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Engineering Division
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August 9, 2017

**NOTICE OF ADDENDUM
ADDENDUM NO. 4**

**CONTRACT NO. 7951
Capitol East District Parking Structure**

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on the Bid Express web site at:

<http://www.bidexpress.com>

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Sincerely,

Robert F. Phillips, P.E., City Engineer

Cc: Greg T. Fries, P.E.

ADDENDUM NO. 4
City of Madison, Engineering Department

CONTRACT NO. 7951
Capitol East District Parking Structure

This addendum is issued to modify, explain or correct the original Drawings, Specifications, or Contract Documents of the subject contract and is hereby made a part of the contract documents.

I. GENERAL QUESTIONS AND ANSWERS

Q54: On detail A1/S501, can the tunnel walls be cast, then the roof plank be installed, then backfilled without the temporary horizontal bracing?

A54: Yes, that would be an acceptable approach. Construction means and methods by contractor. The temporary wall bracing will be needed in the future if the plank is removed during tunnel repair without removing the backfill.

Q55: Will the soils on the entire site need to be improved? Is the quantity and layout shown on plan?

A55: The soils within the entire building footprint and the paved areas are to be improved. Soil improvement in landscape areas do not need to be improved. See soil loading plan on sheet S-002. Quantity and layout of rammed aggregate piers determined by contractor's component designer.

Q56: Detail E5/S-512 indicates "prefabricated anchor/davit by others". Roof Plan Keyed Note RP11 on A-110 indicates "window washing anchors and safety ties provided by GC". Is the GC to provide the window washing anchors?

A56: GC is to provide window washing anchors. Design of the anchor and embed plate is the responsibility of the manufacturer/ anchor provider.

Q57: Are there skylights on the project?

A57: There are no skylights.

Q58: Can you confirm the PT slab thickness for the commercial area roof? The notes say 8" for floors and 6" for parking decks, but I didn't see a thickness listed for the roof.

A58: The commercial roof and the lobby roof are 8" PT slabs, the same as other commercial floors.

Q59: The footings and walls around the southwest stair tower do not have designations on them.

A59: The footings are similar to adjacent footings. Issued revise S101 in addendum #4.

Q60: Sheet E-101 note #4 states to run a 4" RMC conduit from the main electrical room to the data room for a branch circuit panel. I do not see this panel in the riser or schedules or anywhere else in the plans. Can you please confirm this conduit exists and what it's function is?

A60: The branch panel in question (panel 'P2') was moved from Data 1125 to Security Office 1122 during design. The E-101 drawing has been revised in Addendum #4 to indicate this."

Q61: Is all testing to be by the contractor.

A61: Yes.

Q62: What is the desired dosage rate for the corrosion inhibitor?

A62: A calcium nitrate corrosion inhibitor shall be included in all concrete mixes at minimum dosage rate of 3.5 gallons/cy.

II. ACCEPTABLE EQUIVALENTS –

A. None at this time

III. SPECIAL PROVISIONS

A. None at this time

IV. SPECIFICATIONS –

A. 03 31 00 – Structural Concrete - Reissued

i. Deleted reference to silica fume

ii. Deleted “vertical” from part 3.5

iii. Part 3.8, Limited Grout Cleaned finish to the elevator lobby and required a sample.

B. 31 62 16 - Steel Piles Section 1.1, B “Delete “4. Section 31-09-16 – Pile Load Tests, Requirements for pile load tests.

V. ARCHITECTURAL DRAWINGS

A. None at this time

VI. LANDSCAPE DRAWINGS

A. None at this time

VII. CIVIL DRAWINGS

A. None at this time

VIII. STRUCTURAL DRAWINGS

A. S101 First Level Parking

i. Clarified foundations at southeast stairs.

IX. MECHANICAL DRAWINGS

A. None at this time

X. ELECTRICAL DRAWINGS

A. E-101 First Level Parking (Reissued)

i. Clarified branch panel

XI. PLUMBING AND FIRE PROTECTION DRAWINGS

A. FP-101 First Level Parking – First Floor Commercial Plan

i. ADD: 4” standpipe with 2-1/2” hose valve in Elevator Lobby and South stair towers.

ii. ADD: lockable drain valve at base of riser with hose-thread adapter with cap.

iii. ADD: 4” standpipe with 2-1/2” hose valve in Elevator Lobby stair.

iv. ADD: lockable drain valve at base of riser with hose-thread adapter with cap.

v. Interconnect standpipes to DRY PIPE FIRE DEPARTMENT CONNETION.

B. FP-102 Second Level Parking Plan

i. ADD: 4” standpipe with 2-1/2” hose valve in Elevator Lobby and South stair towers.

- C. FP-103 Third Level Parking – Second Floor Commercial Plan
 - i. ADD: 4” standpipe with 2-1/2” hose valve in Elevator Lobby and South stair towers.
- D. FP-104 Fourth Level Parking – Commercial Roof Plan
 - i. ADD: 4” standpipe with 2-1/2” hose valve in Elevator Lobby and South stair towers.
- E. FP-105 Fifth Level Parking Plan
 - i. ADD: 4” standpipe with 2-1/2” hose valve in Elevator Lobby and South stair towers.
- B. **PROPOSAL** - None at this time

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder’s Acknowledgement on Bid Express.

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For questions regarding this bid, contact:

David Schaller
City of Madison Engineering (Facilities)
Construction Manager
Phone: (608) 243-5891
Email: dschaller@cityofmadison.com

SECTION 03 31 00
STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Structural Concrete.
 - 2. Admixtures.
 - 3. Curing and Treatment Requirements.
 - 4. Floor flatness and levelness.
 - 5. Formwork, shoring, bracing, and anchorage.
 - 6. Concrete reinforcement and accessories.

- B. Work Installed but Furnished Under Other Sections:
 - 1. Division 04 – Masonry: Masonry accessories attached to formwork.
 - 2. Division 05 – Metals: Metal fabrications attached to formwork.
 - 3. Division 07 – Thermal and Moisture Protection: Flashing reglets attached to formwork.

- C. Related Sections:
 - 1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.
 - 2. Section 03 38 00 – Post-Tensioned Concrete.
 - 3. Section 03 64 07 – Crack Injection Repairs for Parking Structures.
 - 4. Section 07 14 07 – Fluid-Applied Waterproofing for Parking Structures.
 - 5. Section 07 19 07 – Water Repellents for Parking Structures.
 - 6. Section 07 90 07 – Joint Protection for Parking Structures.
 - 7. Section 07 95 07 – Traffic Joint Expansion Assemblies for Parking Structures.

1.2 REFERENCES

- A. Incorporated Guides and References:
 - 1. American Concrete Institute (ACI):
 - a. ACI 302.1R – Guide for Concrete Floor and Slab Construction.
 - b. ACI 304R – Guide for Measuring, Mixing, Transporting and Placing Concrete.
 - c. ACI 304.2R - Placing Concrete by Pumping Methods.
 - d. ACI 305R - Hot Weather Concreting.
 - e. ACI 309R – Guide for the Consolidation of Concrete.
 - f. ACI 347 – Guide to Formwork for Concrete.
 - g. ACI SP-66 – ACI Detailing Manual.
 - h. ACI 362.1 – Guide for the design an construction of durable concrete parking structures.

- B. Specifications:
 - 1. American Concrete Institute (ACI):
 - a. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.

