

SECTION 111200 - PARKING CONTROL EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Automatic barrier gates.
2. Vehicle detectors.
3. Traffic controllers.
4. Entry terminal ticket dispensers.
5. Exit terminals.
6. Pay stations.
7. Fee computers.
8. Parking facility management software.
9. Access control units.

- B. Related Sections:

1. Division 05 Section "Metal Fabrications" for pipe bollards to protect parking control equipment.
2. Division 13 Section "Fabricated Structures" for cashiers'/parking attendants' booths.
3. Division 32 Section "Asphalt Paving" for asphalt driveway and approach paving.
4. Division 32 Section "Concrete Paving" for concrete driveway and approach paving.

1.3 SYSTEM DESCRIPTION

- A. Parking Control System: Intended to be used for the following types of parking management:

1. Transient Parking: Hourly rated parking, with fee paid while exiting.
2. Monthly Parking: Monthly rated parking, with fee paid by the month and access gained by access control card.
3. Flat-Rate Parking: Unlimited-duration parking, with free gate entry and fixed-fee amount paid while exiting.
4. Special-Event Parking: Duration-of-event parking, with fee paid while entering with gates up or down.
5. Limited Date(s) and Time(s) Parking: Limited-duration parking, with predetermined fee access control card.

6. Merchant Validated Parking: Fee set, reduced, or waived by merchant validation, with free gate entry and fee paid while exiting.
7. Valet Parking: Assisted parking, with fee paid while entering or exiting.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for parking control equipment. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Shop Drawings: For parking control equipment. Include plans, elevations, sections, details, and attachments to other work.
 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 2. Wiring Diagrams: For power, signal, and control wiring.
- C. Qualification Data: For qualified Installer.
- D. Field quality-control reports.
- E. Operation and Maintenance Data: For parking control equipment to include in emergency, operation, and maintenance manuals.
- F. Software and Firmware Operational Documentation:
 1. Software operating and upgrade manuals.
 2. Program Software Backup: On magnetic media or compact disk, complete with data files.
 3. Device address list.
 4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain parking control equipment from single source from single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Preinstallation Conference: Conduct conference at Project site.

1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
2. Verify that equipment operation is consistent with system description.
3. Review sequence of operation for each type of parking control equipment.
4. Review coordination of interlocked equipment specified in this Section and elsewhere.
5. Review required testing, inspecting, and certifying procedures.

1.6 SOFTWARE SERVICE AGREEMENT

- A. Technical Support: Beginning with Substantial Completion, provide software support for five years.
- B. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within five years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.
 1. Provide 30 days' notice to Owner to allow scheduling and access to system and to allow Owner to upgrade computer equipment if necessary.

1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Gate Arms: Two breakaway gate arms for each gate installed, complete with accessory components.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
 1. Sheet: ASTM B 209 (ASTM B 209M).
 2. Extruded Shapes: ASTM B 221 (ASTM B 221M).
- B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- C. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, commercial quality, with G60 (Z180) coating designation; mill phosphatized.
- D. Stainless-Steel Sheet: ASTM A 666, Type 304.
- E. Anchorages: Anchor bolts, hot-dip galvanized according to ASTM A 153/A 153M and ASTM F 2329.

