PAVING PLAN TO SERVE

SAM'S CLUB #6275-00

AS BUILT PLANS

Contractors: Cornejo/Phillips Southern
Inspectors: Fred Smith & Don Eddingfield, Baughman Co.
pdf's by: KEK, 9/15/14

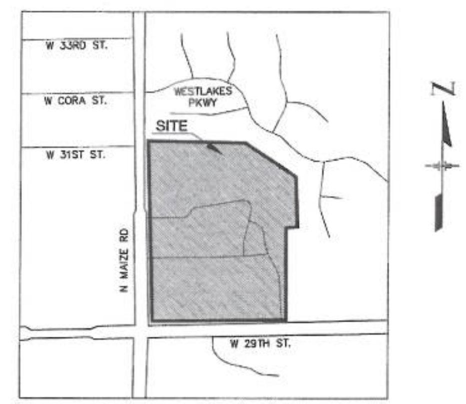
THE CITY OF WICHITA, KANSAS
GARY JANZEN, P.E. - CITY ENGINEER

OCA NO. 607879

PROJECT NO. 220 PPP

UTILITY RESPONSIBILITY MATRIX FOR THIS PROJECT

	UTILITY/ GOVERNING AGENCIES CONTACTS	CONTRACTOR RESPONSIBILITY	OTHERS RESPONSIBILITY
GAS	KANSAS GAS SERVICE JIM COE 1021 EAST 28TH STREET NORTH WICHITA, KANSAS 67219 PHONE: (316) 832-3101 FAX: (785) 575-8547	► COORDINATE CONSTRUCTION ACTIVITIES WITH GAS COMPANY TO ENSURE INSTALLATION OF GAS LINE IS COMPLETED PRIOR TO PAVING OR CURB PLACEMENT. ► INSTALL BOLLARD PROTECTION AS SHOWN ON THE PLANS PER THE GAS COMPANY REQUIREMENTS.	► SERVICE FROM THE POINT OF CONNECTION AT THE EXISTING LINE UP TO AND INCLUDING SETTING OF METER WILL BE BY THE GAS COMPANY ► PRESENT RESPONSIBLE PARTIES ► ANY RELOCATION OF EXISTING WILL BE DONE BY CITY OF WICHITA PUBLIC WORKS.
TELEPHONE	SBC JIM TOBEN 154 NORTH BROADWAY, ROOM 210 WICHITA, KANSAS 67202 PHONE: (316) 268-2245	► COORDINATE CONSTRUCTION ACTIVITIES WITH TELEPHONE COMPANY TO ENSURE INSTALLATION OF UNDERGROUND LINES ARE COMPLETED PRIOR TO PAVING OR CURB PLACEMENT ► PROVIDE AND INSTALL 2-4" SCHEDULE 40 PVC CONDUITS WITH PULL ROPES, INCLUDING ALL TRENCHING AND BACKFILLING, FROM THE RISER POLE UP TO THE BUILDING ► PROVIDE AND INSTALL PULL BOXES AS PER TELEPHONE COMPANY REQUIREMENTS	► TELEPHONE COMPANY WILL PROVIDE AND INSTALL ALL TELEPHONE CABLES FROM THE POINT OF CONNECTION UP TO THE BUILDING ► PRESENT RESPONSIBLE PARTIES ► ANY RELOCATION OF EXISTING WILL BE DONE BY SBC.
ELECTRIC	WESTAR ENERGY SHANE PRICE 201 N. MARKET ST WICHITA, KANSAS 67202 PHONE: (316) 261-6824	► COORDINATE CONSTRUCTION ACTIVITIES WITH ELECTRIC COMPANY TO ENSURE INSTALLATION OF UNDERGROUND LINES ARE COMPLETED PRIOR TO PAVING OR CURB PLACEMENT ► PROVIDE AND INSTALL 2-4" SCHEDULE 40 PVC CONDUITS WITH PULL ROPES, INCLUDING TRENCHING AND BACKFILLING, FOR THE UNDERGROUND PORTIONS OF THE PRIMARY FROM THE RISER POLE UP TO THE TRANSFORMER. SCHEDULE 80 PVC CONDUITS SHALL BE USED ON THE RISER POLE AND RIGID METAL, LONG RADIUS, ELBOWS SHALL BE USED WHERE THE UNDERGROUND PORTION MEETS THE RISER POLE AND TRANSFORMER ► CONSTRUCT TRANSFORMER PAD AS PER THE ELECTRIC COMPANY'S SPECIFICATIONS ► PROVIDE AND INSTALL ALL SECONDARY SERVICE AND MATERIALS	► ELECTRIC COMPANY WILL PROVIDE AND INSTALL ALL MATERIALS NEEDED TO ESTABLISH PRIMARY OVERHEAD SERVICE FROM POINT OF CONNECTION AT THE EXISTING LINE UP TO THE TRANSFORMER ► ELECTRIC COMPANY WILL PROVIDE AND INSTALL PRIMARY CABLE FOR ALL UNDERGROUND LINES UP TO THE TRANSFORMER ► PRESENT RESPONSIBLE PARTIES ► ANY RELOCATION OF EXISTING LINES OR POLES WILL BE DONE BY WICHITA ELECTRIC SYSTEM.
SANITARY SEWER	CITY OF WICHITA JULIANNE KALLMAN 455 N. MAIN ST, 7th Floor WICHITA, KANSAS 67202 PHONE: (316) 268-4236 FAX: (316) 268-4514	► PROVIDE AND INSTALL SANITARY SEWER LINES AND ASSOCIATED APPURTENANCES PER THE PLANS AND SPECIFICATION ► ALL PUBLIC AND PRIVATE SANITARY SEWER LINES SHALL BE PVC AND RATED SDR 26 ► COORDINATE REQUIRED INSPECTION SERVICES WITH ENGINEER OF RECORD AND CITY OF WICHITA DEPARTMENT OF PUBLIC WORKS. SEE UTILITY PLAN FOR REQUIREMENTS.	
WATER	CITY OF WICHITA JULIANNE KALLMAN 455 N. MAIN ST, 7th Floor WICHITA, KANSAS 67202 PHONE: (316) 268-4236 FAX: (316) 268-4514	► PROVIDE AND INSTALL ALL WATER MAINS AND ASSOCIATED APPURTENANCES PER THE PLANS AND SPECIFICATION ► ALL PUBLIC AND PRIVATE WATER MAINS SHALL BE C-900 PVC, DR18 CLASS 200 ► ALL PORTIONS OF THE FIRE PROTECTION WATER SYSTEM SHALL BE INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR ► ALL PORTIONS OF OTHER NON FIRE PROTECTION RELATED LINES MAY BE INSTALLED BY THE PLUMBING CONTRACTOR ► COORDINATE REQUIRED INSPECTION SERVICES WITH ENGINEER OF RECORD AND CITY OF WICHITA DEPARTMENT OF PUBLIC WORKS. SEE UTILITY PLAN FOR REQUIREMENTS.	► DOMESTIC TAP FROM THE POINT OF CONNECTION AT THE EXISTING LINE UP TO AND INCLUDING SETTING OF METER AT THE PROPERTY LINE WILL BE BY THE WATER COMPANY ► PRESENT RESPONSIBLE PARTIES ► THE CITY OF WICHITA IS TO BE REIMBURSED FOR THE COST OF THE CONTRACTOR TAP AND VALVE TO EXISTING WATER LINE ► THE CITY OF WICHITA IS ONLY RESPONSIBLE FOR INSTALLATION OF DOMESTIC WATER SERVICES FROM THE EXISTING WATER MAIN TO THE WATER METER ON SIZES 2" AND SMALLER ► THE CITY OF WICHITA IS NOT RESPONSIBLE FOR RELOCATION OF ANY EXISTING WATER UTILITIES.
STORM SEWER	CITY OF WICHITA SCOTT LINDEBAK, P.E. 455 N. MAIN ST. WICHITA, KANSAS 67202 PHONE: (316) 268-4908 FAX: (316) 268-4514	► PROVIDE AND INSTALL ALL STORM SEWER LINES AND ASSOCIATED APPURTENANCES PER THE PLANS AND SPECIFICATION ► REFER TO GRADING PLAN FOR INFORMATION ON ALLOWABLE STORM SEWER MATERIALS	



SITE LOCATION MAP
N.T.S.