- b. ACI 301 - Specifications for Structural Concrete.
- c. ACI 303.1 – Specification for Cast-In-Place Architectural Concrete.
- d. ACI 306.1 – Specification for Cold Weather Concreting.
- e. ACI 308.1 – Specification for Curing Concrete.
- f. ACI 315 - Details and Detailing of Concrete Reinforcement.
- g. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- 2. ASTM International (ASTM):
 - a. ASTM A497 – Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
 - b. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - c. ASTM A704 – Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
 - d. ASTM A706 – Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
 - e. ASTM A767 – Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
 - f. ASTM A775 – Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
 - g. ASTM A884 – Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
 - h. ASTM A934 – Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
 - i. ASTM A1064 - Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - j. ASTM C33 – Standard Specification for Concrete Aggregates.
 - k. ASTM C94 – Standard Specification for Ready-Mixed Concrete.
 - l. ASTM C150 – Standard Specification for Portland Cement.
 - m. ASTM C157 – Standard Test Method for Length Change of Hardened Hydraulic – Cement Mortar and Concrete.
 - n. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.
 - o. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.
 - p. ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for use in Concrete.
 - q. ASTM C989 – Standard Specification for Slag Cement for Use in Concrete and Mortars.
 - r. ASTM C1116 – Standard Specification for Fiber-Reinforced Concrete.
 - s. ASTM C1202 – Standard Test Method for Electrical Indication of Concrete’s Ability to Resist Chloride Ion Penetration.
 - t. ASTM C1602 – Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
 - u. ASTM D1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
 - v. ASTM D3963 – Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars.
 - w. ASTM E1155 – Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers.

- x. ASTM E1643 – Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- y. ASTM E1745 – Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.

1.3 SUBMITTALS

- A. Submit proposed mix design of each class of concrete to Engineer not later than 10 days after Notice to Proceed or 15 days prior to the first concrete placement, whichever comes first.
- B. Provide test mix results for all concrete use for parking structure slabs, beams and columns. Must include ASTM C1202 and C157.
- C. Submit shop drawings of reinforcing steel under provisions of Division 01 – General Requirements.
 - 1. Initial submittal of reinforcement shop drawings shall be complete. No partial submittals will be accepted.
 - 2. Indicate reinforcement sizes, spacings, locations and quantities of reinforcing steel, and wire reinforcement, bending and cutting schedules, splicing, supporting and spacing devices.
- D. Material Certificates: For each of the following, signed by the manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Waterstops.
 - 4. Curing compounds.
 - 5. Bonding agents.
 - 6. Vapor retarders.
- E. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates.
- F. Maturity Meters:
 - 1. Manufacturer.
 - 2. Proposed locations.

1.4 SUSTAINABLE DESIGN SUBMITTALS

- A. Division 01 – General Requirements: Requirements for sustainable design submittals.
- B. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.
 - 1. Materials Resources Certificates:
 - a. Certify recycled material content for recycled content products.
 - b. Certify source for local and regional materials and distance from Project site.
 - 2. Indoor Air Quality Certificates:
 - a. Certify volatile organic compound content for each interior adhesive and sealant and related primer.

- C. Product Cost Data: Submit cost of products to verify compliance with Project sustainable design requirements. Exclude cost of labor and equipment to install products.
 - 1. Provide cost data for the following products:
 - a. Products with recycled material content.
 - b. Local and regional products.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301, 305R, and 362.1.
- B. Sustainable Design Requirements:
 - 1. Recycled Content Materials: Furnish materials with recycled content.
 - 2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.

1.6 REGULATORY REQUIREMENTS

- A. Conform to requirements of local, state and federal rules and regulations applicable to Work and Project location.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Concreting
 - 1. Placement and curing of concrete where (1) average daily temperature for three consecutive days is less than 40 degrees F, and (2) air temperature is not greater than 50 degrees F for more than one-half of a 24-hour period from midnight to midnight shall be in accordance with ACI 306.1.
- B. Hot Weather Concreting
 - 1. Placement and curing of concrete subject to a combination of (1) rising air temperature (generally greater than 75 degrees F) and (2) wind and low relative humidity shall be in accordance with ACI 305R.
 - 2. Contractor shall provide plan for minimizing exposure of concrete to adverse conditions due to combinations of high air temperature, direct sunlight, drying winds, and high concrete temperature.
 - 3. Protect concrete from rapid temperature drop.
 - 4. Pre-wet subgrade and forms.

1.8 SLAB PRE-CONSTRUCTION MEETING

- A. At least 20 days prior to placing first concrete floor slab, Contractor shall hold a meeting to review detailed requirements for preparing final concrete design mixes and to establish procedures for placing, finishing, curing, and protecting concrete to meet required quality under anticipated conditions.
- B. Contractor shall request responsible representatives of each party concerned with concrete work to attend a meeting, including but not limited to the following:
 - 1. Contractor's Superintendent.
 - 2. Structural Engineer.
 - 3. Testing Laboratory responsible for field quality control.

4. Concrete Subcontractor's Project Manager.
 5. Ready-mix Concrete Supplier.
 6. Concrete Pumping Equipment Supplier.
 7. Resident Owner Representative.
- C. Minutes of the meeting shall be recorded, typed, reproduced and distributed by Contractor to all parties concerned within five working days of meeting.
- D. Minutes shall include a statement by admixture manufacturer(s) indicating that proposed mix design and placing can produce concrete quality required by this Section.
- E. Contractor shall notify Structural Engineer and Architect at least 10 days prior to scheduled date of meeting.
- F. During construction, additional meetings may be held to review and modify procedures and materials established to assure attainment of required quality level.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Plywood Forms: Douglas Fir or Spruce-Pine-Fir species: Sound, undamaged sheets with clean true edges, exterior glue, facing material to provide finish specified.
- B. Lumber: Douglas Fir or Spruce species; construction grade or better; with grade stamp clearly visible.
- C. Preformed Steel Wall Forms: Minimum 16 gage thick, Vertically and horizontally matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and surface appearance.
- D. Tubular Column Type: Round, spirally wound laminated fiber material; inside surface treated with release agent.
- E. Form Ties For Exposed Surfaces: Plastic cone snap ties with 1-inch outside diameter by 1-inch (nominal) long cones, with no metal within 1-inch of concrete face after removal;
1. Manufacturers:
 - a. Advance Concrete Formwork, Inc.
 - b. Dayton Superior.
 - c. Symons - A Dayton Superior Company.
 - d. Williams Form Engineering Corporation.
 - e. Substitutions: As approved by Engineer.
- F. Form Ties For Hidden Surfaces: Metal spreader type, removable to a depth of 1-inch from concrete face;
1. Manufacturers:
 - a. Advance Concrete Formwork, Inc.
 - b. Dayton Superior.
 - c. Williams Form Engineering Corporation.

- d. Substitutions: As approved by [Engineer] [Engineer/Architect].
- 2. Contractor shall use formwork, form components and accessories provided by a single manufacturer. Intermixing of formwork, components and accessories shall not be allowed.

2.2 REINFORCING STEEL

- A. Reinforcing Steel of Commercial and all Foundations: ASTM A615, 60 ksi yield grade carbon steel deformed bars; uncoated finish. Reinforcing bars to be welded shall conform to ASTM A706.
- B. Reinforcing Steel of Parking Structure and Tank: A615, 60ksi yield grade carbon steel deformed bars; epoxy coated in accordance to ASTM A775 finish.
- C. Welded Steel Wire Reinforcement: Deformed type, ASTM A497; in flat sheets; uncoated, finish.
- D. Reinforcement Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete.