2.2 AUTOMATIC BARRIER GATES - AG

- A. General: Provide UL-approved parking control device consisting of operator and controller housed in a weathertight, tamper-resistant cabinet enclosure with gate arm. Device shall be activated by a signal from access or revenue control device. Fabricate unit with gate-arm height in down position of not more than 35 inches (889 mm) above pavement to prevent even small vehicles from passing under gate arm.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Amano McGann; AMG-1700 or comparable product by one of the following:
- a. Magnetic Automation Corporation.
 - b. Skidata
 - c. WPS North America Inc.
 - d. Zeag USA
- B. Standard: Provide barrier gates and gate operators that are listed and labeled according to UL 325 by a qualified testing agency. Provide barrier gates that comply with ASTM F 2200.
- C. Controller: Factory-sealed, solid-state, plug-in type, with galvanized-steel box for wiring connections.
1. Type: Communicating.
- a. Real-time communication of lane counts, status messages, and execute commands.
 - b. Monitor illegal entries and exits, tailgates, tickets, monthlies, and backouts.
 - c. Status messages for gate up too long, backouts, ticket in chute, and gate-arm rebound.
 - d. Communication commands for resetting loops, turning "Full" signs on/off, raising and lowering gate arm, and disabling ticket dispensers and card readers.
2. Features: Equip unit with the following:
- a. Able to store successive inputs and sequentially processing each one.
 - b. Automatic instant-reversing obstacle detector mechanism that stops downward motion of gate arm if arm contacts or nears an object and that immediately returns arm to upward position. Include a 0- to 60-second, variable-time reset device.
 - c. On-off power supply switch.
 - d. Automatic-manual switch.
 - e. Differential counter.
 - f. Directional arming logic.
 - g. RS-422 communication port.
 - h. Broken gate-arm monitoring.
 - i. Programmable automatic timer.
 - j. Internal resettable counters.
 - k. Thermal-overload protection with manual reset.
 - l. Plug-in connectors for up to three vehicle loop detectors.
 - m. Thermostatically controlled heater with on/off/auto switch.
 - n. Diagnostic mode for on-site testing, with LEDs for inputs and outputs.
 - o. Automatic and continuous testing of inputs and outputs.

- p. Switch to test motor and limit switches.
 - q. Emergency manual disconnect.
 - r. Battery backup.
 - s. Single, 115-V ac grounded power receptacle.
 - t. Reversible arm capability for right- or left-handed operation.
 - D. Cabinets: Fabricated from metal sheet with seams welded and ground smooth; approximately 14 inches by 18 inches by 51 inches tall (355 mm by 457 mm by 1270 mm). Provide single, gasketed access door for each cabinet with flush-mounted locks. Furnish two keys for each lock, all locks keyed alike. Fabricate cabinet with internal reinforcing and four mounting holes accessible only from inside cabinet.
 - 1. Material: Not less than 14-gauge, galvanized-steel sheet.
 - a. Finish cabinet, interior and exterior, with manufacturer's standard Grey Classic (#314)/Argento Silver Metallic (#305) baked-enamel finish over primer.
 - b. Removable cover on drive mechanism (360-degree access)
 - E. Folding Gate Arm: Two piece aluminum. Provide mounting flange with breakaway feature to ensure clean break if arm is struck by vehicle.
 - 1. Length: 12 feet (3.7 m) and/or as indicated on Drawings
 - F. Operator: 1/3; 240V, 60-Hz, single-phase, instant-reversing, continuous-duty motor for operating gate arm. Transmit power to gate-arm drive shaft through speed reducer to harmonic-acting crank and connecting rod. Fabricate crank, rod, and drive shaft of galvanized solid bar steel. Provide an operable cam for adjusting arm travel.
 - 1. Opening Time: Three seconds.
 - 2. Inherently adjustable torque limiting clutch for safety.
 - G. Accessories:
 - 1. Audible alarm that activates as part of a safety device system.
 - 2. Manually operated crank for emergency operation.
- 2.3 VEHICLE DETECTORS - LOOP
- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Amano McGann.
 - 2. Magnetic Automation Corporation.
 - 3. Skidata
 - 4. WPS North America Inc.
 - 5. Zeag USA
 - B. Vehicle Loop Detector System: Provide self-tuning electronic presence detector with adjustable detection patterns, adjustable sensitivity and frequency settings, and panel indicator light

designed to detect presence or transit of a vehicle over an embedded loop of wire and to emit signal activating gate-arm operator. Include automatic closing timer with adjustable time delay before closing, timer cut-off switch, and vehicle loop detector designed to hold gate arm open until traffic clears. Provide number of loops consisting of multiple strands of wire, number of turns, loop size, and method of placement at location shown on Drawings, as recommended in writing by detection system manufacturer for function indicated.