18257
KANSAS

BENCHMARK

BM#1
CHISELED CROSS ON SIDEWALK, 314' EAST AND 58' NORTH OF SOUTHWEST CORNER, SW1/4, SEC. 32, TWP. 26-S, R-1-W
ELEVATION. = 1351.07

BM#2
CHISELED CROSS ON TOP OF CURB, 959' EAST AND 4.4' NORTH OF SOUTHWEST CORNER, SW1/4, SEC. 32, TWP. 26-S, R-1-W
ELEVATION. = 1352.18

SHEET INDEX

PROJECT DESIGN TEAM

CIVIL
KIMLEY-HORN AND ASSOCIATES, INC.
KEVIN GASKEY, P.E.
12750 MERIT DR., SUITE 1000
DALLAS, TEXAS 75251
PHONE: (972) 770-1300
FAX: (972) 239-3820

SURVEY
BAUGHMAN COMPANY, P.A.
MICHAEL G. CONREY, LS
315 ELLIS ST.
WICHITA, KANSAS 67211
PHONE: (316) 262-7271
FAX: (316) 262-0149

GEOTECHNICAL ENGINEER
TERRACON CONSULTANTS, INC.
KENT J. SCHWIEGER
1815 S. EISENHOWER
WICHITA, KANSAS 67209
PHONE: (316) 262-0171
FAX: (316) 262-6997

ENVIRONMENTAL
TERRACON CONSULTANTS, INC.
JAMES C. BRUGGEMAN, P.G.
1815 S. EISENHOWER
WICHITA, KANSAS 67209
PHONE: (316) 262-0171
FAX: (316) 262-6997

LANDSCAPE ARCHITECT
KIMLEY-HORN AND ASSOCIATES, INC.
MARK HATCHEL, RLA, ASLA
2201 WEST ROYAL LANE, SUITE 275
IRVING, TEXAS 75063
PHONE: (214) 420-5600
FAX: (214) 420-5680

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA &
BY WICHITA WATER & SEWER DEPARTMENT

Public Works Paul Gunzelman
11-26-13

NOTE TO CONTRACTORS

Public Property:

Inspection and testing for the waterline is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Professional Engineer Licensed in the state of Kansas. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection nor shall any work be commenced without written authorization by the City Engineer. All Construction and Materials shall comply with the City or Wichita Specifications and Standards (on file and available in the City Engineer's Office).

ALERT TO CONTRACTOR

1. THE SITEWORK FOR THE WAL-MART PORTION OF THIS PROJECT SHALL MEET OR EXCEED THE "SITE SPECIFIC SPECIFICATIONS".
2. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO CONTRACT COMPLETION AND THE FINAL CONNECTION OF SERVICES.

MEDIAN AGE: 33.9

LIST OF CONTACTS

CITY ENGINEERING
CITY OF WICHITA
GARY JANZEN, P.E.
455 N. MAIN ST.
WICHITA, KANSAS 67202
PHONE: (316) 268-4501
FAX: (316) 268-4114

BUILDING OFFICIAL
CITY OF WICHITA
PAUL HAYS
455 N. MAIN ST.
WICHITA, KANSAS 67202
PHONE: (316) 268-4298
FAX: (316) 268-4663

CITY PLANNING/ZONING
CITY OF WICHITA
JOHN SCHLEGEL
455 N. MAIN ST.
WICHITA, KANSAS 67202
PHONE: (316) 268-4421
FAX: (316) 268-4390

WATER
CITY OF WICHITA
JULIANNE KALLMAN
455 N. MAIN ST, 7th Floor
WICHITA, KANSAS 67202
PHONE: (316) 268-4236
FAX: (316) 268-4514

FIRE CHIEF
CITY OF WICHITA
RON BLACKWELL
455 N. MAIN ST.
WICHITA, KANSAS 67202
PHONE: (316) 268-4510
FAX: (316) 268-7702

STORMWATER
CITY OF WICHITA
SCOTT LINDEBAK, P.E.
455 N. MAIN ST
WICHITA, KANSAS 67202
PHONE: (316) 268-4908
FAX: (316) 268-4514

CABLE
COX COMMUNICATIONS
725 E DOUGLAS AVE
WICHITA, KANSAS 67202
PHONE: (316) 280-7698

TELEPHONE
SBC
JIM TOBEN
154 NORTH BROADWAY, ROOM 210
WICHITA, KANSAS 67202
PHONE: (316) 268-2245

SANITARY SEWER
CITY OF WICHITA
JULIANNE KALLMAN
455 N. MAIN ST, 7th Floor
WICHITA, KANSAS 67202
PHONE: (316) 268-4236
FAX: (316) 268-4514

TRANSPORTATION
CITY OF WICHITA
PAUL GUNZELMAN
455 N. MAIN ST.
WICHITA, KANSAS 67202
PHONE: (316) 268-4393
FAX: (316) 268-7761

KDOT
KDOT
BOB COOK
500 N. HENDRICKS
HUTCHINSON, KANSAS 67504
PHONE: (620) 663-3361
FAX: (620) 663-1804

ELECTRIC
WESTAR ENERGY
SHANE PRICE
201 N. MARKET ST.
WICHITA, KANSAS 67202
PHONE: (316) 261-6824

PUBLIC WORKS
CITY OF WICHITA
ALAN KING
455 N. MAIN ST.
WICHITA, KANSAS 67202
PHONE: (316) 268-4422
FAX: (316) 268-7761

NATURAL GAS
KANSAS GAS SERVICE
JIM COE
1021 EAST 28TH STREET NORTH
WICHITA, KANSAS 67219
PHONE: (316) 832-3101
FAX: (785) 575-8547

LOCATION SERVICES
KANSAS ONE-CALL - KANSAS 811
8100 E 22ND ST. N, BLDG 2300
WICHITA, KANSAS 67226
PHONE: 1-800-344-7233

ENGINEER:

KIMLEY-HORN AND ASSOCIATES, INC.
12750 MERIT DRIVE, SUITE 1000
DALLAS, TEXAS 75251
PHONE: (972) 770-1300
FAX: (972) 239-3820

DEVELOPER :

SAM'S REAL ESTATE BUSINESS TRUST
2001 S.E. 10th STREET, MAIL STOP 5570
BENTONVILLE, AR 72716-0550
PHONE: (479) 204-1195

COVER SHEET

SITE SPECIFIC NOTES:

1. THERE IS AN 8 FOOT CONSTRUCTION FENCE ON THE NORTH AND EAST SIDES OF THE BERMS. THERE WILL BE NO ACCESS OR CONSTRUCTION ON THE HOME OWNER'S ASSOCIATION (HOA) RESERVE OTHER THAN FOR STORM DRAINAGE CONNECTION.
2. HOA AND HOMEOWNERS OPPOSED THIS PROJECT..
3. THERE ARE TWO WELLS ON SITE THAT NEED TO BE PLUGGED. THE CLOSURE OF THESE TWO WELLS WILL REQUIRE A NOTIFICATION TO THE CITY OF WICHITA. CEC WILL SUBMIT LETTER TO CITY WHEN NOTIFIED BY THE SELECTED CONTRACTOR.
4. THERE IS ASBESTOS IN THE HOMES AND SOILS THAT NEED REMEDIATION.
5. THERE IS LEAD BASED PAINT DUST IN THE HOMES ON SITE.
6. IN THE PURCHASE AGREEMENT, $16,000 IS TO BE USED FOR REMEDIATION ON THE RINK PARCEL AND $34,000 FOR REMEDIATION ON THE TRUST PARCEL. THESE ARE SEPARATE SELLERS, SO IF CONTAMINATION WAS FOUND ON ONE PARCEL, THE CONTRACTOR CANNOT USE MONEY FROM THE OTHER PARCEL FOR REMEDIATION. THE CONTRACTOR NEEDS TO KEEP A SEPARATE ACCOUNTING OF REMEDIATION COSTS FOR EACH PARCEL.
7. STAKE THE 0.73 ACRE WETLAND AREA UPON ARRIVAL AT SITE.
8. A LIMITED SITE INVESTIGATION WAS PERFORMED BY TERRACON TO INVESTIGATE THE UNDERGROUND STORAGE TANK ON THE SITE. IN TERRACON'S OPINION THE AVAILABLE DATA DID NOT DEMONSTRATE SEVERE IMPACTS TO SITE SOIL OR GROUNDWATER AT THE LOCATIONS SAMPLED BY THE VARIOUS CONTAMINANTS ASSESSED. THE FULL FINDINGS CAN BE FOUND IN THE TERRACON LIMITED SITE INVESTIGATION REPORT DATED APRIL 26, 2013.