2.3 FIBER REINFORCEMENT

- A. Synthetic Macro Fibers: Synthetic macro fibers engineered and designed for use in concrete, complying with ASTM C1116, Type III.
 - 1. Manufacturers – Macro Fibers:
 - a. The Euclid Chemical Company - TUF-STRAND SF
 - b. Propex Concrete Systems Corporation - Fibermesh 650
 - c. W. R. Grace & Co., Construction Products Division - STRUX 90/40
 - d. Substitutions: As approved by Engineer.

2.4 CONCRETE MATERIALS

- A. Cementitious Materials
 - 1. Portland Cement: ASTM C150, gray color, Type I except as specified below.
 - 2. Fly Ash: ASTM C618, Class C.
 - 3. Ground Granulated Blast Furnace Slag: ASTM C989, Grade 100 or 120.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Water: ASTM C1602, clean and not detrimental to concrete.

2.5 ADMIXTURES

- A. Admixtures to be used in the concrete mixture shall be submitted to the Engineer for approval as part of the mixture design.
- B. Chemical admixtures shall be in accordance with ASTM C494.
- C. Admixtures shall be used in accordance with manufacturer's written recommendations.

- D. Admixtures containing chlorides, sulfides, or nitrides are not permitted.
- E. Admixtures permitted shall be supplied by a single manufacturer for project.
- F. Air Entrainment Admixture: ASTM C260;
 - 1. Manufacturers:
 - a. Axim Italcementi Group.
 - b. BASF Admixtures, Inc.
 - c. Grace Construction Products.
 - d. The Euclid Chemical Company.
 - e. Substitutions: As approved by Engineer.
- G. Crystalline Waterproofing;
 - 1. Product:
 - a. Xypex Admix, C-500.
 - b. BASF MasterLife 300D.
 - c. Kryton Internal Membrane.
 - d. Crystalline waterproofing powder shall be added to concrete mix at time of batching at a rate of 2 percent by weight of cementitious content.
 - e. Random inspections will be performed to assure compliance with batching rate.
 - f. Joint waterproofing slurry and dry packs shall be manufactured by the same manufacturer.
- H. Corrosion Inhibiting Admixture;
 - 1. Manufacturers:
 - a. W.R. Grace – Type: DCI Corrosion Inhibitor. Dosage rate 3 gallons per cubic yard.
 - b. Master Builders – Type: Rheocrete CNI. Dosage rate 3 gallons per cubic yard.
 - c. Axim Concrete Technologies – Type: Cateol 1000 CN-CI. Dosage rate 3 gallons per cubic yard.
 - d. Cortec Corporation – Type: MCI 2005NS. Dosage rate 1.5 pints per cubic yard.
 - e. Substitutions: As approved by Engineer.

2.6 ACCESSORIES

- A. Rebar Mechanical Splicers and Anchors:
 - 1. Manufacturers:
 - a. Lenton Taper Threaded Splices
 - b. Lenton Terminator
 - c. Substitutions: As approved by Engineer.
- B. Vapor Retarder: ASTM E1745; Class C, 10 mil minimum thickness, water vapor permeance rating of 0.050 perms or less;
 - 1. Manufacturers:
 - a. Americover - Vapor Block VB 10.
 - b. Fortifiber - Moistop Ultra 10.
 - c. Stego Industries - Stego Wrap 10-mil.
 - d. W.R. Meadows - Perminator.
 - e. Substitutions: As approved by Engineer.

- C. Non-Shrink Grout: Premixed compound with non-metallic aggregate, cement, water reducing and plasticizing agents; capable of minimum compressive strength of 2400 psi.
- D. Dovetail Anchor Slots: Minimum 22 gage thick galvanized steel; foam filled; release tapes; sealed slots; bent tap anchors;
 - 1. Manufacturers:
 - a. Dur-O-Wal, Inc. – A Hohmann and Barnard Company: DA100.
 - b. Heckman Building Products, Inc. #100.
 - c. Hohmann & Barnard - #305.
 - d. Substitutions: As approved by Engineer/Architect.
- E. Flashing Reglets: Stainless steel; longest possible lengths; alignment splines for joints; foam filled; release tape; sealed slots; securable to form work;
 - 1. Manufacturers: Stainless Steel;
 - a. Fry Reglet Company – “CO” Concrete Reglet.
 - b. Heckman Building Products, Inc. - #231 Stay Put Reglet.
 - c. Hohmann & Barnard - CR - Concrete Reglet.
 - d. Substitutions: As approved by Engineer/Architect.
- F. Waterstops: Polyvinylchloride; minimum 3/16 inch thick by 6-inch wide; large center bulb at expansion joints; heat sealed joints;
 - 1. Manufacturers:
 - a. Greenstreak Group, Inc.
 - b. Vinylex Waterstop and Accessories.
 - c. W.R. Meadows, Inc.
 - d. Substitutions: As approved by Engineer/Architect.
- G. Waterstops: Cold Joint Type;
 - 1. Manufacturers:
 - a. Cetco - Waterstop RX.
 - b. Greenstreak Group, Inc. - Swellstop Waterstop.
 - c. JP Specialties, Inc. - Type 20 & 23.
 - d. Substitutions: As approved by Engineer/Architect.
- H. Joint Filler: ASTM D1751, Bituminous fiber, 1/2-inch wide by depth of concrete less 1/8-inch.
- I. Form Release Agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating, intended for use on concrete;
 - 1. Manufacturers:
 - a. BASF Construction Chemicals, LLC - Building Systems: Castoff.
 - b. Dayton Superior - Clean Strip Ultra (J-3).
 - c. W.R. Meadows - Duogard.
 - d. Substitutions: As approved by Engineer/Architect.

2.7 CURING AND TREATMENT MATERIALS

- A. Water: Potable and clean.
- B. Burlap shall be clean, evenly woven, free of encrusted concrete or other contaminating materials, and shall be reasonably free of cuts, tears, broken or missing areas.

2.8 CONCRETE MIXTURE

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture of field test data, or both, according to ACI 301.
- B. Limit cementitious materials to values indicated in ACI table 4.2.3. Indicate compliance in proposed design.
- C. In designing the concrete mixtures used in the parking slabs, ramps and columns, beams and walls supporting such slabs conform to the recommendations of ACI 362 1.R, unless otherwise shown on the drawings or specified herein.
- D. Limit water-soluble, chloride-ion content in hardened concrete to values indicated in ACI 318, Table 4.4.1. Indicate compliance in the proposed mix designs.
- E. Mix concrete in accordance with ASTM C94.
- F. Concrete mix designs shall be designed and submitted in accordance with Division 01 and included as part of cost of this Work.
- G. Mix designs shall be prepared by a qualified agency acceptable to Engineer. One (1) copy of mix designs shall be submitted for Engineer's review prior to placing any concrete.
- H. Mix design shall indicate brands, types, and quantities of admixtures included, compressive strength, slump, sieve analysis for fine and coarse aggregate, quantities of all ingredients, type and brand of cement, source of aggregate, whether fine aggregate is natural or manufactured.
- I. Design of mix shall assure placing and finishing characteristics that meet Project requirements.
- J. Mix designs contained in the Schedule of Mixes may be modified and submitted to Engineer for approval, by use of mid or high range water reducing admixtures to control slumps required for pumping of concrete. Strength, placing and finishing requirements shall be maintained.
- K. Concrete mixtures placed directly over vapor retarders shall be designed to have low shrinkage characteristics and designed to minimize slab curling.
- L. Initial and final set times of concrete mix designs shall be coordinated between the contractor and concrete supplier.
- M. Perform test batches as required to correlate with maturity meters.