1. Field-Assembled Loop: Wire, in size indicated for field assembly, and sealant; style for saw-cut installation.
2. System Performance: Capable of the following:
 - a. Recognize two vehicles within 6 inches (152 mm) of each other on standard-sized loop.
 - b. Recognize vehicle direction by detecting vehicle moving from one loop to another.
 - c. Generate reverse count if vehicle backs up after generating directional count in forward direction.
 - d. Continuous diagnostic monitoring for intermittently operating and failed loops.
 - e. Crosstalk test between adjacent loops.

2.4 ENTRY TERMINAL TICKET DISPENSERS – TD

- A. General: Provide entry terminal ticket dispensers, consisting of ticket-printing and issuing mechanisms, ticket magazines, thermal printers, and controllers housed in cabinet enclosures.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Amano McGann; Opus 2700 or comparable product by one of the following:
 - a. Magnetic Automation Corporation.
 - b. Skidata
 - c. WPS North America Inc.
 - d. Zeag USA
 2. Features: Include the following:
 - a. Time and date display.
 - b. Time Indicator: 24-hour cycle with A.M. and P.M clock mechanism.
 - c. Voice annunciation.
 - d. Tickets: Barcode type.
 - e. Removable ticket tray with capacity of 10,000 fan-folded, thermal, tickets.
 - f. Operation: Online communication to remote computer.
 - g. Real-time clock synchronization with host computer.
 - h. RS-422 communication port.
 - i. Thermostatically controlled heater with on/off/auto switch.
 - j. Credit card acceptance with activation slot and "Insert Ticket/Card" message.
 - k. Multiple ticket option for valet parking.
 - l. Integrated Intercom compatible with Owner's existing system.
 - m. Flexscan QR400 Barcode Imager.
 - n. Integrated proximity card reader compatible with Owner's existing system.
 - o. Integrated TCP/IP security camera compatible with Owner's existing system.

- B. System Performance: Activation by vehicle detector. On activation, unit automatically records entry time and date on ticket and dispenses ticket.
1. Automatic ticket validation.
 2. Program ticket numbering.
 3. Low-ticket alarm.
 4. Out-of-ticket alarm.
 5. Ticket jam detection.
 6. Print test ticket.
- C. Cabinets: Fabricated from metal sheet with seams welded and ground smooth, approximately 14 inches by 19 inches by 52" tall (356 mm by 487 mm by 1311 mm tall); consisting of base and top components. Provide single, gasketed access door for each base component with flush-mounted locks. Furnish two keys for each lock, all locks keyed alike. Fabricate cabinet with internal reinforcing and four mounting holes accessible only from inside cabinet. Fabricate top component so it can be unlocked and opened for ticket loading and maintenance. Include flush-mounted lock in rear of top, keyed the same as base component lock.
1. Material: Not less than 14-gauge, galvanized-steel.
 - a. Finish cabinet, interior and exterior, with manufacturer's standard Grey Classic (#314)/Argento Silver Metallic (#305) baked-enamel finish over primer.
- D. Ticket-Dispensing Mechanisms: Removable assembly, with self-sharpening ticket cutter and plug-in controller.

2.5 EXIT TERMINALS - EV

- A. General: Provide exit terminals consisting of ticket collectors, magnetic-stripe ticket readers, LCD displays, thermal printers, and controllers housed in cabinet enclosures. Provide "Please Insert Ticket" sign on side of cabinet visible to driver.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Amano McGann; Opus 4000 or comparable product by one of the following:
 - a. Magnetic Automation Corporation.
 - b. Skidata
 - c. WPS North America Inc.
 - d. Zeag USA
 2. Features: Include the following:
 - a. Operation: Online communication to remote computer.
 - b. Battery backup for clock and RAM memory.
 - c. Thermostatically controlled heater with on/off/auto switch.
 - d. RS-422 communication port.
 - e. Credit card acceptance with activation slot and "Insert Ticket/Card" message.
 - f. Multiple ticket option for valet parking.
 - g. Integrated Intercom compatible with Owner's existing system.

- h. Flexscan QR400 Barcode Imager.
- i. Integrated proximity card reader compatible with Owner's existing system.
- j. Integrated TCP/IP security camera compatible with Owner's existing system.