GENERAL NOTES:

1. CONTRACTOR WILL BE REQUIRED TO PROVIDE NOTICE TO UTILITY COMPANIES A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL	687-2470

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

COX COMMUNICATIONS	262-4270
KANSAS GAS SERVICE COMPANY	383-8600
KANSAS GAS & ELECTRIC COMPANY	383-8650
PEOPLES GAS COMPANY	942-7600
SOUTHWESTERN BELL TELEPHONE COMPANY	571-2611
CITY OF WICHITA WATER DEPARTMENT	268-4908
CITY OF WICHITA SEWER DEPARTMENT	268-4071

2. ALL WATER MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF WICHITA, KANSAS STANDARD SPECIFICATIONS FOR WATER MAIN INSTALLATIONS NO. 14533.
3. OPENING AND CLOSING OF WATER VALVES SHALL BE DONE SLOWLY TO PREVENT DAMAGE TO THE WATER DISTRIBUTION SYSTEM FROM WATER HAMMER. ALL VALVES CLOSED BY THE CONTRACTOR MUST BE REOPENED AS NEW CONSTRUCTION PERMITS. PROJECT INSPECTOR MUST ASCERTAIN THAT ANY VALVE CLOSED BY THE CONTRACTOR IS REOPENED. CONTRACTOR WILL BE PERMITTED TO OPERATE WATER VALVES ONLY WHEN THE PROJECT INSPECTOR ASSIGNED TO THE PROJECT IS PRESENT.
4. ALL AREAS DISTURBED BY CONSTRUCTION OPERATIONS SHALL BE SEEDED WITH RYE GRASS AT A RATE OF 6 LBS. PER 1000 SQ. FEET OR AS PER CITY SPECS. CONTRACTOR TO PREPARE GROUND TO CITY SPECIFICATIONS.
5. UTILITY SERVICE LINES, POLES, VALVE BOXES, METERS ET CETERA ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN AND SHALL BE FIELD VERIFIED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY THAT DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
6. THE WATER MAIN SHALL BE CONSTRUCTED ON THE ALIGNMENT SHOWN BY THE PLANS. TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY THAT ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS THAT ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.
7. CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.
8. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION THAT IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS, WHICH IN THE OPINION OF THE ENGINEER WILL LEAVE AN UNSIGHTLY APPEARANCE, WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS. OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
9. DURING THE CONSTRUCTION OF THESE IMPROVEMENTS, ANY INTERPRETATION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR WICHITA, KANSAS, AND ANY MATTER WHICH REQUIRES THE APPROVAL OF THE OWNER, MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS AND TRANSPORTATION OR HIS DESIGNEE BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THESE DECISIONS MIGHT BE WHICH ARE MADE DURING THE BIDDING PHASE WILL HAVE NO BEARING ON THE DECISION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO DETERMINE EXISTING CONDITIONS.
11. ALL EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME THE DRAWINGS WERE PREPARED AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ACCURATE. THE LOCATIONS SHOWN ARE FOR BIDDING PURPOSES ONLY. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE HE COMMENCES ANY WORK IN THE VICINITY. FURTHERMORE, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE OWNER OR CEC WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED BY THE CONTRACTOR AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 72 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION. A LIST OF THE UTILITY COMPANIES WHICH THE CONTRACTOR MUST CALL BEFORE COMMENCING WORK IS PROVIDED ON THE COVER SHEET OF THESE CONSTRUCTION PLANS. THIS LIST SERVES AS A GUIDE ONLY AND IS NOT INTENDED TO LIMIT THE UTILITY COMPANIES WHICH THE CONTRACTOR MAY WISH TO NOTIFY.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS, 3-WAY CONTRACTS, AND BONDS PRIOR TO CONSTRUCTION.
14. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, AND EROSION CONTROL PLANS AND INSPECTION REPORTS (SWPPP).
15. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER & CEC BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE OWNER AND CEC WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
16. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO WALMART AND THE CEC OF RECORD DIRECTLY FROM THE TESTING AGENCY.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING TO THE CEC AND TO CITY A CERTIFIED RECORD SURVEY SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF KANSAS DEPICTING THE ACTUAL FIELD LOCATION OF ALL CONSTRUCTED IMPROVEMENTS THAT ARE REQUIRED BY THE JURISDICTIONAL AGENCIES FOR THE CERTIFICATION PROCESS. ALL SURVEY COSTS WILL BE THE CONTRACTORS RESPONSIBILITY.
18. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICES.
19. CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUMS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS.
20. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER AND CEC SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
21. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, SLOPE PAVING, SIDEWALKS, EXIT PORCHES, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
22. ALL DIMENSIONS GIVEN ARE TO FACE OF CURB AND TO PIPE CENTERLINES, UNLESS OTHERWISE NOTED ON PLANS.
23. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELOCATIONS AND INSTALLATIONS OF FRANCHISE UTILITIES NECESSARY FOR ON AND OFF SITE CONSTRUCTION.
24. ON-SITE AND PERIMETER TRUCK ROUTE AND OTHER DIRECTIONAL SIGNAGE SHALL BE LOCATED OUT OF THE PEDESTRIAN, AUTOMOBILE, AND TRUCK ROUTES AND SHALL BE LOCATED BETWEEN THREE TO FIVE FEET BEHIND THE NEAREST BACK OF CURB UNLESS INDICATED OTHERWISE ON PLANS. SIGN HEIGHT, LOCATION, AND STRUCTURE SHALL BE SUCH THAT THE SIGNS POSE NO THREAT TO PUBLIC SAFETY.
25. ON-SITE AND PERIMETER TRUCK ROUTE AND OTHER DIRECTIONAL SIGNS SHALL BE ORIENTED SO THEY ARE READILY VISIBLE TO THE ONCOMING TRAFFIC FOR WHICH THEY ARE INTENDED. FIELD ADJUSTMENTS OF LOCATION AND ORIENTATION OF THE SIGNS ARE TO BE MADE TO ACCOMPLISH THIS.
26. CONTRACTOR SHALL REPLACE ANY FENCING, CURBING, ETC. THAT IS DESTROYED OR DAMAGED DUE TO THE CONSTRUCTION ACTIVITIES.
27. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL DEVICES AND PLANS FOR ANY STREET WORK.
28. ALL CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS ONTO DEVELOPED OR UNDEVELOPED AREAS WILL BE ALLOWED. ANY DAMAGE RESULTING THEREFROM SHALL BE CONTRACTOR'S RESPONSIBILITY TO REPAIR.
29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A TRENCH SAFETY PLAN TO THE CITY OF WICHITA ENGINEERING DEPARTMENT AT THE TIME OF THE PRECONSTRUCTION MEETING, OR PRIOR TO BEGINNING CONSTRUCTION OF THESE IMPROVEMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY STANDARDS, KANSAS STATE LAW, AND O.S.H.A. STANDARDS FOR ALL EXCAVATION IN EXCESS OF FIVE FEET IN DEPTH. NO OPEN TRENCHES WILL BE ALLOWED OVERNIGHT WITHOUT THE PRIOR SPECIFIC WRITTEN APPROVAL OF THE CITY OF WICHITA PUBLIC WORKS DEPARTMENT. ONSITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
30. LIGHT POLES AND SIGNS SHALL NOT BE PLACED IN ADA ACCESSIBLE ROUTES, ACCESSIBLE ACCESS AISLES, OR REINFORCED ZONES BEHIND RETAINING WALLS.
31. TO THE EXTENT IT IS PRACTICAL, CONSTRUCTION STAGING, WORKER PARKING, AND ANY OTHER POTENTIALLY NOISY OR OFFENSIVE CONSTRUCTION ACTIVITY SHOULD BE LOCATED AS FAR FROM THE RESIDENTIAL NEIGHBORS AS POSSIBLE.
32. CONTRACTOR SHALL KEEP THE CONSTRUCTION SITE SECURE FROM TRESPASSERS AT ALL TIMES.
33. CONTRACTOR SHALL CONTACT CITY BUILDING OFFICIAL TO LEARN OF ANY UNUSUAL CONSTRUCTION SEQUENCING REQUIREMENTS THAT THE CITY MAY REQUIRE. THE CONTRACTOR IS CAUTIONED THAT THIS AND PERHAPS OTHER SUCH REQUIREMENTS MAY EXIST AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE AND COMPLY WITH THEM.
34. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY FENCE OR WALL PERMITS FROM THE CITY.

