

EXHIBIT B – Scope of Work

Intent:

In general, this Bid Package is comprehensive to specific CSI Division Work and related Work as referenced, indicated on, or implied by the Project Drawings, Specifications and Project Manual. Subcontractor acknowledges that the following Scope of Work detail is provided as a courtesy and must be used in conjunction with **all** Project Documents. Scope of Work detail listed is not intended to describe a complete and final work scope. It is provided as a summary overview only.

Document Inclusions:

- Sample subcontract agreement with special provisions and exhibits
- Owner contract
- Exhibit B - this scope of work
- Schedule
- Logistics plan
- Soils Report dated 2/5/19 revision 2
- UNCW standards
 - Access control equipment dated 12/5/18
 - Security room construction dated 6/20/17
 - Installation of cameras and camera system dated 6/28/17
- March 29, 2019 75% CD drawings and specifications

Scope of Work Summary:

Furnish all **ELECTRICAL**, submittals and shop drawings, fabrication, materials, safety, quality control, labor, equipment and tools, competent supervision, hoisting, scaffolding, manlifts, campus traffic control measures, and transportation required for a complete installation of all **ELECTRICAL** as outlined in the contract documents.

- ✓ **TEMPORARY POWER AND LIGHTING**
- ✓ **ELECTRICAL**
- ✓ **FIRE ALARM**
- ✓ **TELECOMMUNICATIONS**
- ✓ **SECURITY**
- ✓ **CAR CHARGING STATIONS**
- ✓ **VEHICLE ACCESS CONTROL EQUIPMENT**

Trade Specific Scope of Work Items:

The following is a general outline of items specifically included, but not limited to, under this agreement:

1. Provide cleaning of all exposed surfaces furnished under this package prior to final turnover.
2. Subcontractor shall obtain and pay for any required permits, bonds, or fees as required to complete scope of work under this agreement including any required re-inspection fees / costs are responsibility of Subcontractor. It is the responsibility of this Subcontractor to anticipate inspection delays in the installation durations and sequence such work ahead of others as not to impose delays in the schedule.

3. Subcontractor is responsible for all penetrations/block-outs, templates and sleeves in or through concrete, precast concrete, gypsum wall board, ceilings, slabs, roofs or foundations, or any other material or structure necessary to complete this work.
4. Subcontractor understands that multiple areas will be occurring simultaneously and said Subcontractor shall provide required supervision and manpower to maintain multiple work areas. Schedule is not constrained which allows the Drywall and Concrete trades to proceed ahead of schedule, or work floors than anticipated in the schedule. Subcontractor agrees to adjust manpower and supervision requirements to meet acceleration potential of the building structure at no additional cost to Contractor (i.e. electrical rough-ins shall not be constraint on masonry, concrete, installations).
5. Subcontractor understands the schedule and has included multiple crews in order to achieve the required dates.
6. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction. This includes but is not limited to all seismic qualification certifications and/or calculations as required in various elevator specification sections. Certifications/calculations shall be signed and sealed by a qualified professional engineer.
7. This Subcontractor shall make deliveries by trailer truck. Storage space at the jobsite is extremely limited and will only be available as allowed by the CM. Include all necessary equipment, etc. to unload all deliveries.
8. All welding machines shall be gas/diesel type and no electrical power will be made available for this operation on site.
9. Subcontractor shall include 2% of the total contract value for participation in composite clean-up crew. Balfour Beatty will be responsible for managing this crew.
10. Cleaning of streets if soiled by this subcontractor is included immediately upon occurrence before Owner contracts BBC.
11. Flaggers at site entrance are included for your scope of work entering and existing site
12. CMAR is responsible for material and quality control testing. Any re-testing or reinspections of failed items will be responsibility of this subcontractor to pay.
13. Subcontractor is responsible for all dewatering as required to complete this scope of work
14. Subcontractor is responsible for total coordination of all underground utilities and for providing a complete utilities system. There will be no cost or time considerations given for adjustments of structures or pipe runs due to conflicts arising from lack of coordination with adjacent utilities, structures, or other Subcontractors. First installed does not constitute grounds for a change order for installation of uncoordinated work. BBC and UNCW dig permits are required to be accurate and completed for all excavations. All existing utilities shall be located by pot holing and exposed by hand for length of required exposed before any machine excavation occurs. BBC must visually

see the exposed utility before machine excavation occurs. All supporting of existing utilities including beams, cables, adding restraints etc. is include to protect the utility during excavation and backfilling operations.