B. System Performance: Capable of the following:

1. Activated by vehicle detector.
2. Print receipts on demand.
3. Voice annunciation.
4. Program facility code.
5. Program grace period.
6. Program display.
7. Program timer for closing barrier gate.
8. Reports for events and exception events.
9. Built-in service diagnostics.

C. Operation: Inserting exit ticket into exit ticket reader results in the following actions:

1. Valid Exit Ticket: Exit ticket reader captures ticket and automatically sends signal to raise barrier gate.
2. Invalid Exit Ticket: Exit ticket reader rejects ticket and displays "Pay Cashier First" message.
3. Exit Ticket with Elapsed Grace Time: Exit ticket reader rejects ticket and displays "Return to Cashier" message.

D. Cabinets: Fabricated from metal sheet with seams welded and ground smooth, approximately 14 inches by 19 inches by 52" tall (356 mm by 487 mm by 1311 mm tall); consisting of base and top components. Provide single, gasketed access door for each base component with flush-mounted locks. Furnish two keys for each lock, all locks keyed alike. Fabricate cabinet with internal reinforcing and four mounting holes accessible only from inside cabinet. Fabricate top component so it can be unlocked and opened for ticket loading and maintenance. Include flush-mounted lock in rear of top, keyed the same as base component lock.

1. Material: Not less than 14-gauge, galvanized-steel.
 - a. Finish cabinet, interior and exterior, with manufacturer's standard Grey Classic (#314)/Argento Silver Metallic (#305) baked-enamel finish over primer.

2.6 PAY STATIONS - PS

A. General: Provide self-contained cashiering central pay stations designed for self-service operation; consisting of magnetic-stripe ticket readers/validators, LCD displays, fee computers, controllers, and thermal printers housed in a combined enclosure.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Amano McGann; Opus 7800 or comparable product by one of the following:
 - a. Magnetic Automation Corporation.
 - b. Skidata

- c. WPS North America Inc.
 - d. Zeag USA
2. Features: Include the following:
- a. Operation: Online communication to remote computer.
 - b. Battery backup for clock and RAM memory.
 - c. Thermostatically controlled heater with on/off/auto switch.
 - d. Access card acceptance.
 - e. Integrated Intercom compatible with Owner's existing system.
 - f. Flexscan QR400 Barcode Imager.
 - g. Integrated proximity card reader compatible with Owner's existing system.
 - h. Integrated TCP/IP security camera compatible with Owner's existing system.
- B. System Performance: Capable of the following:
1. Compute multiple parking fees based on entry times on ticket from ticket dispenser.
 2. Compute multiple taxes by percent and fixed amount.
 3. Program lost ticket function.
 4. Display fee.
 5. Accept payment by cash, credit card, debit card, and merchant ticket.
 6. Compute change.
 7. Print receipts on demand.
 8. Print validation on ticket.
 9. Voice annunciation.
 10. Print audit trail.
 11. Program six fee structures.
 12. Program time.
 13. Program merchant validations.
 14. Test mode to verify accuracy of fee structure program.
 15. Built-in service diagnostics.
 16. Print cash audit, revenue, operational, and statistical reports on demand.
 17. Duress alarm output for emergencies.
 18. Battery backup.
- C. Cabinets: Fabricated from cold-rolled steel sheet with seams welded and ground smooth, approximately 25 inches by 25 inches by 60 inches tall (623 mm wide by 628 mm deep by 1530 mm tall). Provide single, gasketed access door with flush-mounted locks. Furnish two keys for each lock, all locks keyed alike. Fabricate cabinet with internal reinforcing and four mounting holes accessible only from inside cabinet.
1. Finish cabinet, interior and exterior, with manufacturer's standard textured powder coat finish, color: Opus (RAL#7022).
- 2.7 FEE COMPUTERS - FC
- A. Fee Computer System: Provide modular PC-based system consisting of fee computer terminal, cash drawer, barcode ticket reader, and detachable printer. Register permanent record of each transaction in computer's memory.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Amano McGann; Opus 5000 or comparable product by one of the following:
 - a. Magnetic Automation Corporation.
 - b. Skidata
 - c. WPS North America Inc.
 - d. Zeag USA