2.9 SCHEDULE OF MIXES

- A. Footings, Pile Caps: Proportion normal-weight concrete mix as follows:
 - 1. Compressive Strength (28 Days): 4000 psi.
 - 2. Maximum Aggregate Size: 1-1/2 inches.
 - 3. Maximum Water-Cement Ratio: 0.50.
- B. Fill for Pipe Piles: Proportion normal-weight concrete mix as follows:
 - 1. Compressive Strength (28 Days): 3500 psi.

2. Maximum Aggregate Size: 3/4 - inch.
- C. Columns at Commercial: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 5000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
- D. Beams, Joists, Walls, Shear Walls, Structural Slabs at Commercial: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 6000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
- E. Foundation Walls, Grade Beams: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 4000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
 3. Air Entrainment: 6 percent air content is required with an acceptable air content of plus or minus 1.5 percent.
- F. Interior Slab-on-Ground, Equipment Pads: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 3000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
- G. Exterior Slab-on-Ground, Parking Slab on Grade, Equipment Pads: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 3000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
 3. Maximum Slump (Inch): 3
 4. Maximum Water-Cement Ratio: 0.50.
 5. Air Entrainment: 6 percent air content is required with an acceptable air content of plus or minus 1.5 percent.
- H. Stair Pans and Landings: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 3000 psi.
 2. Maximum Aggregate Size: 3/8 - inch.
 3. Maximum Slump (Inch): 3
 4. Maximum Water-Cement Ratio: 0.50.
- I. Sanitary Structures (Storm water tank walls and mat, Elevator pit walls and mat): Proportion sulfate-resistant concrete mix as follows:
 1. Compressive Strength (28 Days): 4000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
 3. Maximum Slump (Inch): 3
 4. Minimum Cement Content: 470 lbs.
 5. Minimum Flyash Content: 100 lbs.
 6. Air Entrainment: 6 percent air content is required with an acceptable air content of plus or minus 1.5 percent.
 7. Maximum Water-Cement Ratio: 0.45.
 8. Xypex C-500 at 3% of cementitious content (Substitutions as approved by Engineer)
- J. Parking Structure - Columns: Proportion normal-weight concrete mix as follows:
 1. Compressive Strength (28 Days): 6000 psi.

2. Maximum Aggregate Size: 3/4 - inch.
 3. Air Entrainment: 6 percent air content is required with an acceptable air content of plus or minus 1.5 percent.
 4. Maximum Water-Cement Ratio: 0.42.
 5. Bid Alternate: Crystalline Waterproofing.
 6. Corrosion Inhibitor
- K. Parking Structure – Elevated Slabs, Joists, Beams, Elevated Barrier Walls: Proportion normal-weight concrete mix as follows:
1. Compressive Strength (28 Days): 6000 psi.
 2. Maximum Aggregate Size: 3/4 - inch.
 3. Air Entrainment: A minimum of six (6) percent air content is required with acceptable range of air content is plus or minus 1.5 percent.
 4. Maximum Water-Cement Ratio: 0.40.
 5. Alternate No. 1: Crystalline Waterproofing.
 6. Flyash Content: Minimum 50 lbs./yd, Maximum 100 lbs./yd.
 7. Slag Content: Minimum 50 lbs./yd, Maximum 100 lbs./yd.
 8. Maximum Chloride Absorption per ASTM C1202: 1500 coulombs.
 9. Corrosion Inhibitor
 10. Shrinkage shall not exceed 0.04% per ASTM C157 at 28 days.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits stated below.
- C. Verify lines, levels, and measurement before proceeding with formwork.
- D. Earth forms are not permitted.
- E. Align form joints.
- F. Do not apply form release agent where concrete surfaces receive special finishes or applied coatings which may be affected by agent.
- G. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- H. Provide 3/4" x 3/4" chamfer strips for all exposed concrete corners of formwork.
- I. Use mechanical rebar splicers and anchors in order to reduce congestion.

3.2 REINFORCEMENT

- A. Place, support, and secure reinforcement against displacement.
- B. Locate reinforcing splices as shown on Drawings.
- C. Cut ends of epoxy coated rebar shall be coated with epoxy material equivalent to factory coating.
- D. Damage to rebar coating as a result of bending shall be repaired with equivalent coating.

3.3 VAPOR RETARDERS

- A. Vapor retarders shall be provided where slabs will receive vapor-sensitive floor coverings or in humidity-controlled areas or as indicated on drawings.
 - 1. Install vapor retarders directly under concrete slab-on-ground at areas with vapor-sensitive floor coverings and where subgrade granular material is subject to future moisture infiltration.
 - 2. Where subgrade material is dry, and will not be subject to future moisture infiltration and where humidity will be controlled, place the vapor retarder beneath the dry granular material and the concrete slab-on-ground directly on the dry granular material.
- B. Installation of Water Vapor Retarders shall be in accordance with ASTM E1643.
- C. Edges shall be lapped six (6) inches and sealed.
- D. Contractor is responsible for maintaining conditions to provide a dry subgrade material where the slab is cast on top of granular material.
- E. Contractor is responsible for maintaining a puncture free vapor retarder. Any punctures shall be sealed appropriately to prevent vapor transmission.
- F. Do not disturb vapor retarder while placing reinforcement.

3.4 PLACING CONCRETE

- A. Notify Engineer a minimum of 48 hours prior to commencement of concreting operations.
- B. Failure to notify Engineer may result in rejection of concrete placed without observation.
- C. Place concrete in accordance with ACI 301.
- D. Place pumped concrete in accordance with ACI 304.2R. Line coating mix to initiate pumping shall not be used in pour but shall be wasted.
- E. Ensure reinforcement and embedded items are not disturbed during concrete placement.
- F. Concrete with excessive honeycomb or embedded debris shall be rejected and replaced at no cost to OWNER.
- G. Application of surface retarders and sawcutting of joints shall be planned in advance.

- H. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures and mechanical injury.
- I. Placing During Hot Weather:
 - 1. Place concrete during hot weather conditions in accordance with ACI 305R.
- J. Placing During Cold Weather:
 - 1. Place concrete during cold weather conditions in accordance with ACI 306.1.
- K. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.5 FLOOR SLABS

- A. Place floor slabs-on-ground with contraction and construction joints as indicated on Drawings.
- B. Saw cut contraction joints as soon as possible, without raveling, after placement of concrete, but within 24 hours.
- C. Cut slabs with 3/16-inch thick blade, cutting one-fourth depth of slab thickness.
- D. Separate slabs on fill from vertical surfaces with a joint filler.
- E. Extend joint filler from bottom of slab to within 1/8-inch of finished slab surface.
- F. Parking shall be floated and broom finished in accordance with ACI 302.1R. Immediately after finishing, begin curing.
- G. Commercial and security office floor finish shall be single toweled.