15. Subcontractor is hereby advised that site investigation reports have been provided by the Owner for review and information purposes. The report has been issued to this Subcontractor. Subcontractor shall waive all rights to any claims against the Construction Manager for conditions as designated in the report. See unit prices for any conditions deemed by the 3rd party inspector to not comply with the Contract Documents.
16. Subcontractor is responsible for notifying Construction Manager, Owner, Architect, and governing agencies of all inspection requests.
17. Subcontractor is responsible for notifying Construction Manager, Owner, Architect, and Governing agencies of all existing utility locates.
 - a. Subcontractor shall verify locations of all existing Utilities within the Construction Areas prior to commencing Work.
 - b. Any damage to existing in-service Utilities during Construction will be repaired at the expense of the Subcontractor that caused the damage.
 - c. Subcontractor is responsible for notifying the Construction Manager, Owner, Architect, and Governing agencies of all tie-ins and shut downs of existing utility systems, inspection requests, and existing utility locates.
18. Subcontractor is responsible for the repairs or relocations required of site perimeter fencing and gates if damaged or if required to perform work under this agreement.
19. Videotaping of all existing conditions prior to start of work under this agreement is included for all clearing operations and any operations working around existing utilities or other structures. Video Taping of all utilities installed under this scope of work is also included.
20. Subcontractor is required to participate in the BIM Coordination Drawing process with other project Subcontractors as detailed in the Subcontract Special Provisions - Project Provisions to assist in producing fully coordinated CAD coordination drawings.
21. All conduit is per contract documents and SCO requirements. In the parking deck, please use GRC. SCO does not recommend IMC in parking decks since IMC does not holdup as well in a parking deck environment. At indoor (inside room) locations EMT is acceptable as described below; however, provide steel compression couplings and fittings.

RACEWAY APPLICATION:

- a. Outdoor applications:
 - i. Exposed Conduit: Galvanized Rigid steel conduit (GRC).
 - ii. Concealed Conduit, Aboveground: Galvanized Rigid steel conduit
 - iii. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - iv. Boxes and Enclosures, Aboveground: NEMA 250, Type 3

- b. Indoor applications:
 - i. Exposed, Not Subject to Physical Damage (in a locked room): Galvanized steel EMT protected by corrosion protection and approved as suitable for the condition (per NEC - 358.10(B)).
 - ii. Exposed and Subject to Physical Damage (parking deck and stairs/lobbys): Galvanized Rigid steel conduit
 - iii. Concealed in Ceilings and Interior Walls and Partitions: EMT unless otherwise noted.
 - iv. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 - v. Damp or Wet Locations: Galvanized Rigid steel conduit.
 - vi. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 in damp or wet locations.

Subcontractor understands that the conduit runs are exposed and shall be installed in the most aesthetic pleasing manner and to prevent ledges for bird nests, places for pedestrians to hang from, etc. All anchors and clips shall be provided as not to cut or hurt the public. Additional boxes, fittings, etc. shall be assumed to make the conduit routing tight to structure, and in most inconspicuous route. Mock-up of each routing condition for approval by BBC, designer and Owner is included prior to mass installation. Stairs and elevator fronts shall be coordinated with signage, call boxes, etc.

22. The following is a general outline of items included, but not limited to, under this Agreement for **TEMPORARY POWER AND LIGHTING ELECTRICAL** Work:

- a. Provide, maintain, and fuel a generator to power the following scope of work with disconnect and panelboard until Duke Power transformer is activated. Once Duke transformer power is available, then provide temporary disconnect, step down transformer and panel board (NEMA) for new Duke Power transformer to power all temporary. Switch temporary to permanent power to perform below work once SCO inspector approves cutover.