2. Features: Provide the following:
 - a. Battery backup for clock and RAM memory.
 - b. RS-422 communication port.
 - c. 15" color touch screen POS Terminal

- B. System Performance: Capable of the following:
 1. Compute multiple parking fees based on entry times on ticket from ticket dispenser.
 2. Compute multiple taxes by percent and fixed amount.
 3. Program lost ticket function.
 4. Display fee on remote fee display device.
 5. Accept payment by cash, credit card, debit card, and merchant ticket.
 6. Control independent cash drawer.
 7. Compute change.
 8. Print receipts.
 9. Print validation on ticket.
 10. Print audit trail.
 11. Interface to automatic barrier gate.
 12. Program six fee structures.
 13. Program time.
 14. Program keys.
 15. Program special events validations.
 16. Program automatic activation for limited date(s) and time(s) validations.
 17. Program merchant validations.
 18. Program valet parking.
 19. Program hotel guest parking.
 20. Three levels of security, including cashier, supervisor, and master.
 21. Recall last transaction.
 22. Test mode to verify accuracy of fee structure program.
 23. Built-in service diagnostics.
 24. View cash audit, revenue, operational, and statistical reports on screen or print on demand.
 25. Duress alarm output for emergencies.
 26. Battery backup.

- C. Cash Drawer: Fabricated with a removable tray and drawer, with five compartments for paper currency and five compartments for coins.

- D. External Validator: Opus 9000 or comparable product by one of the following:
 - a. Magnetic Automation Corporation.
 - b. Skidata

- c. WPS North America Inc.
- d. Zeag USA

2.8 PARKING FACILITY MANAGEMENT SOFTWARE

A. General: Manufacturer's standard software that is compatible with security access control system and that provides automatic facility monitoring, supervision, and remote control of parking control equipment from one or more locations.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Amano McGann; iParcProfessional or comparable product by one of the following:
 - a. Magnetic Automation Corporation.
 - b. Skidata
 - c. WPS North America Inc.
 - d. Zeag USA
2. System Performance: Capable of the following:
 - a. Collect data for revenue and activity reporting.
 - b. Collect data for access and space control.
 - c. Track tickets.
 - d. Program parking control equipment.
 - e. Real-time transaction display.
 - f. Desktop or mobile access.
 - g. Easy remote access.
 - h. Browser based, client interface.

B. Computer & Peripheral Equipment:

1. Desktop Computer Minimum Requirements:
 - a. Intel® Core i7-2600 CPU @ 3.40GHZ
 - b. Windows Server 2012 w/ Microsoft SQL 2012
 - c. 8X DVD +/- RW Media Drive
 - d. Asus VE248H Black 24" 2ms Full HD HDMI LED Backlit LCD Monitor w/ Speakers cd/m2 10,000,000:1 or equal HD/DVI Monitor
 - e. High Definition Video Card capable of supporting monitor specified above.
 - f. 500 GB RAID1 Hard Drive, 3.0Gb/s SATA w/ 16 MB Cache
 - g. 8 GB DDR3, 1333MHz Dual Channel SDRAM
 - h. 10/100/1000 PCIe Network Card
2. Accessories and Peripherals:
 - a. One (1) B&W Laser Printer
 - b. 2 TB External Back Up Drive, 1 TB RAID function
 - c. APC 1000 Volt Power/Data UPS System
 - d. Wireless 802.11n, WiFi Certified Router w/ Fire Wall
 - e. Wireless Keyboard

- f. Wireless Optical Mouse
- g. Trend Micro Business Security Services, 36 Month Plan
- h. Adobe Acrobat X Prox
- i. Norton Ghost
- j. Wall mounted lockable rack system to house the entire system with keyboard/mouse tray
- k. Internet Modem to be provided by Owner's Internet Service Provider.