3.6 FLOOR CURING AND TREATMENT

- A. Wet burlap curing shall begin promptly to prevent drying of concrete. Moist curing shall continue for seven (7) days after placing.
- B. Do not allow concrete to cool rapidly.
- C. Keep forms covered and burlap continually moist during the first seven (7) days of the curing period.
- D. Verify compatibility of floor treatment materials with mastics and finish materials to be applied to floor.
- E. Provide a moist cure for a full seven (7) days through the use of burlap. Material shall completely cover the concrete surface and shall be weighted down to prevent shifting due to wind or other factors.

3.7 REPAIR OF SURFACE DEFECTS

- A. Upon stripping of forms, vertical surfaces shall be inspected for defects caused by surface air voids, honeycombing, form tie holes, peeling, and fins.
- B. Surface air voids shall be repaired with a unit packaged mixture of sand and cement mixed on job site with water and a unit of acrylic. Mixture shall be brushed uniformly on to surface and into voids. Where surface is to be exposed, surface finish of repair shall match adjacent surface. Final appearance of exposed concrete shall be approved by Engineer and Owner.
- C. Honeycombed and other defective concrete shall be removed down to sound concrete and patched to match adjacent surfaces.

3.8 FINISHING OF FORMED SURFACES

- A. After removal of forms and repair of defects, surfaces of concrete shall be given finishes specified below.
- B. When finish is to match a sample furnished to Contractor, sample finish shall be reproduced on an area at least 100 square feet in size in an inconspicuous location designated by Engineer prior to application in the specified area. Application of finish shall not be made until approved by Engineer.
- C. Rough Form Finish: Surface left with texture imparted by forms; form facing material not specified; tie holes and defects shall be patched; fins exceeding 1/4-inch shall be chipped or rubbed off.
- D. Smooth Form Finish: Surface produced by form facing material shall be a smooth, hard, uniform texture on concrete; forms may be plywood, tempered form grade hardboard, metal, plastic, paper or other acceptable material capable of producing finish; arrangement of facing material shall be orderly and symmetrical with number of seams kept to practical minimum; forms supported to prevent deflection and to maintain tolerances; tie holes and defects shall be patched; all fins shall be removed.
 - 1. Grout Cleaned Finish at Elevator Lobby: produced on newly hardened concrete following form removal; no cleaning operation shall be undertaken until all contiguous surfaces to be cleaned are completed and accessible; cleaning as work progresses is not permitted; mix 1 part portland cement to 1-1/2 parts fine sand with sufficient water to produce grout having consistency of thick paint; white portland cement may be substituted for a part of gray cement to produce a color to match adjacent concrete as determined by a trial patch; wet surface of concrete sufficient to prevent absorption of water from grout and apply grout uniformly with brush or spray gun; immediately after applying grout, scrub surface vigorously with a cork float or stone to coat surface and fill all air bubbles and holes; while grout is still plastic, remove excess grout by working surface with rubber float, burlap or other acceptable means; after surface whitens (approximately 30 minutes normal drying), rub vigorously with clean burlap; keep surface damp for at least 36 hours after final rubbing. Provide a sample finish. Final appearance shall be approved by Engineer and Owner.
- E. Tops of walls or buttresses, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces shall be struck smooth after concrete is placed and shall be floated to a texture reasonably consistent with that of formed surface.

- F. Final finish on formed surfaces shall continue uniformly across unformed surfaces.
- G. Where a schedule of finishes is not included in this Section, or finishes are not shown on Drawings, the following finishes shall be used as applicable: Rough Form Finish for all concrete surfaces not exposed to public view; Smooth Form Finish with Grout Cleaned Finish for all concrete surfaces exposed to public view.

3.9 TOLERANCES

- A. All tolerances for concrete work shall be in accordance with ACI 117.
- B. Contractor shall employ construction techniques to provide the following tolerances:

	<u>Overall</u>		<u>Local Minimum</u>	
	<u>FF</u>	<u>FL</u>	<u>FF</u>	<u>FL</u>
1. Elevated Slabs of Commercial	20	15	15	10

- C. Contractor shall set forms consistent with and is solely responsible for meeting requirements of F-numbers specified above.
 - 1. F-Number testing for elevated slabs shall be conducted prior to removal of forms.
- D. All floors not conforming to these requirements shall be corrected by replacement or other methods approved by Engineer.

3.10 FIELD QUALITY CONTROL

- A. Use of maturity meters for elevated slab pours is required to monitor concrete strength in order to stress tendons as soon as possible.
- B. Elevated slabs shall have on site test pours. Tests shall set level of final appearance and be approved by Engineer and Owner prior to additional concrete elevated slab pours.
- C. Testing and analysis of concrete shall be performed under provisions of Division 01.
- D. Testing firm will cast test cylinders and perform slump and air entrainment tests in accordance with ACI 301.
- E. Three concrete test cylinders shall be cast from each increment of 100 cubic yards of each class of concrete placed each day or from each placement of each class if less than 100 cubic yards.
- F. During hot or cold weather, as defined in Section 1.6, one additional test cylinder shall be cast from each increment of 100 cubic yards of each class of concrete placed each day or from each pour of each class if less than 100 cubic yards and be cured on site under same conditions as concrete it represents.
- G. One slump test will be taken for each set of tests cylinders cast and whenever consistency of concrete appears to vary.

- H. No water may be added to the concrete at the site unless pre-approved in writing by the Engineer for that specific mix. If pre-approved, the mix ticket must state how much water may be added.
- I. Crystalline Waterproofing Mixture:
 - 1. Ready Mix Plant-Dry Batching Operation:
 - a. Add mixture powder to drum of ready-mix truck, then add 60 percent to 70 percent of required water along with 300-500 lbs. of aggregate.
 - b. Confirm mixture meets requirements of waterproofing manufacturer.
 - c. Mix materials 2 to 3 minutes to ensure even distribution throughout mix.
 - d. Add balance of materials to ready-mix truck and mix in accordance with ACI standards.
 - 2. Ready Mix Plant-Central Mix Operations:
 - a. Mix admixture with water to form a thin slurry, 15 to 20 lbs. of powder mix with 3 gallons of water.
 - b. Pour required amount of material in drum of ready-mix truck.
 - c. Batch remaining aggregate, cement and water and mix at plant in accordance with ACI standards.
 - d. Pour concrete into truck and mix for at least 5 minutes to ensure even distribution of admixture throughout concrete.
 - 3. Comply with manufacturer's instructions for use and special installation requirements of admixture.