- b. The following temporary power scope of work:
 - i. All temporary lighting power for all floor levels and stairs

ii. Elevator installation shall include temporary or permanent power to permanent disconnect on 5th floor machine room.

iii. Elevator installation temporary 220v single phase power at 3rd floor level at each elevator shaft to power elevator chord. Attach pigtail provide by elevator subcontractor

1. Provide electric power for lights, tools, welding, hoisting, etc. during installation with sufficient power for starting, testing and adjusting the elevator. Provide a 220 volt, 30 ampere single-phase 4 wire electrical supply for platform operation during construction, available at the start of elevator installation.

iv. 220v single phase masonry saw

v. Temporary power stands with GFI receptacles in distance not exceeding 100' on each floor level along column line B, and at both stairs on each stair level 1-5.

vi. Temporary power to elevator sump pumps to keep pit dry during construction

vii. BBC field office trailer

viii. Off-site logistic plans work:

1. Remove existing crosswalk signal at Riegel road per logistics plans for precast delivery. Protect foundation and wiring for deliveries. Reinstall in like kind after precast erection

2. Plate cover to protect, and replace if damaged, the telecom pull box at entrance of Hurst and Hamilton

c. Provide temporary lighting in following locations:

i. Level 1 of the parking deck to meet 5 ft candles throughout the lower deck level (upper decks not required).

ii. All elevator machine rooms, telecom room, security room and electrical room.

iii. Parking deck elevator lobby's and stairs shall be on separate switch from deck so we can turn off deck lights, but stairs remain on 24/7 from level 1 to level 5

iv. Provide two (2) each temporary site lights for security and work access to the deck from installation of site fence until permanent parking lights are activated.

d. Provide shop drawing layout of all temporary systems for BBC approval

23. The following is a general outline of items included, but not limited to, under this Agreement for **ELECTRICAL** Work per specifications:

- a. Subcontractor is responsible for balancing electrical loads and circuit settings with activation of each piece of equipment as well as a final balancing with Owner approval.
- b. Provide BIM model with dimensional locations of all equipment (including work by others) in elevator machine rooms, electrical room, security room, and telecom rooms to insure all clearances are maintained.
 - i. Show location of all concrete pad requirements
- c. All power systems including conduit, wire, outlets, grounding, panels, disconnects, starters, controllers, metering, switchgear, transformers, etc. All exposed conduit including in the deck shall be rigid conduit per SCO requirements. All cabling testing requirements by SCO is included
 - i. All miscellaneous systems including, but not limited to:
 - 1. All conduit, wire, etc. as required for a complete and operable irrigation controller is herein included. All final connections shall be provided by this Subcontractor.
 - 2. All conduit, wire, etc. to site water backflow preventer hot boxes is included
 - 3. Domestic water heat trace tape
 - 4. Provide a 2" conduit with pull string and pull box (in pit) from elevator sump pumps to sump pump controller located outside the hoistway area in a location determined by architect. Fire caulk hoistway penetrations. Provide power to controller.
 - 5. Core drill precast panels at 5th floor elevator machine rooms and hoistways for elevator subcontractor to install wire tray (4 holes total). Clean precast and patch any anchor holes.
 - ii. Provide power to all work, including but not limited to:
 - 1. Site blue light emergency phones
 - 2. Security panels
 - 3. Telecom room and equipment
 - 4. Pay stations
 - 5. Parking deck emergency call boxes and blue lights
 - 6. Parking deck entry control gates
 - 7. Car charging stations
 - 8. Elevators
 - 9. HVAC controls

10. Mechanical units

11. Elevator sump pumps and controllers

- d. Provide all **Grounding** for all systems including power, lighting, data, phone, fire alarm, security, etc.
- e. Coordinate metering devices with Controls contractor to ensure proper interfacing with BMS system, as required. Provide on-site support from manufacturer in order to coordinate this integration.
- f. Subcontractor shall furnish and install all power conduit, wiring, disconnects, starters, etc. to all elevator, and mechanical equipment
 - i. This includes conduit and wire from electric panel to disconnect (or controller, VFD, DDC, etc.), and from disconnect (or controller, VFD, DDC, etc.) to motor. Line and load side wiring, conduit, and terminations are herein included.
 - ii. The intent of this agreement is to ensure this Electrical Subcontractor provides a complete power wiring system from Main electrical source to the equipment motors ready for operation contrary to electrical drawings notations
 - iii. Any and all required fuses, disconnects, thermal overloads, etc. are included herein for all systems (i.e. mechanical, plumbing, Fire Protection, etc.) Subcontractor to coordinate with other trades accordingly.
 - iv. Provide conduit, wire, and auxiliary contacts from elevator disconnect to controller to notify if loss of power vs. disconnect closed to enable battery elevator drop
- g. Parking deck **Main Power** as indicated on site power plans are herein included, including conduit, wire, hand holes, boxes, etc.
 - i. Duke Power will provide transformer pad, transformer, and primary feeders.
 - ii. Subcontractor is responsible for the following:
 1. Survey Duke primary lines locations – vertical grade and horizontal location
 2. Furnishing, installing, and testing Secondary feeders
 3. All conduit and sleeves required by the Duke for primary feeders. All conduit shall be encased in concrete as noted on the contract documents