PAVING, GRADING AND DRAINAGE NOTES:

1. ALL PAVING, CONSTRUCTION, MATERIALS, AND WORKMANSHIP WITHIN CITY'S RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH CITY SPECIFICATIONS AND STANDARDS. (LATEST EDITION)
2. ALL AREAS IN EXISTING RIGHTS-OF-WAY DISTURBED BY SITE CONSTRUCTION SHALL BE REGRADED AND LANDSCAPED OR PAVED, (WHATEVER WAS THERE BEFORE DISTURBANCE). ALL DISTURBED AREAS SHALL BE REPAIRED TO THE SAME CONDITION OR BETTER THAN BEFORE AREA WAS DISTURBED.
3. TRAFFIC CONTROL ON ALL CITY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
4. THE CONTRACTOR SHALL GRADE THE SITE TO THE ELEVATIONS INDICATED AND SHALL REGRADE ANY WASHOUTS WHERE THEY OCCUR AFTER EVERY RAINFALL EVENT UNTIL SOIL IS STABILIZED.
5. ALL AREAS INDICATED AS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTIONS AS INDICATED ON THE DRAWINGS AND THE PROJECT SPECIFICATIONS.
6. WHERE EXISTING PAVEMENT IS INDICATED TO BE REMOVED AND REPLACED, THE CONTRACTOR SHALL SAW CUT TO FULL DEPTH OF EXISTING PAVEMENT. CONTRACTOR SHALL PREPARE A SMOOTH SOUND VETRICAL FACE AND MATCH THE EXISTING PAVEMENT ELEVATION UNLESS OTHERWISE NOTED. CONTRACTOR SHALL INSTALL LONGITUDINAL BUTT JOINTS WHEN CONNECTING TO EXISTING CONCRETE PAVEMENT.
7. THE CONTRACTOR SHALL ENSURE THAT ALL PLANTING AREAS ARE NOT OVERLY COMPACTED AND DO NOT CONTAIN LIMEROCK. THE CONTRACTOR SHALL EXCAVATE AND REMOVE ALL UNDESIRABLE MATERIAL FROM ALL AREAS ON THE SITE TO BE PLANTED.
8. ALL DRAINAGE STRUCTURES SHALL BE DESILTED AS REQUIRED DURING AND AT THE END OF CONSTRUCTION TO PROVIDE POSITIVE DRAINAGE FLOWS.
9. STRIP TOPSOIL AND ORGANIC MATTER AND PAVING MATERIAL FROM ALL AREAS UNDER BUILDING. TOPSOIL MAY BE STOCKPILED ON SITE FOR REPLACEMENT IN GREEN AREAS.
10. FIELD DENSITY TESTS SHALL BE TAKEN AT A FREQUENCY AS REQUIRED IN THE PROJECT SPECIFICATIONS.
11. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE HANDICAPPED ROUTES (PER A.D.A.) EXIST TO AND FROM EVERY ACCESSIBLE DOOR. IN NO CASE SHALL HANDICAP RAMP SLOPES EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPES EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPES EXCEED 5.0 PERCENT. CONTRACTOR SHALL CONTACT ARCHITECT AND CEC PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR A.D.A. AND COMPLIANCE ISSUES.
12. CONTRACTOR ADJUSTMENT TO SPOT GRADES TO MAINTAIN POSITIVE DRAINAGE IS ALLOWED, ONLY WITH THE PRIOR APPROVAL OF THE CEC. CONTRACTOR SHALL CONTACT THE CEC PRIOR TO PAVING IF ANY AREAS OF POOR DRAINAGE ARE ENCOUNTERED.
13. SPOT ELEVATIONS SHOWN ARE TO TOP OF PAVING SURFACE OR FINISHED EARTH GRADE, UNLESS NOTED OTHERWISE. WHERE APPLICABLE ADD 0.50' TO SPOT GRADES SHOWN FOR TOP OF CURB ELEVATIONS.
14. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE AREAS SHALL THEN BE STABILIZED AS SPECIFIED IN THE PLANS AND MAINTAINED UNTIL SOIL IS STABILIZED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
16. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO CONTROL TURBIDITY, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF BMPS AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY EXISTS DUE TO THE PROPOSED WORK. BMPS MUST BE MAINTAINED IN EFFECTIVE CONDITION AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THEREAFTER, THE CONTRACTOR MUST REMOVE THE TEMPORARY BARRIERS. AT NO TIME SHALL THERE BE ANY OFF-SITE DISCHARGE WHICH VIOLATES LOCAL, STATE, OR FEDERAL WATER QUALITY STANDARDS.
17. THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE STORM WATER PERMIT COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS, IN GOOD CONDITION, AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY JURISDICTIONAL AGENCIES.
18. IF ANY EXISTING STRUCTURES FACILITIES, OR IMPROVEMENTS, (PUBLIC OR PRIVATE) TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE FACILITY OR IMPROVEMENT AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
19. REFERENCE THE SWPPP INCLUDED IN THIS PLAN SET AND IN THE PROJECT SPECIFICATIONS FOR THIS PROJECT.
20. CONTRACTOR SHALL REFERENCE ARCHITECT AND ELECTRICAL PLANS AND PROVIDE CONDUIT NEEDED FOR LOT LIGHTING AND SIGNAGE, PRIOR TO SITE PAVING.
21. PAVING LINE AND GRADE SHALL "FLUSH-OUT" ALONG ALL CONNECTIONS TO EXISTING PAVING.
22. ALL BENDS LESS THAN 42" DIAMETER MUST BE FACTORY MANUFACTURED BENDS.
23. ALL FILL SHALL BE COMPACTED TO THE FOLLOWING REQUIREMENTS AT 9-INCH (MAXIMUM) THICK LOOSE LIFTS:
    - 23.1. MOISTURE CONTENT COHESIVE SOILS WITH PI OF 35 AND HIGHER SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 3 PERCENTAGE POINTS ABOVE THE OPTIMUM MOISTURE CONTENT VALUE AS DETERMINED BY THE STANDARD PROCTOR TEST AT THE TIME OF PLACEMENT AND COMPACTION.
    - 23.2. MOISTURE CONTENT COHESIVE SOILS WITH PI OF 25 TO 34 SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 2 PERCENTAGE POINTS ABOVE THE OPTIMUM MOISTURE CONTENT VALUE AS DETERMINED BY THE STANDARD PROCTOR TEST AT THE TIME OF PLACEMENT AND COMPACTION.
    - 23.3. MOISTURE CONTENT COHESIVE SOILS WITH PI OF 15 TO 24 SHALL BE COMPACTED TO A DRY DENSITY ABOVE THE OPTIMUM MOISTURE CONTENT VALUE AS DETERMINED BY THE STANDARD PROCTOR TEST AT THE TIME OF PLACEMENT AND COMPACTION.
    - 23.4. MOISTURE CONTENT COHESIVE SOILS WITH PI LESS THAN 15 SHALL BE COMPACTED TO A DRY DENSITY NO DRIER THAN 2 PERCENTAGE POINTS BELOW THE OPTIMUM MOISTURE CONTENT VALUE AS DETERMINED BY THE STANDARD PROCTOR TEST AT THE TIME OF PLACEMENT AND COMPACTION.
    - 23.5. MOISTURE CONTENT GRANULAR MATERIAL SHALL BE COMPACTED TO WORKABLE MOISTURE LEVELS.
24. PAVING CONTRACTOR IS RESPONSIBLE FOR ALL LAY DOWN CURBS AT INTERSECTIONS WHERE BARRIER FREE RAMPS ARE TO BE CONSTRUCTED.
25. REFERENCE DETAIL SHEETS FOR PAVEMENT JOINT SPACING AND REQUIREMENTS.
26. ALL MACHINE PLACED CONCRETE SHALL BE MINIMUM 3500 PSI CONCRETE AND ALL HAND PLACED CONCRETE SHALL BE MINIMUM 4000 PSI CONCRETE.
27. PRIVATE STORM PIPE MATERIAL SHALL BE AS FOLLOWS FOR THOSE PORTIONS OF THE MAIN LINE AND/OR LATERALS THAT ARE OUTSIDE A PUBLIC EASEMENT, UNLESS OTHERWISE NOTED.
    - A. RCP, CLASS III
    - B. POLYVINYL CHLORIDE (PVC) PIPE PER ASTM D 3034, RATED SDR 35 OR PI SIZES EQUAL TO OR SMALLER THAN 15 INCHES.
    - C. HIGH DENSITY POLYETHYLENE PIPE (HDPE) SMOOTH INTERIOR PER AASHTO DESIGNATION M252 AND M294 TYPE S OR ASTM F 2306.

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WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

No.	Date	Revisions	App.