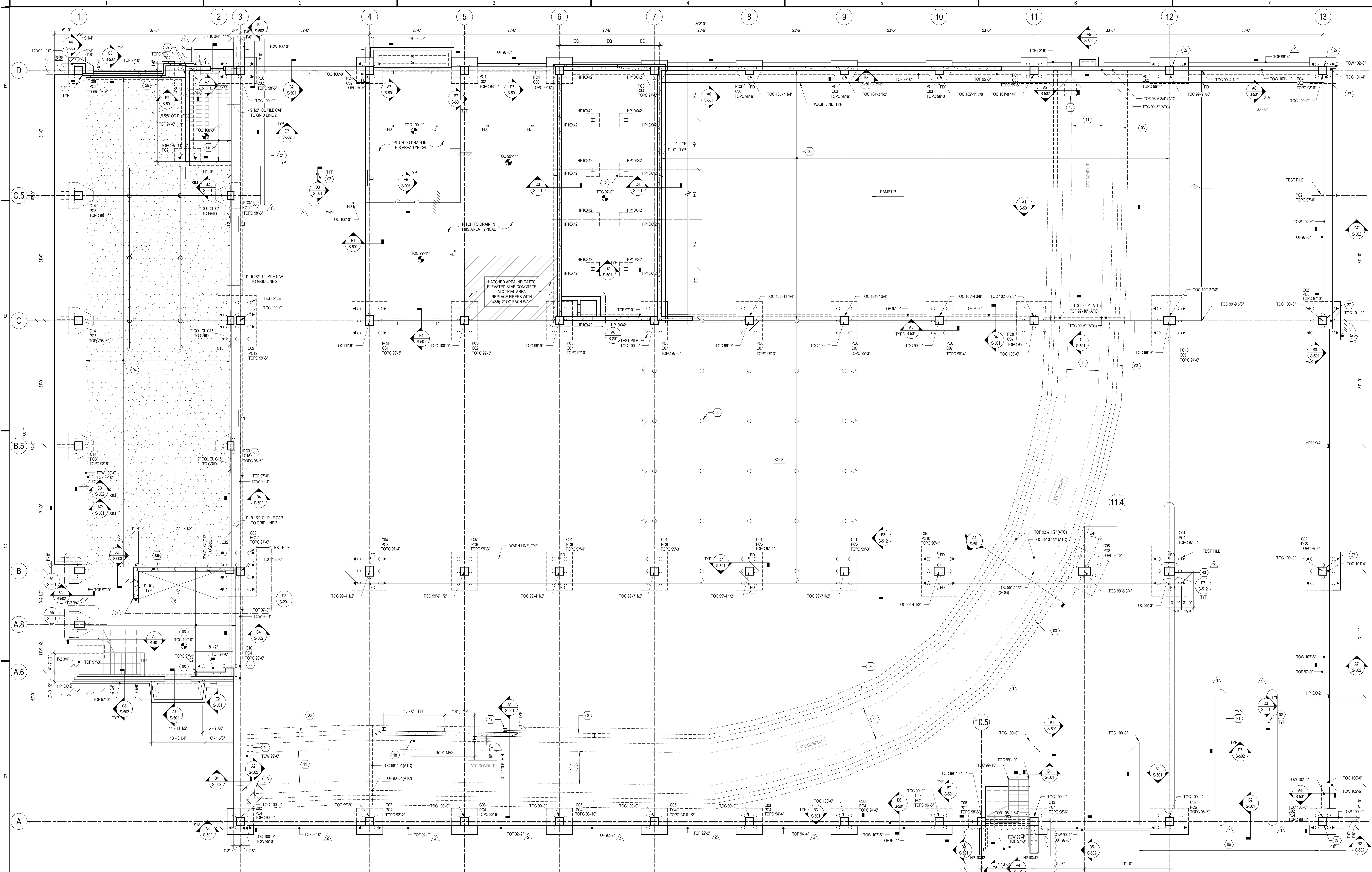
3.11 PREPARATION OF EXISTING WORK

- A. Drill holes in existing concrete, insert steel dowels and pack with non-shrink grout where new concrete is doweled to existing concrete work.
- B. Prior to placement of new concrete clean with steel brush and apply bonding agent in accordance with manufacturer's instructions.

END OF SECTION



NO	DATE	DESCRIPTION
1	07/19/2017	ADDENDUM #1
2	07/28/2017	ADDENDUM #2
3	08/04/2017	ADDENDUM #3
4	08/09/2017	ADDENDUM #4



B1 FIRST LEVEL PARKING - FIRST FLOOR COMMERCIAL PLAN

GENERAL SHEET NOTES

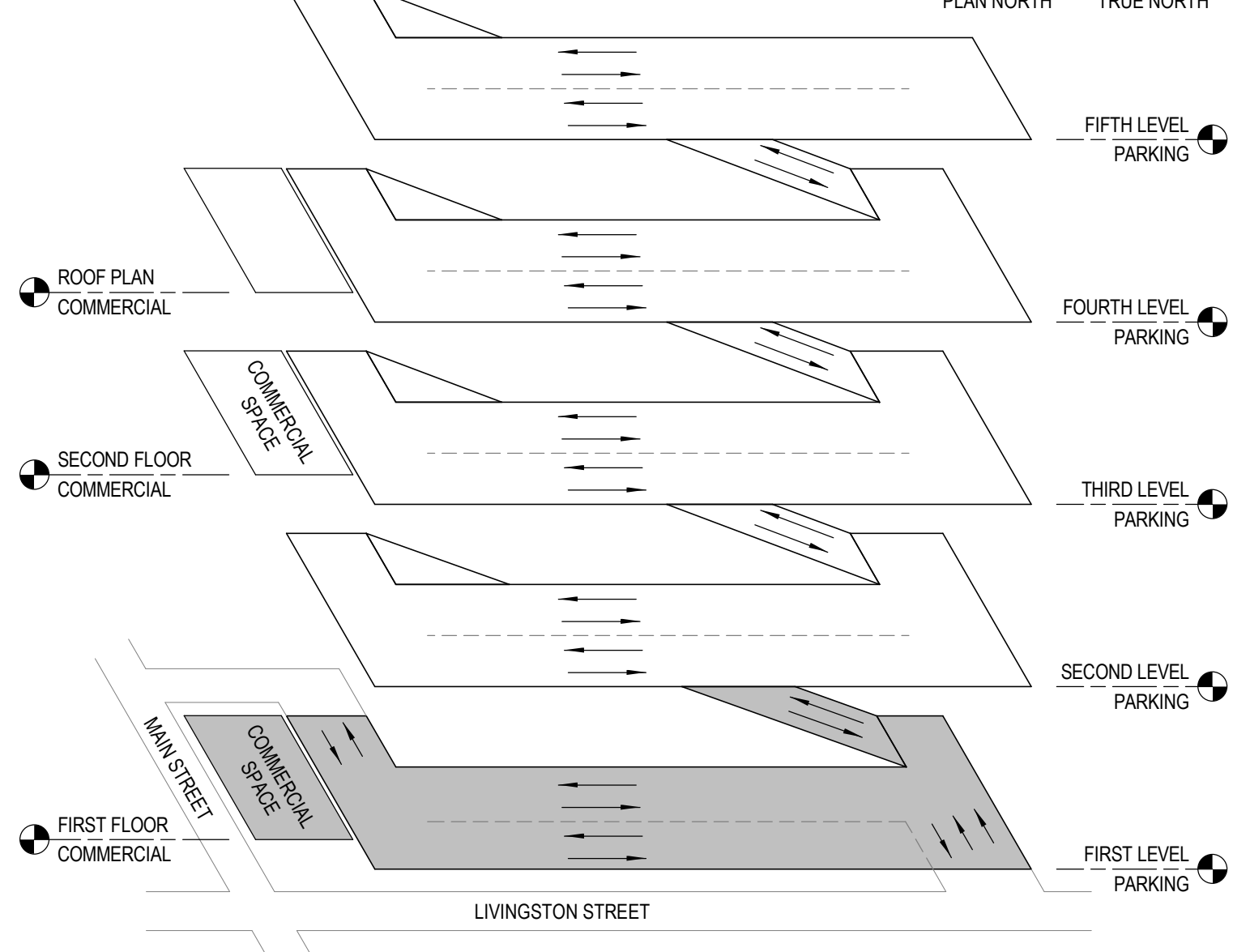
- TYPICAL FLOOR IS 4" CONCRETE SLAB ON GRADE REINFORCED WITH 4#10U VAPOR BARRIER STRIP STRIP REINFORCEMENT OR AS AN ALTERNATE 6#4V@2'x3' W/W/ 2" TOP OF CONCRETE SLAB ELEVATION VARIES. SEE PLAN.
- TYPICAL TOP OF PILE CAP ELEVATION (TOPC) TO BE NOTED ON PLAN.
- FOR FLOOR ELEVATIONS BETWEEN POINTS INDICATED USE STRAIGHT LINE INTERPOLATION.
- LEAD CONTRACTOR TO COORDINATE DRAIN TILE LATERAL CONNECTIONS THROUGH FOUNDATION WALLS. SEE PLUMBING.
- TOP OF FOUNDATION WALL/GRADE BEAM NOTED "TOW X-X" ON PLAN.
- SEE "SCHEDULES" SHEETS(S) FOR PILE CAP FOOTINGS AND CONCRETE COLUMN SCHEDULES.
- SEE "GENERAL DETAILS" SHEETS(S) FOR THE FOLLOWING DETAILS:
 - OPENING REINFORCEMENT
 - SLAB ON GRADE CONTROL AND CONSTRUCTION JOINT
 - WALL CONTROL AND CONSTRUCTION JOINT
 - WALL CORNER
 - WALL INTERSECTION
 - FOOTING STEP
 - SLAB ON GRADE DEPRESSION
 - CMU WALL ON SLAB ON GRADE
 - INTERIOR COLUMN ISOLATION JOINT
 - EXTERIOR COLUMN ISOLATION JOINT
 - FLOOR DRAIN AT SLAB ON GRADE
- HOOK SHEAR WALL HORIZONTAL BARS INTO COLUMNS WHERE APPLICABLE.
- DIRECTION OF BATTERED PILE. SLOPE 1:4.