- h. All **parking deck and site lighting** as indicated on site power plans are herein included, including conduit, wire, hand holes, boxes, etc.
- i. All low voltage lighting controls, sensors, switches, etc. as indicated in the Contract Documents are herein included.
 - ii. All interior and exterior deck lighting is herein included. Including but not limited to conduit, wire, fixtures, lamps, grounding, etc.
 - iii. All site lighting is herein included. This shall include anchor bolts, concrete pole bases, pull boxes, conduit, wire, poles, lamps, etc.
 - iv. Subcontractor is to re-lamp interior fixtures, as required, at the time of turnover of each facility. Any dim or burned out blubs shall be replaced.
 - v. Labeling for emergency lighting switches is included.
 - vi. All secondary light fixture supports are included to structure
 - vii. Subcontractor to include in this Scope of Work provisions for fixture/site lighting adjustments necessary to establish proper illumination as per the direction of the lighting consultant. All illumination and voltage drop testing is included per SCO requirements
 - viii. Relocation and Rewiring existing parking Lot M east pole light P057 to new location is included. This pole circuit feeds emergency blue light, so maintain power to blue light must be included during relocation, and repull new feeder to blue light is included.
 - ix. Repull feeders to parking lot lights 7411 and 7834 from Belk Hall after site electrical lighting demolition.
 - x. Site Lighting Subcontractor is responsible for the following:
 - 1. Existing and new light parking lot light pole locations:
 - a. demolition includes removal of existing parking lot light poles 7531, 7831, 7832 and 7833. If these four (4) poles are not to be restored and reused, then turnover to UNCW (or dispose of offsite if UNCW does not want). Removal of wire and circuitry back to panels is included. Correct panel breaker card.
 - b. Restoration of eleven (11) light existing site parking lot lighting on campus which shall include:
 - i. Removal and / or collection of eleven (11) existing light pole fixtures from item a above, or from adjacent P3 housing project (some may be already removed, or some may be in place active). Work shall be done on first day of NTP.

- ii. Store offsite until parking deck is erected and striped, so restored poles and lights and be stored in deck on level 2 until ready for installation.
 - iii. Replace any missing parts or pieces for warrantable assembly
 - iv. Patch any drilled holes not to be reused in poles
 - v. Repair any damages to existing poles or heads
 - vi. Refurbish and Refinishing of fixture and poles per Color selected by UNCW (per UNCW, US Waterproofing has painted poles on campus. Creative Fabrications (Terry Lieseke) and Live Wire Powder coating in Leland can be contacted for pricing).
 - vii. Relamping
 - viii. After discussing UL requirements with SCO Electrical inspector, Designer concluded relocated existing light poles will not require third party UL listing. However, SCO does require the electrical subcontractor to clearly label or permanently identify any relocated existing poles (of their prior location) prior to calling SCO inspector for a light fixture inspection.
 - ix. Reuse three (3) existing pole bases with any required anchor bolt conversions (existing pole #7530, 7834, and 7411), and provide eight (8) new pole bases complete.
 - c. Site Parking lot fixtures are to remain, include the following for three (3) existing poles 7530, 7834, and 7411
 - i. Make sure these poles remain powered and operating during construction from existing Belk Hall source until permanent power is switched over to new parking deck panels. This is for Owner and Contractor lighting use.
 - ii. Once restoration of all eleven (11) poles are complete in item b, permanent power is available to the existing poles, and site area is completed....then swap out restored poles in these locations so all parking lot poles are restored.
 - iii. Turnover these (3) poles to UNCW if they want them, if not, dispose offsite.
2. Furnish and install all top parking deck pole lights including furnishing anchor bolts to the precast subcontractor with template to cast into precast 10 days from date of this agreement.
3. All Site pedestrian light including pole bases
24. All parking deck **Fire Alarm** as indicated on drawings including:

- a. Subcontractor is to provide a complete and operable, fully tested and NFPA 72 compliant Fire Alarm System per the Contract Documents and as required by all applicable codes. Use forms approved on SCO website
- b. Included is all conduit, wire, terminal cabinets, devices, grounding, surge arrestors, batteries, control panels, remote panels, interface connections furnished by Others i.e. flow and tamper switches, elevator controllers, ATS, etc. All exposed conduit including in the deck shall be rigid conduit per SCO requirements.
- c. Electrical subcontractor shall employ a full time on-site supervisor during fire alarm conduit installations, fire alarm wire pulling, device installation, testing, and state approvals who is well versed in housing fire alarm installations and sequencing.
- d. Subcontractors lower tier subcontractor providing the fire alarm devices and programming shall have a full time certified engineer/programmer well versed in the fire alarm program from time of download until system is approved by the State Fire Marshal.
- e. Extended hours due to lack of systems being ready will be responsibility of this subcontractor to reimburse the CM for management, and other subcontractors working to pass the systems.
- f. The fire alarm system must be completely tested by the Subcontractor and NFPA 72 form completed 100% with sensitivity reports and maps installed (test #1) prior to CM approving the system (full test #2). After test #2 passes, the CM will invite the Engineer of Record and Fire Marshal to Test the system (test #3). Subcontractor is responsible for providing all testing devices (ladders, commercial grade smoke makers, smoke bombs, etc.). Test #4 will be at SCO final inspections with all parties.
 - i. Completion of all systems, testing, documenting all forms and certifications, Owner and Architect inspections, and DOL inspections shall be completed sixty (60) days prior to scheduled project completion date to allow Owner to occupy building to installed Owner furnished materials.
 - ii. Included herein is the completion of all Fire Alarm checklist prior to Owner/Construction Manager inspections.
- g. All required relays, wiring, conduit, etc. are included to interface fire alarm system with elevators, etc. Final connection to fire protection tamper switches, flow switches, etc. are herein included. All conduits shall be sized for future cables added by owner if system wants to be expanded
- h. Subcontractor shall "bag" all fire alarm devices from installation through of final NFPA inspection/verification by Engineer of Record in each area to protect devices from surrounding construction elements including dust, etc. Factory dust covers are not acceptable means of protection. Any soiled heads at time of Owner Acceptance through sensitivity report shall be replaced by subcontractor at no cost. Delaying installation of

devices do to current construction status of building is not acceptable since fire alarm system will proceed under all circumstances to meet inspection dates.

- i. Subcontractor shall provide an identification map per the contract documents to be mounted adjacent the main Fire Alarm Control Panel showing all initiating devices and their address numbers. All room/area identifications shall be confirmed with the CMAR/Owner prior to preparing and submitting this requirement.
- j. Subcontractor shall coordinate and provide assistance with the elevator subcontractor, Inspector, and DOL during all elevator certifications.
- k. Subcontractor shall provide a prefinished metal lockable cabinet near fire alarm panel to store plans, NFPA, etc. per SCO (see UNCW HUB café for similar condition)
- l. Install sign on door "FACP in this Room"
- m. Fire Alarm panel shall be Notifier by Honeywell (no substitutions).
- n. Parking decks sweat due to temperature swings, so all conduit ends at jboxes and panels shall be sealed
- o. All conduits shall give owner at least 50% extra capacity for future wire pulls, or more if required by specifications or code.