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Dallas, Texas 75251
Tel. No.(972) 770-1300
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LICENSED
16257
KANSAS
PROFESSIONAL ENGINEER

STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

Sam's

GENERAL NOTES

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-02

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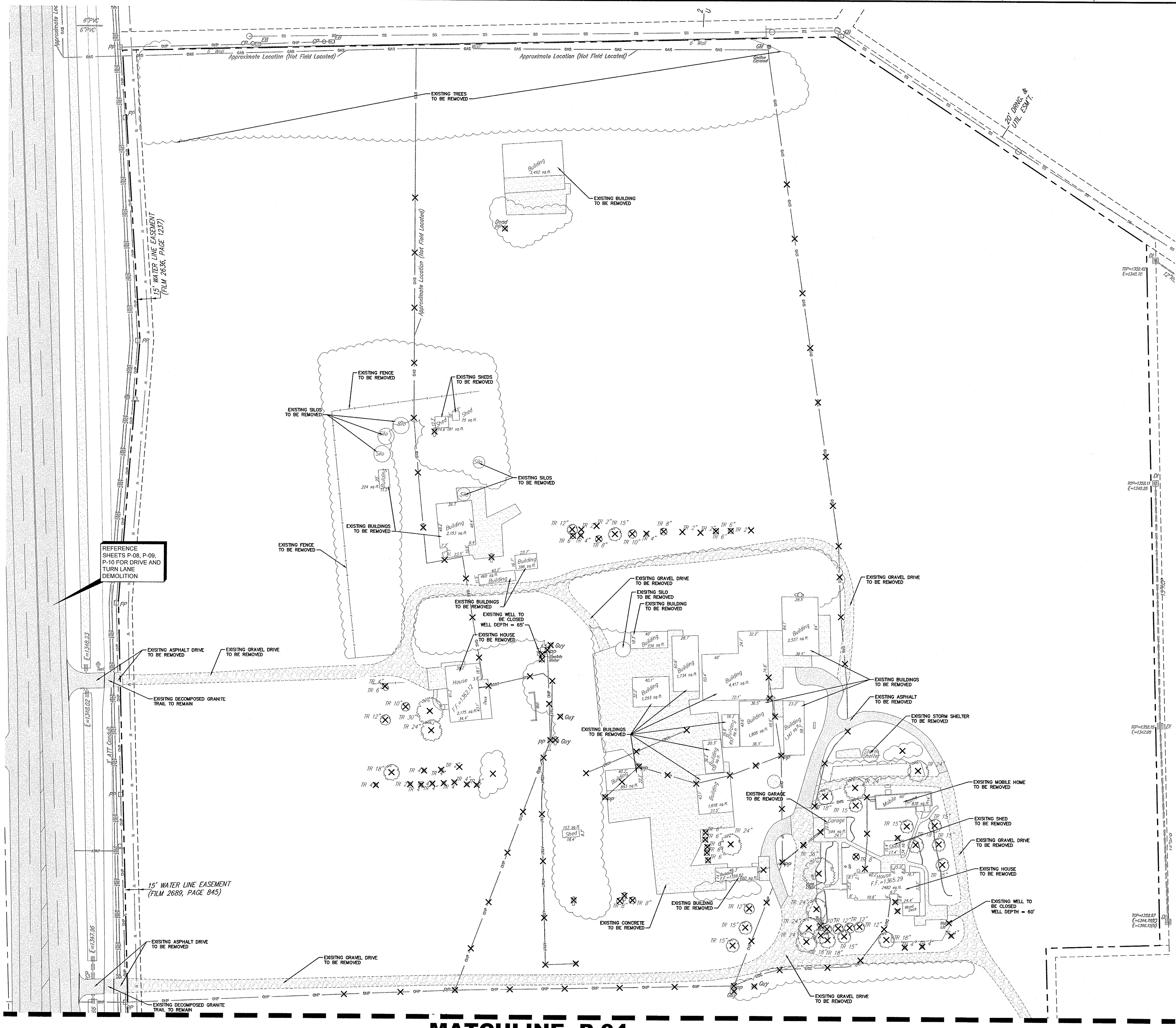

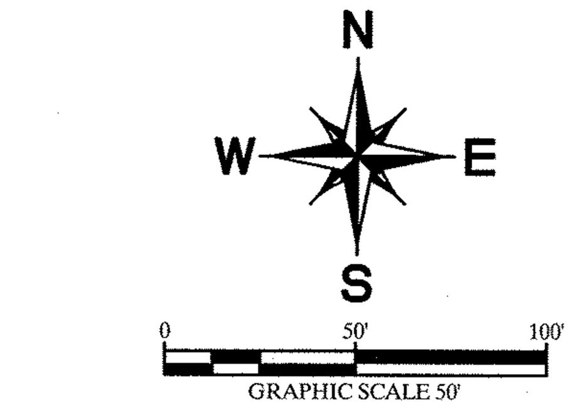

LINE TYPE LEGEND

— — —	BOUNDARY LINE
— — —	EASEMENT LINE
—— W ——	WATER LINE
—— SS ——	SANITARY SEWER LINE
= = =	STORM SEWER LINE
-x-x-x-	FENCE

LEGEND

☐	BOX OR PEDESTAL	E	ELECTRIC OR POWER
○	HANDHOLE	G	NATURAL GAS
◯	MANHOLE	S	SAN. SEWER OR WASTEWATER
⊘	POLE	D	STORM SEWER
⊘	UTILITY POLE	T	TELEPHONE
-○-	FIRE HYDRANT	W	WATER
⋈	WATER VALVE	W	WATER BOX
○	TREE		

LEGEND

EXISTING STORM RCP TO BE REMOVED

EXISTING WATER LINE TO BE REMOVED

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BENCHMARKS

BM#1
CHISELED CROSS ON SIDEWALK, 314' EAST AND 58' NORTH OF SOUTHWEST CORNER, SW1/4, SEC. 32, TWP. 26-S, R-1-W
ELEVATION. = 1351.07

BM#2
CHISELED CROSS ON TOP OF CURB, 959' EAST AND 4.4' NORTH OF SOUTHWEST CORNER, SW1/4, SEC. 32, TWP. 26-S, R-1-W
ELEVATION. = 1352.18

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No.	Date	Revisions	App.

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Fax No.(972) 239-3820

KEVIN S. GASKEY LICENSED 18257 KANSAS PROFESSIONAL ENGINEER

STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

Sam's Club

EXISTING CONDITION DEMOLITION PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-03

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IMAGES
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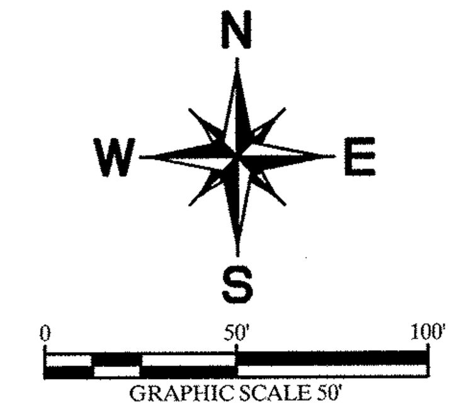