SHEET KEYNOTES

- BOLLARD DETAIL AT ELEVATED SLABS ON STRUCTURAL DETAILS SHEET.
- ATC TUNNEL. SEE "SECTION THROUGH ATC TUNNEL" FOR ATC TUNNEL INFORMATION. EXCAVATE AND CORSE CONDUIT PRIOR TO PILE DRIVING WITHIN 20 FEET. COORDINATE WITH SURVEYER TO DOCUMENT CONDUIT LOCATIONS. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS RELATIVE TO THE ATC TUNNEL. INFORM ENGINEER OF ANY DIFFERENCES. CONTRACTOR TO ASSUME THE TUNNEL MAY NEED TO BE RE-ALIGNED BASED ON SURVEYED LOCATION BY 10 PERCENT OF TUNNEL VOLUME AT NO ADDITIONAL COST.
- HATCHED AREA INDICATES FUTURE SLAB ON GRADE. SUBGRADE IMPROVEMENT AND SLAB DESIGN INCLUDED IN THIS CONTRACT. SLAB ON GRADE AND VAPOR BARRIER PLACEMENT TO BE PERFORMED UNDER FUTURE CONTRACT PROVIDE 6" MINIMUM BASE COURSE BELOW FUTURE SLAB ON GRADE INCLUDED IN THIS CONTRACT.
- AT RAMPED AREA BETWEEN GRID LINES C AND D PRELOAD THIS AREA WITH COMPACTED FILL AND INSTALL SETTLEMENT MONITORING PLATES. ALLOW 3 TO 4 WEEKS FOR SETTLEMENT AND COORDINATE WITH SUBGRADE IMPROVEMENT ENGINEER PRIOR TO SLAB ON GRADE INSTALLATION.
- IMPROVE SUBGRADE BELOW SLAB ON GRADE WITH RAMMED AGGREGATE PERS. REFER TO GENERAL NOTES AND SPECIFICATIONS FOR DESIGN CRITERIA. CONTROL JOINT LAYOUT AND AGGREGATE PERS DROP DRAWINGS AND CALCULATIONS TO BE SUBMITTED PRIOR TO INSTALLATION. IMPROVE SUBGRADE BELOW ENTRY DRIVEWAYS WITH RAMMED AGGREGATE PERS. SEE CIVIL FOR DRIVEWAY LOCATIONS. REFER TO SPECIFICATIONS AND GENERAL NOTES FOR DESIGN CRITERIA.
- 18" SHEAR WALL REINFORCED WITH (2) CURTAINS OF #5@12" OC VERTICALS AND #5@12" OC HORIZONTALS.
- 12" SHEAR WALL REINFORCED WITH (2) CURTAINS OF #5@12" OC VERTICALS AND #4@12" OC HORIZONTALS.
- 12" SHEAR WALL REINFORCED WITH (2) CURTAINS OF #5@12" OC VERTICALS AND #4@12" OC HORIZONTALS.
- DRILL AND EPOXY STOPP REINFORCING TO FOUNDATION WALL 6" MINIMUM EMBEDMENT.
- EXISTING ATC CONDUIT. FIELD VERIFY LOCATION. EXCAVATE AND CORSE CONDUIT PRIOR TO PILE DRIVING WITHIN 20 FEET. COORDINATE WITH SURVEYER TO DOCUMENT CONDUIT LOCATIONS. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS RELATIVE TO THE ATC TUNNEL. INFORM ENGINEER OF ANY DIFFERENCES.

ELEVATION 100'-0" = 852'-0"