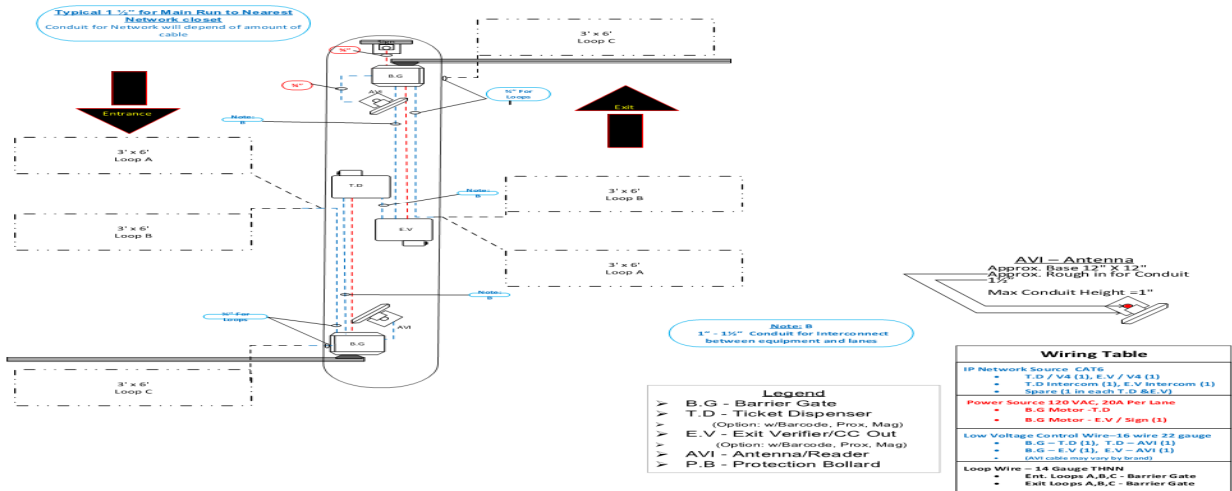
25. All **data and telecommunications including intercom** as indicated drawings are herein included:

- a. All conduit, wire, hand holes, boxes, connectors, inner duct, bushings, wireways, etc. for a complete installation of the Voice and Data structured cabling system. Maximum radius for raceways installations shall be adhered to. All exposed conduit including in the deck shall be rigid conduit per SCO requirements.
- b. Provide new 4" concrete encased site conduits from parking deck to new P3 Housing Building 4 handhold. Include inner duct, fiber cabling, and copper cabling from Building 4 MDF room to new parking deck telecom room
- c. Provide all phone / data / intercom to:
 - i. Fire Alarm panel
 - ii. Elevator controller
 - iii. Site blue light emergency phones, if required
 - iv. In deck blue light call boxes, if required
 - v. Security panel
 - vi. Deck entry security card access control gates
 - vii. Car chargers
 - viii. Pay Stations
- d. Provide covers for all j-boxes with labels. Subcontractor shall label all device boxes for easy identification.

- e. Provide all power and grounding requirements.
 - f. Install plywood in telecom room and paint with fire rated paint per UNCW standards. Fire treated plywood not allowed. Provide 3rd party certification after backs boards are painted with fire retardant paint.
 - g. Testing of all fiber, copper, Cat 6, etc. cabling reports are included for SCO final inspection
 - h. Inside of the deck – Emergency Blue lights should be provided at the stairwells/elevators in the deck. Preference is to use the radio system for the emergency phones similar to our exterior blue lights instead of hardwired phones. The project needs to confirm that blue lights in the center of the deck will have a strong enough signal to communicate (or design to use an alternate signal source/repeater). We need similar coverage in the new deck, including a phone in the center aisle and multiple phones on the north side. Include all conduit and power to phone boxes and blue light
 - i. Emergency Blue light #129 at north site area shall be removed, turned over to UNCW UPD office for storage, and reinstalled in new location included pull box, concrete foundation, anchor bolts, power and phone.
 - j. Emergency Blue light #39 in the island near the construction fence entrance needs to be relocated during construction closer to the sidewalk on Riegel where it can be fed by sidewalk lights including providing new foundation, power and phone. ~~In May 2020, reinstalled in new location included pull box, concrete foundation, anchor bolts, power and phone.~~
 - k. Emergency Blue light #36 at the east end of parking lot M will remain outside of the construction fence, however, it is fed from light pole P057 which will be relocated during construction. The blue light will need to be powered throughout the project.
 - l. Parking decks sweat due to temperature swings, so all conduit ends at jboxes and panels shall be sealed
25. All **Security** as indicated drawings are herein included:
- a. All conduit, wire/pull strings, j-boxes, cabling, cameras, card access devices, etc. as indicated in the Contract Documents are herein included. Along with all low voltage cabling, devices, etc. required in specifications and plans. All exposed conduit including in the deck shall be rigid conduit per SCO requirements. Owner will only provide the secure IP addresses.
 - b. Provide covers for all j-boxes with labels. Subcontractor shall label all device boxes for easy identification.
 - c. Provide all power and grounding requirements for devices and control panels required under this scope.