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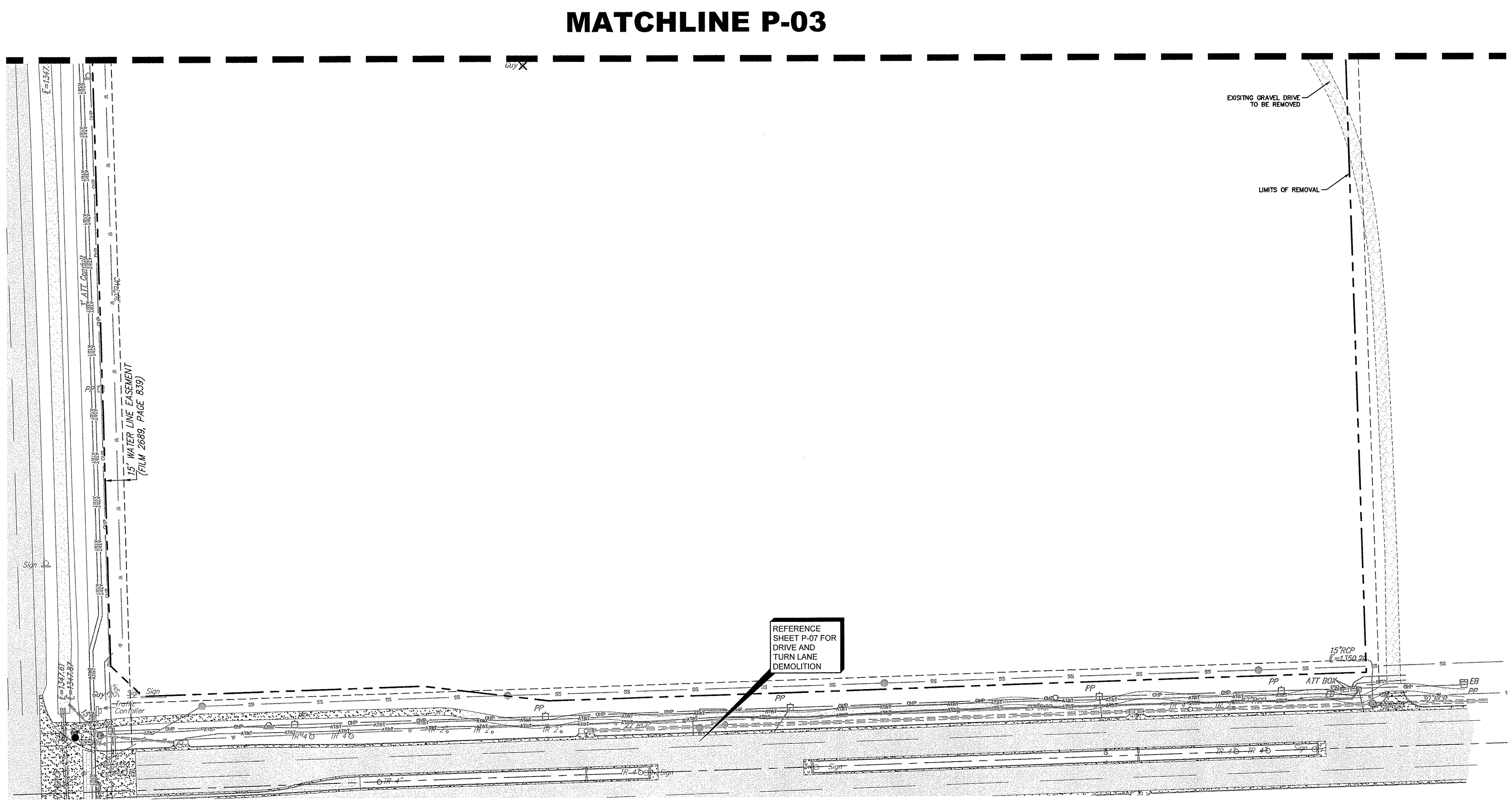

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LEGEND

=X==X==X=	EXISTING STORM RCP TO BE REMOVED
—X—W—X—W—X—	EXISTING WATER LINE TO BE REMOVED

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WICHITA, KANSAS 67205

EXISTING CONDITION DEMOLITION PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-04

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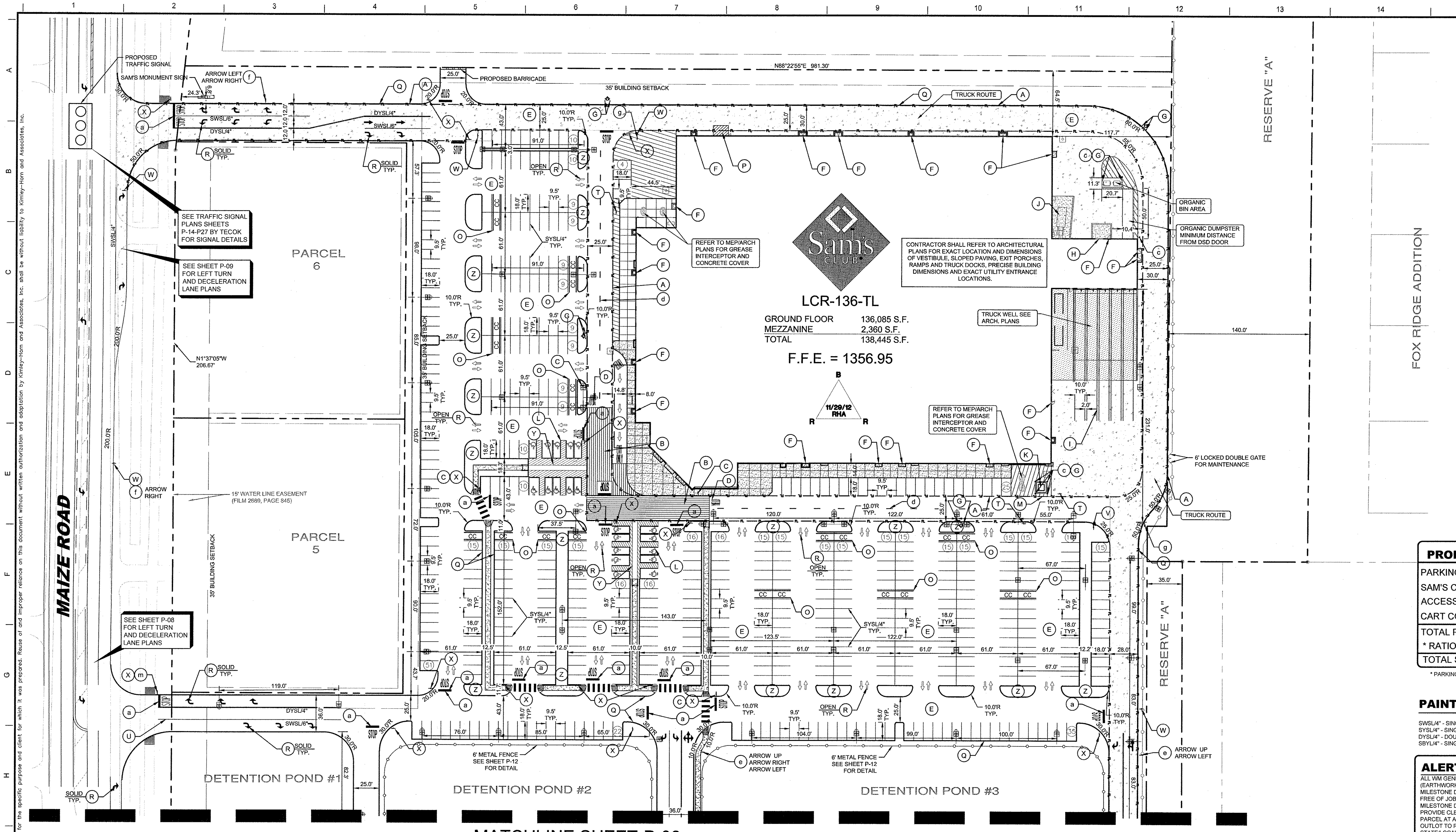

LEGEND

	PROPERTY LINE
	BUILDING SETBACK LINE
— FL —	FIRE LANE
	SIDEWALK
	TYPE "B" INTEGRAL CONCRETE CURB
CC | CC	CART CORRAL
(5)	PARKING SPACES SYSL / 4"
	STANDARD DUTY ASPHALT PAVEMENT
	HEAVY DUTY ASPHALT PAVEMENT
	ARCHITECTURAL APRON SEE ARCH. PLANS

PROPOSED SITE ANALYSIS

PARKING	543 SPACES
SAM'S CLUB	138,445 S.F.
ACCESSIBLE	20 SPACES
CART CORRALS*	11 CORRALS /22 SPACES
TOTAL PARKING	563 SPACES
* RATIO	4.07/1,000 S.F.
TOTAL SAM'S LAND AREA	16.73 AC.

* PARKING RATIO DOES NOT INCLUDE CART CORRAL SPACES.

PAINT STRIPING LEGEND

SWSL/4" - SINGLE WHITE SOLID LINE / 4" WIDE
SYSL/4" - SINGLE YELLOW SOLID LINE / 4" WIDE EACH
DYSL/4" - DOUBLE YELLOW SOLID LINE / 4" WIDE EACH
SBYL/4" - SINGLE BROKEN YELLOW LINE / 4" WIDE

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MATCHLINE SHEET P-06

SITE NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, SLOPE PAVING, SIDEWALKS, EXIT PORCHES, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
3. ALL DISTURBED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED. SEE 02900 SPECIFICATION.
4. ALL CURBED RADII ARE TO BE 10' AND 2' UNLESS OTHERWISE NOTED.
5. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
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8. SITE BOUNDARY, TOPOGRAPHY, UTILITY AND ROAD INFORMATION TAKEN FROM A SURVEY BY A LAND SURVEYOR.
9. TOTAL SAM'S CLUB LAND AREA IS 16.73 ± ACRES.
10. WETLANDS WERE PRESENT ON THIS SITE. USACE WETLANDS PERMIT WILL BE PROVIDED TO SUCCESSFUL BIDDER.
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12. PYLON SIGNS SHALL BE CONSTRUCTED BY OTHERS.
13. REFER TO ARCH. PLANS FOR SITE LIGHTING ELECTRICAL PLAN.
14. ALL WM GENERAL CONTRACTOR WORK TO BE COMPLETED (EARTHWORK, FINAL UTILITIES, AND FINAL GRADING) BY THE MILESTONE DATE IN PROJECT DOCUMENTS. OUTLOT AREA TO BE KEPT FREE OF JOB TRAILERS AND STORAGE AFTER THE CONTRACT MILESTONE DATE FOR THE OUTLOT. WM GENERAL CONTRACTOR TO PROVIDE CLEAR ACCESS FOR OUTLOT CONTRACTOR TO THE SPECIFIC PARCEL AT ALL TIMES AFTER MILESTONE DATE. PURCHASER OF OUTLOT TO PROVIDE PERMIT DOCUMENTS AND SWPPP REQUIRED BY STATE/LOCAL REQUIREMENTS FOR SPECIFIC OUTLOT.