PLAN NORTH TRUE NORTH



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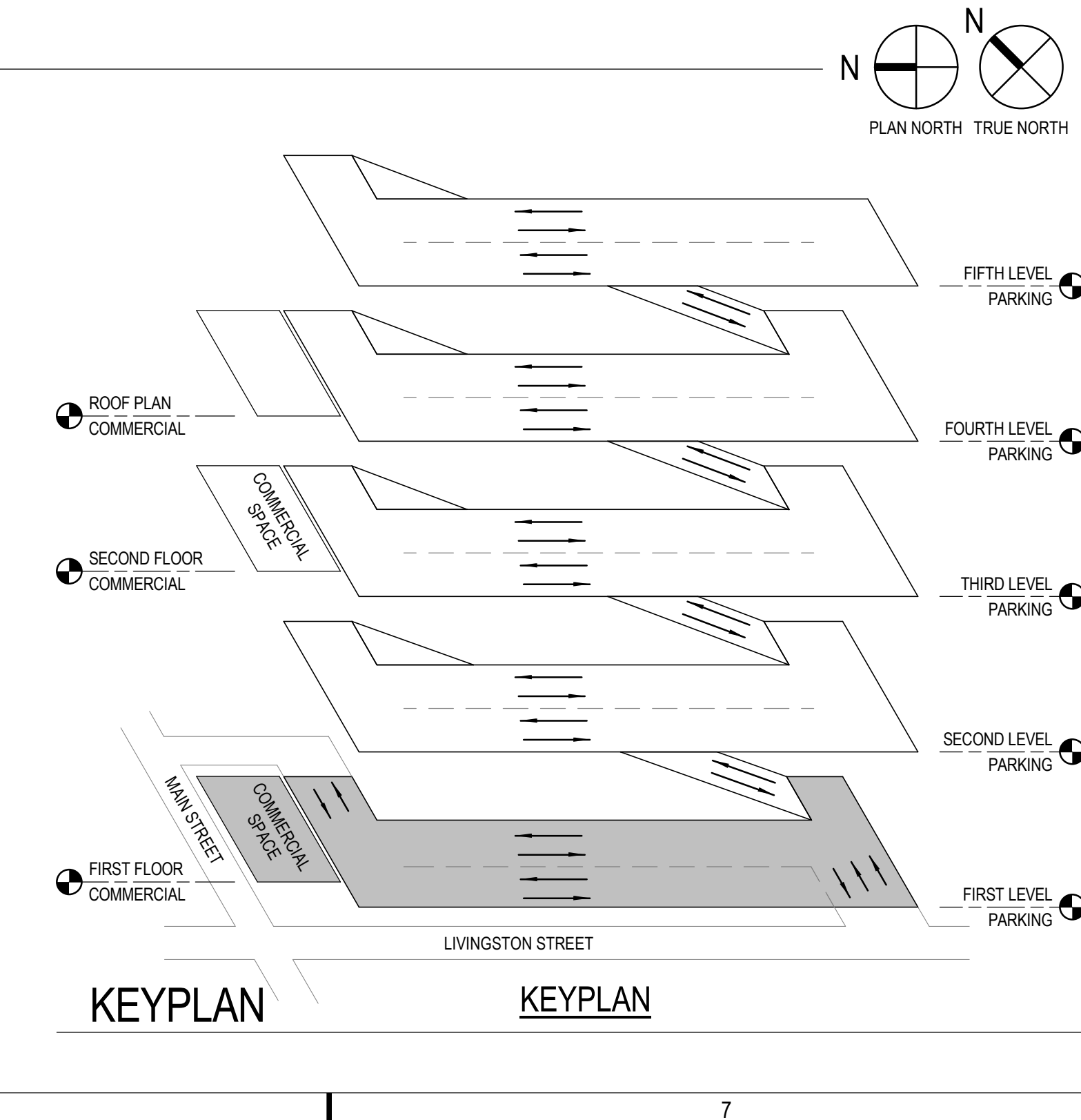
NO	DATE	DESCRIPTION
1	07/28/2017	ADDENDUM #2
2	08/04/2017	ADDENDUM #3
3	08/09/2017	ADDENDUM #4



B1 FIRST LEVEL PARKING - ELECTRICAL PLAN
1/8" = 1'-0"

- KEYED NOTES THIS SHEET**
- PROVIDE PULL BOX FOR POWER CONDUITS ROUTED OVERHEAD, MOUNTED TO DECK CEILING.
 - PROVIDE PULL BOX FOR DATA CONDUITS ROUTED OVERHEAD, MOUNTED TO DECK CEILING.
 - PROVIDE PULL BOX FOR POWER CONDUITS ROUTED OVERHEAD, MOUNTED TO DECK CEILING. PROVIDE CONDUIT STUDS THROUGH CEILING FOR BRANCH CIRCUITS SUPPLYING PARKING DECK LEVELS AS ABOVE.
 - PROVIDE (1) 4" RMC CONDUIT FROM MAIN ELECTRICAL ROOM TO SECURITY OFFICE FOR BRANCH CIRCUIT PANEL.
 - SURFACE MOUNT LIGHT FIXTURES IN THIS SPACE TO EXPOSED STRUCTURAL CEILING. PROVIDE SURFACE MOUNT BOX & CONDUIT INSTALLATIONS IN THIS SPACE.
 - PENDANT MOUNT LIGHT FIXTURES IN THIS SPACE TO EXPOSED STRUCTURAL CEILING, 12" APART.
 - CIRCUIT EMERGENCY BATTERY UNIT TO UNSWITCHED LIGHTING BRANCH CIRCUIT SUPPLYING THIS SPACE.
 - PROVIDE DUPLEX RECEPTACLE WITH WEATHER-RESISTANT, GASKETED COVER. RECEPTACLE SUPPLIED VIA CIRCUIT BREAKER WITH INTEGRAL GROUND FAULT PROTECTION.
 - SYSTEM SMOKE DETECTOR UTILIZED FOR ELEVATOR RECALL OPERATION. PROVIDE FIRE ALARM SYSTEM INTERFACE.
 - COORDINATE EXACT LOCATION OF FIRE ALARM SYSTEM ANNUNCIATOR PANEL WITH CITY OF MADISON FIRE DEPARTMENT.
 - PROVIDE FLOW SWITCHES, TAMPER SWITCHES, MONITOR MODULES, AND SYSTEM CONNECTIONS TO FIRE ALARM SYSTEM AT FIRE PROTECTION RISER. REFER TO APPROVED FIRE PROTECTION DESIGN DRAWINGS FOR REQUIRED DEVICE QUANTITIES.
 - POWER-OVER-ETHERNET (POE) SECURITY CAMERA LOCATION. SECURITY CAMERAS FURNISHED BY ELECTRICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.
 - POWER-OVER-ETHERNET (POE) SECURITY CAMERA LOCATED IN ELEVATOR CAB. SECURITY CAMERAS FURNISHED BY ELECTRICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.

- KEYED NOTES THIS SHEET**
- PROVIDE WEATHERPROOF NOTIFICATION DEVICE FOR OUTSIDE ANNUNCIATION OF FIRE ALARM SYSTEM.
 - PROVIDE (1) SURFACE MOUNTED CONDUIT TO 4"X4" CEILING-MOUNT WEATHERPROOF BOX FOR FUTURE AVI READER AT PARKING GATE EQUIPMENT. PROVIDE SYSTEMS PATHWAY BACK TO PARKING EQUIPMENT ISLANDS.
 - PROVIDE (3) 4" CONDUIT SLEEVES IN DECK FOR FUTURE POWERSYSTEM PATHWAYS ASSOCIATED WITH FUTURE PHOTOVOLTAIC ARRAY INSTALLATION AT ROOF. COORDINATE SLEEVE LOCATIONS WITH OTHER TRADES.
 - PROVIDE (1) 3" CONDUIT THRU FLOOR FOR SUPPLY FEED TO BRANCH PANEL 917V.
 - PROVIDE 4-ZONE CALL SYSTEM ANNUNCIATOR PANEL FOR TWO-WAY COMMUNICATION SYSTEM. CORNELL 4200 SERIES OR APPROVED EQUAL. POWER SUPPLY SHALL BE LOCATED IN MECHANICAL CLOSET 011.
 - PROVIDE 2#12 & #12G IN 3/4" C BETWEEN POWER SUPPLY AND PANEL 917. PROVIDE 3#18 AWG IN 1/2" C BETWEEN POWER SUPPLY AND ANNUNCIATOR PANEL. PROVIDE CORNELL CS-200 CABLE (OR EQUAL) IN 1/2" C BETWEEN ANNUNCIATOR PANEL AND CALL STATIONS LOCATED ON ELEVATOR LANDINGS ABOVE.
 - PROVIDE (1) 3" CONDUIT FOR COMMUNICATIONS CABLING.
 - PROVIDE (1) 2" CONDUIT FOR COMMUNICATIONS CABLING.



PROJECT NUMBER: 2016-5051
DATE: 06/30/2017
DRAWN BY: RRK
CHECKED BY: RJ
APPROVED BY: DW
SCALE: AS NOTED
SET TYPE: BD

FIRST LEVEL PARKING - FIRST FLOOR COMMERCIAL ELECTRICAL PLAN