- d. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction.
 - e. Subcontractor shall receive inventory, store, schedule, handle, and install any Owner furnished equipment as indicated in the Contract Documents. Subcontractor will notify Contractor promptly of any defects and/or discrepancies in the equipment received.
 - f. Subcontractor shall coordinate and perform Commissioning and Owner Training of all equipment start-up and check-out as described in the Documents.
 - g. Provide all security to:
 - i. Cameras at elevator lobbies, stair landings, deck entries, and pay stations
 - ii. Site blue light emergency phones
 - iii. In deck blue light call boxes
 - iv. Deck entry security card access control gates and remote arms
26. Provide all **Car Charging Stations** including specified stations, conduit, wire, etc.
- a. All conduit, wire/pull strings, j-boxes, cabling, station devices, etc. as indicated in the Contract Documents are herein included. All exposed conduit including in the deck shall be rigid conduit per SCO requirements.
 - i. Include two (2) permanent stations complete
 - ii. Include four (4) future stations including break, conduit from panel to proposed location of station, pull strings, at NEMA 3 pull box at end point with label for easy reference and connection to future station device.
 - b. Provide covers for all j-boxes with labels. Subcontractor shall label all device boxes for easy identification.
 - c. Provide all power and grounding requirements for devices and control panels required under this scope.
 - d. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction.
27. Provide parking **Vehicle Access Control System** including to provide complete operation system at southeast and southwest (typical of 2 locations) including all underground conduit and pull boxes, cabinets, poles, gate arms, card access arms, cabling, hardware, software, card readers, data communications, intercom, power supplies, control panels, power, conductors, devices, controllers, programming, etc. necessary to make these systems 100% operational.
- a. Approved vendors include Carolina Time & Parking Group, Southern Time, or others approved prior to bid.

- b. 4 each. Include Barrier Gates at southeast and southwest parking deck entries including barrier gate and articulating arms, vehicle detection loops, card access pedestals and intercom, etc.



- c. 1 each. Include future conduits at west entry gate location with pull strings, and NEMA 3 pull box at end point mounted to precast wall 24" AFF with label for easy reference and connection to future device (to electrical, security and telecom rooms)
- d. 1 each. Include future conduits at south sidewalk entry/exit location with pull strings, and NEMA 3 pull box at end point mounted to precast wall 24" AFF with label for easy reference and connection to future device (to electrical, security and telecom rooms)
- e. Provide all **Vehicle Guidance Systems** complete including specified devices, mounting devices including foundations and poles, conduit, wire, etc.
 - i. Provided following scope
 - 1. 1 each. Include prefinished sign to match UNCW standards at Riegel Road which includes floor level counts display, parking deck address, etc.
 - 2. 2 each. LPR (license plate recognition) southeast and southwest entry areas with poles
 - 3. 8 each. Floor level space available counts through license plate camera on floors 1-5, and southwest, southeast and west entries.
 - 4. 2 each. Space available signage at SW and SE entry gates
- f. Provide lighting signage at West, SW and SE entries including an "enter" and "exit" signs on both sides of the in and out sides of drives at all three (3) entries/exits. Total of 6 sets or 12 each – or – provide same in "x" and "arrow"

28. Project award includes erection times **(fill in durations)**:

Shop Drawing Time: _____ weeks

Fabrication Time: _____ weeks

Erection start date: _____

Estimated duration of erection: _____ weeks (power)

Estimated duration of erection: _____ weeks (lighting)

Estimated duration of erection: _____ weeks (low voltage system)

Estimated duration of erection: _____ weeks (access control equipment)

Estimated duration of erection: _____ weeks (parking deck guidance system)

EXCLUSIONS:

1. none

ALTERNATES:

1. Provide wireless fire alarm system