BENCHMARKS

BM#1
CHISELED CROSS ON SIDEWALK, 314' EAST AND 58' NORTH OF SOUTHWEST CORNER, SW1/4, SEC. 32, TWP. 26-S, R-1-W
ELEVATION. = 1351.07

BM#2
CHISELED CROSS ON TOP OF CURB, 959' EAST AND 4.4' NORTH OF SOUTHWEST CORNER, SW1/4, SEC. 32, TWP. 26-S, R-1-W
ELEVATION. = 1352.18

SYMBOL	ATTRIBUTES
	DESCRIPTION: 2-EASA5C4F5579CBLCKD2F 12 FT POLE ON 3 FT BASE, ARRANGEMENT: BACK-BACK
	DESCRIPTION: 2-EASA5D4F5579CBLCKD2F 12 FT POLE ON 3 FT BASE, ARRANGEMENT: BACK-BACK
	DESCRIPTION: 2-EASA5F4F5579CBLCKD2F 24 FT POLE ON 3 FT BASE, ARRANGEMENT: BACK-BACK
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	DESCRIPTION: 2-EASA5H5N5579CBLCKD2F 24 FT POLE ON 3 FT BASE, ARRANGEMENT: BACK-BACK
	DESCRIPTION:1-EASA5F4L5579CBLCKD2F and 1-EASA5F4R5579CBLCKD2F 24 FT POLE ON 3 FT BASE, ARRANGEMENT: ROTATED OPTICS
	DESCRIPTION: 1-EASA5B3F5579CBLCKD2F 24 FT POLE ON 3 FT BASE, ARRANGEMENT: SINGLE
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SITE LEGEND

(A) 8" WIDE FIRE LANE STRIPING PAINTED TRAFFIC RED W/ "NO PARKING FIRE LANE" PAINTED WITH 6" HIGH WHITE LETTERING AT 25' O.C. SEE DETAIL SHEET.
(B) PEDESTRIAN CROSSWALK WITH 6" WIDE PAINTED WHITE STRIPING PARALLEL TO DIRECTION OF TRAFFIC AT 2'-0" O.C. AND (1)-8" WHITE STRIPE PERPENDICULAR ON BOTH ENDS UNLESS NOTED OTHERWISE. SEE SITE PLAN FOR DIMENSIONS.
(C) PEDESTRIAN CROSSING SIGN TYPICAL AT PEDESTRIAN CROSSWALKS AS NOTED ON PLANS.
(D) "YIELD" PAINTED WHITE ON PAVEMENT TYPICAL. SEE DETAIL SHEET.
(E) CONCRETE JOINTING AND FILLERS TO BE COMPLETED PER DETAIL (TYPICAL OF ALL EXTERIOR CONCRETE EXCLUSIVE OF ARCHITECTURAL CONCRETE).
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(H) AT GRADE OVERHEAD DOOR LOCATION. SEE ARCHITECTURAL PLANS FOR EXACT SIZE AND LOCATION FOR COORDINATION WITH CIVIL PLANS.
(I) 4" WIDE x 130' LONG YELLOW PAINTED TRUCK ALIGNMENT STRIPES TYPICAL.
(J) 25' X 44' CONCRETE COMPACTOR PAD AND 16' X 35' HEAVY DUTY PAD (ORIENT FOR TRUCK LOADING). REFER TO ARCHITECTURAL PLAN FOR EXACT LOCATION AND SLOPE.
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(L) ACCESSIBLE PARKING SPACE TYPICAL. SEE DETAIL SHEET FOR ACCESSIBLE PARKING SPACE SIZE, SIGN AND SYMBOL ("VAN"-INDICATES VAN ACCESSIBLE SPACE).
(M) PAINTED ISLAND TYPICAL UNLESS NOTED OTHERWISE. STRIPES SHALL BE PAINTED SYSL/4" AT 2'-0" O.C. PERPENDICULAR TO THE PARKING SPACE. SEE DETAIL SHEET.
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(P) 10' X 15' STRIPED AREA PAINTED SYSL/4" AT 45° @ 2'-0" O.C. AT JIB CRANE LOCATION. SEE ARCH. PLANS.
(Q) 18" CONCRETE CURB AND GUTTER TYPICAL. SEE PLAN FOR TYPE. SEE DETAIL SHEET.
(R) ARROW PAVEMENT MARKINGS TYPICAL. SEE PLAN FOR TYPE. SEE DETAIL SHEET.
(S) BUILDING SETBACK LINE PER ZONING ORDINANCE.
(T) "NO PARKING FIRE LANE" SIGN. SEE PLAN FOR LOCATION.
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(X) "STOP" SIGN. SEE DETAIL SHEET.
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(Z) INTERIOR LANDSCAPE ISLAND. SEE DETAIL SHEET.
(a) STOP BAR. SEE DETAIL SHEET.
(b) 6'x6' PAINTED STRIPED AREA CENTERED ON SIPHONIC BREAK STORM MANHOLE. 4" PAINTED SOLID TRAFFIC YELLOW STRIPES 18" O.C. @ 45°. SEE DETAIL SHEET.
(c) ISOLATION JOINT TYPICAL AT FIXED STRUCTURES (BUILDINGS, RETAINING WALLS/DOCK WALLS, DROP INLETS, MANHOLES, LIGHT POLE BASES AND BOLLARDS). SEE DETAIL SHEET.
(d) 6' LONG STRIPE WITH 18' GAPS - TYPICAL.
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(k) "TWO WAY TRAFFIC" SIGN. SEE DETAIL SHEET.
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Fax No.(972) 239-3820
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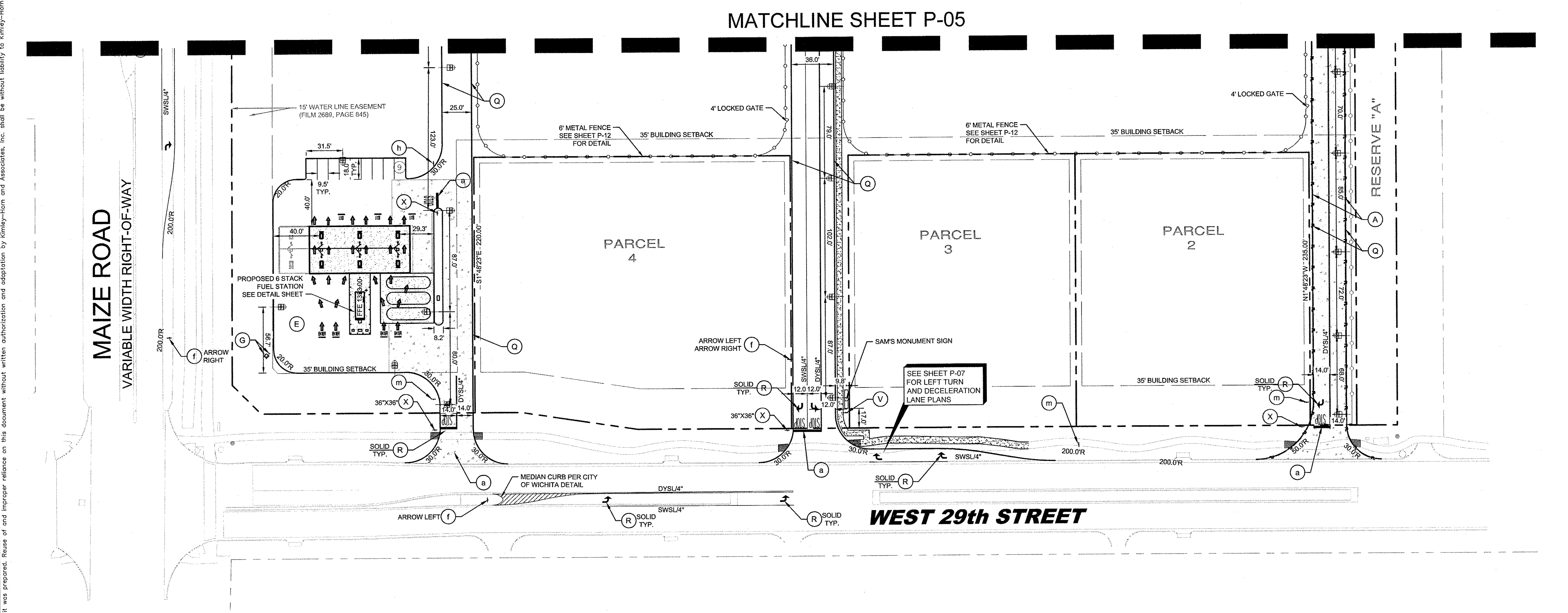
STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

