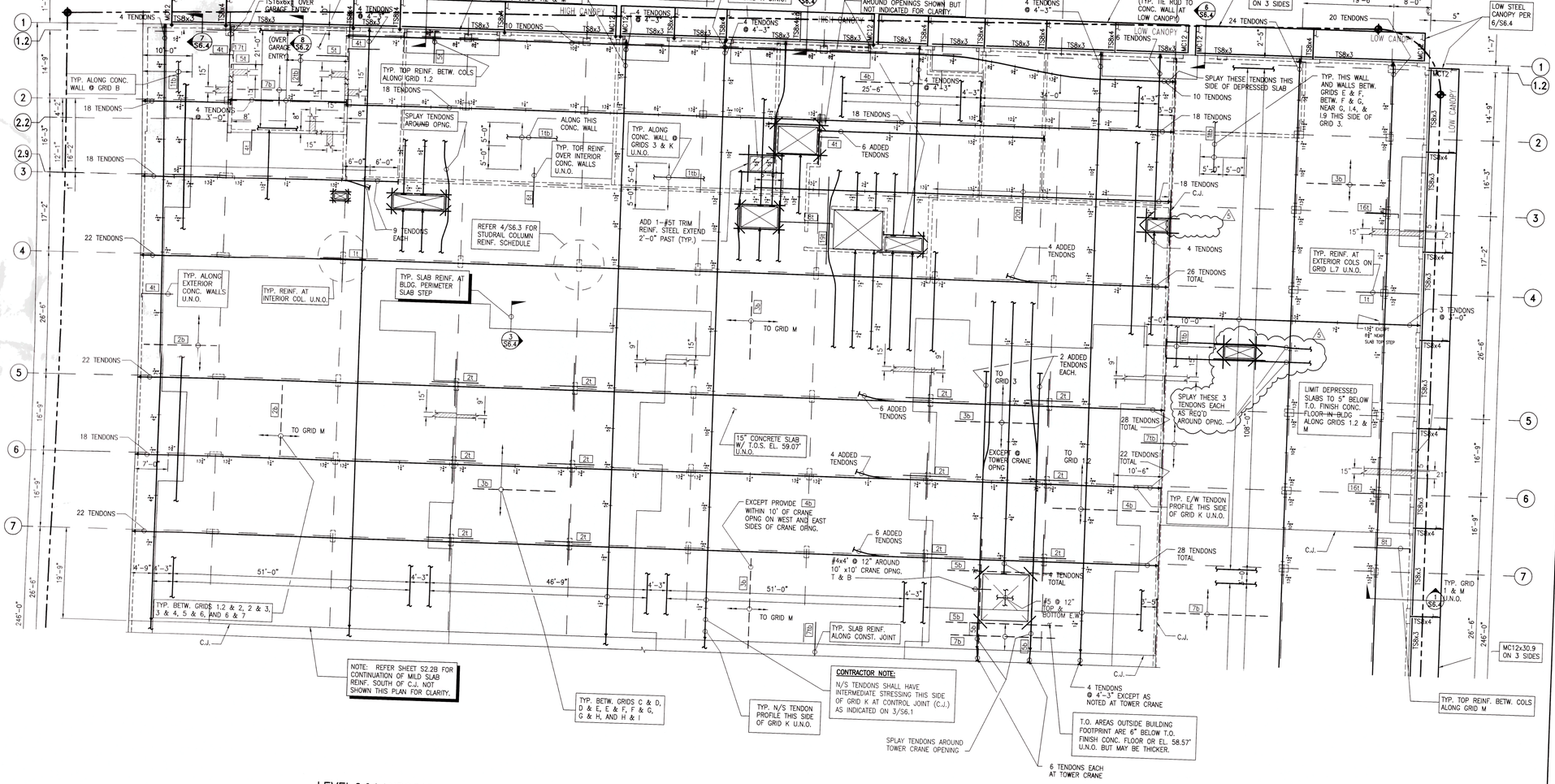

LEVEL 2 & LANDSCAPE SLAB REINFORCING PLAN (NORTH END)

SCALE: 3/32" = 1'-0"

PLAN NOTES:

1) VERIFY ALL DIMENSIONS AND FLOOR ELEVATIONS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DETAILS, ETC. SLOPE GARAGE SLABS PER ARCHITECTURAL PLANS.

2) REFER SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES AND MATERIALS.

3) REFER SHEET S6.1 FOR TYPICAL POST-TENSION SLAB DETAILS AND SHEET S8.0 FOR CRACK MAINTENANCE SCHEME.

4) REFER SHEET S6.2 FOR CONCRETE WALL SECTIONS.

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SCALE: 3/32" = 1'-0"

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1-02-18

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BOULEVARD PLACE SENIOR HOUSING
18221 BOTHELL WAY NE
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LEVEL 2 & LANDSCAPE SLAB REINFORCING PLAN (NORTH END)

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FILE NAME: B0152x.dwg
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