2.9 ALUMINUM FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 - 1. Color and Gloss: As indicated by manufacturer's designations.

2.10 STEEL FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with the following:
 - 1. ASTM A 123/A 123M for iron and steel parking control equipment.
 - 2. ASTM A 153/A 153M and ASTM F 2329 for iron and steel hardware for parking control equipment.
- B. Galvanized-Steel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - 1. Color and Gloss: As indicated by manufacturer's designations.

2.11 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
 - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, including equipment bases; accurate placement, pattern,

and orientation of anchor bolts; critical dimensions; and other conditions affecting performance of the Work.

- B. Examine roughing-in for electrical systems to verify actual locations of connections before parking control equipment installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Excavation for Traffic Controllers: Saw cut existing pavement for recessed traffic controllers and hand-excavate recesses to dimensions and depths and at locations as required by traffic controller manufacturer's written instructions and as indicated on Drawings.

3.3 INSTALLATION

- A. General: Install parking control equipment as required for a complete and integrated installation.
 - 1. Rough-in electrical connections according to requirements specified in Division 26 Sections.
- B. Automatic Barrier Gates: Anchor cabinets to concrete bases with anchor bolts or expansion anchors and mount barrier gate arms.
 - 1. Install barrier gates according to UL 325.
- C. Vehicle Loop Detectors: Cut grooves in pavement and bury and seal wire loop at locations indicated on Drawings according to manufacturer's written instructions. Connect to parking control equipment operated by detector.
- D. Entry Terminal Ticket Dispensers, Pay Stations and Exit Terminals: Attach cabinets to concrete bases with anchor bolts or expansion anchors.
 - 1. Connect equipment to remote computer.
 - 2. Load ticket dispenser with supply of tickets.
- E. Fee Computers: Install computers at locations indicated, including connecting to peripheral equipment and remote computers.
- F. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
- G. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- D. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Parking control equipment will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.

3.5 ADJUSTING

- A. Adjust parking control equipment to function smoothly and lubricate as recommended by manufacturer.
- B. Confirm that locks engage accurately and securely without forcing or binding.
- C. After completing installation of exposed, factory-finished parking control equipment, inspect exposed finishes and repair damaged finishes.

3.6 PROTECTION

- A. Remove barrier gate arms during the construction period to prevent damage and install them immediately before Substantial Completion.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain parking control equipment.

3.8 PARKING CONTROL EQUIPMENT SCHEDULE

A. Provide parking control equipment for each lane as follows:

1. North Warehouse Lot:
 - a. Lane 1 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 2 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
2. East Warehouse Lot – North Entry/Exit:
 - a. Lane 3 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 4 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
3. East Warehouse Lot – South Entry/Exit
 - a. Lane 5 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 6 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
4. South Warehouse Lot:
 - a. Lane 7 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 8 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
5. Lot A
 - a. Lane 9 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 10 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
6. Lot B – West Lee Street Entry/Exit
 - a. Lane 11 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 12 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
7. Lot B – Hamburg Street Entry/Exit
 - a. Lane 13 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader

- b. Lane 14 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
- 8. Lot C – North Entry/Exit
 - a. Lane 15 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. **Lane 16 (Reversible): Entry Terminal, Exit Terminal, 2 – Automatic Gates, Vehicle Detectors, IP Cameras**
 - c. Lane 17 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
- 9. Lot C – South Entry/Exit
 - a. Lane 18 (Entry): Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 19 (Exit): Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
- 10. Lot D
 - a. Lane 20 (Entry): Entry Terminal, Automatic Gate, Vehicle Detectors, IP Camera, Intercom, Proximity Card Reader
 - b. Lane 21 (Exit): Exit Terminal, Automatic Gate, Vehicle Detectors. IP Camera, Intercom, Proximity Card Reader
- 11. **Back of House Equipment**
 - a. **Pay on Foot Machine: To be located immediately adjacent to the Southeast Corner of the South Warehouse**
 - b. **Fee Computer: To be located within the Parking Management Office**
 - c. **Parking Control Software with Server: To be located within the Parking Management Office**

END OF SECTION 111200