DIMENSION CONTROL AND PAVING PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-05

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



LEGEND

- PROPERTY LINE
- BUILDING SETBACK LINE
- FL — FIRE LANE
- SIDEWALK
- TYPE "B" INTEGRAL CONCRETE CURB
- CC | CC — CART CORRAL
- (5) — PARKING SPACES SYSL / 4"
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- ARCHITECTURAL APRON SEE ARCH. PLANS

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PAINT STRIPING LEGEND

SWSL/4" - SINGLE WHITE SOLID LINE / 4" WIDE
SYSL/4" - SINGLE YELLOW SOLID LINE / 4" WIDE EACH
DYSL/4" - DOUBLE YELLOW SOLID LINE / 4" WIDE EACH
SBYL/4" - SINGLE BROKEN YELLOW LINE / 4" WIDE

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ELEVATION. = 1352.18

PROPOSED SITE ANALYSIS	
PARKING	543 SPACES
SAM'S CLUB	138,445 S.F.
ACCESSIBLE	20 SPACES
CART CORRALS*	11 CORRALS /22 SPACES
TOTAL PARKING	563 SPACES
* RATIO	4.07/1,000 S.F.
TOTAL SAM'S LAND AREA	16.73 AC.

* PARKING RATIO DOES NOT INCLUDE CART CORRAL SPACES.

SITE LEGEND

(A) 8" WIDE FIRE LANE STRIPING PAINTED TRAFFIC RED W/ "NO PARKING FIRE LANE" PAINTED WITH 6" HIGH WHITE LETTERING AT 25' O.C. SEE DETAIL SHEET.
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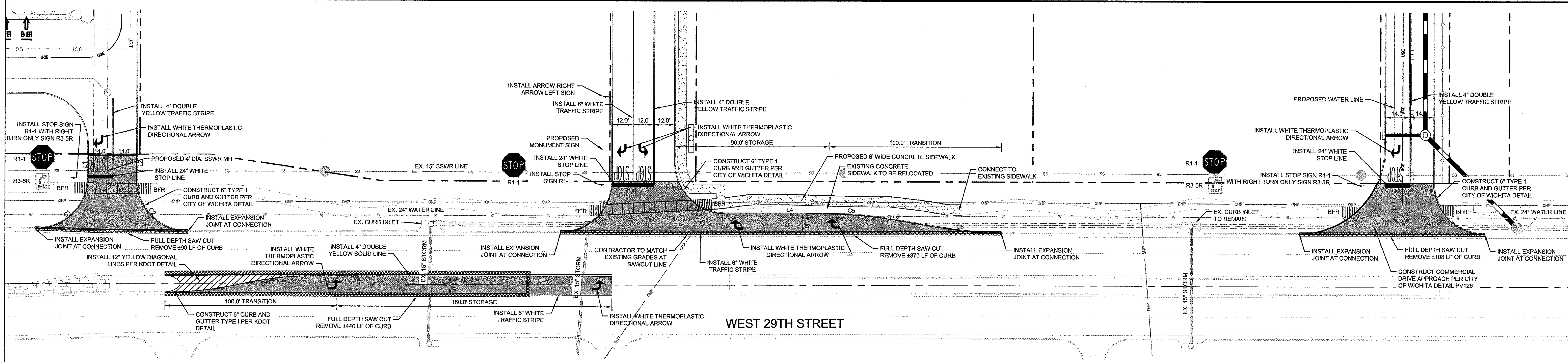
STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

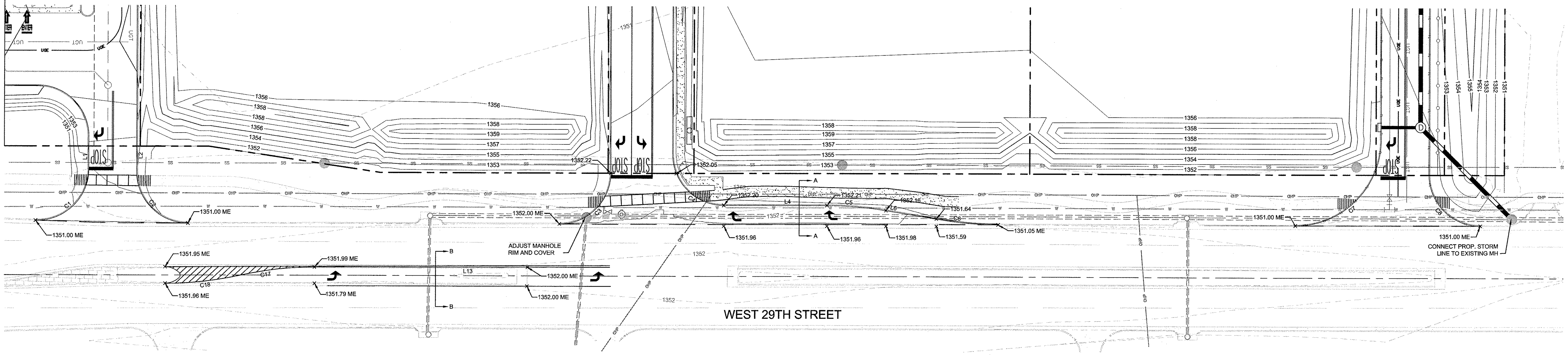
DIMENSION CONTROL AND PAVING PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-06



DIMENSION CONTROL AND PAVING PLAN



GRADING AND DRAINAGE PLAN

LEGEND

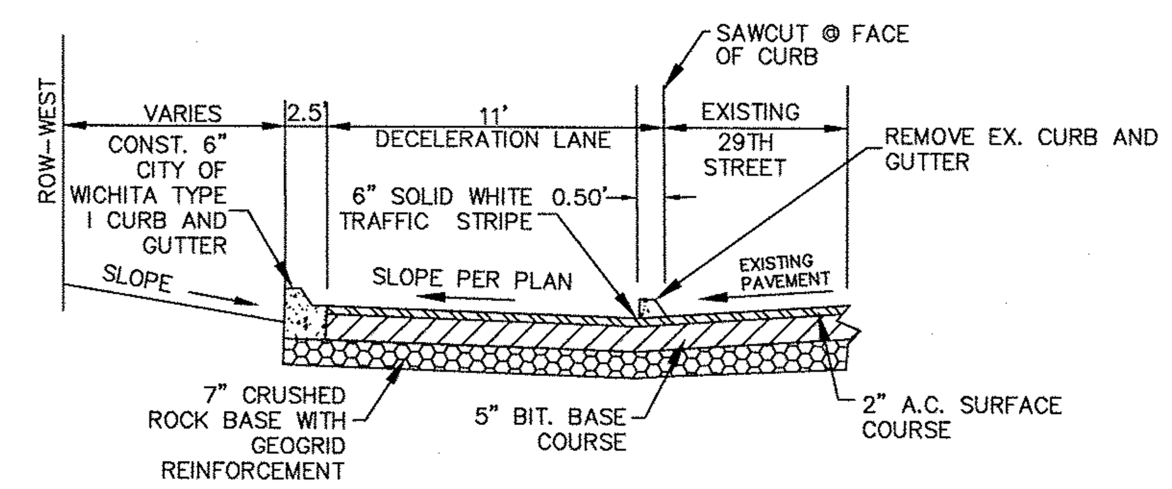
- 1355 — EXISTING CONTOURS
- 1355 — PROP. CONTOURS
- × 1356.24 — TOP OF PAVEMENT OR PROPOSED GRADE
- × 1356.24 ME — MATCH EXISTING PAVEMENT ELEVATION
- PROPOSED STORM SEWER
- SAW CUT LINE
- PROPOSED CURB INLET
- PROPOSED ASPHALT PAVEMENT
- EXISTING CONCRETE SIDEWALK TO BE REMOVED
- PROPOSED CONCRETE SIDEWALK
- UGT — TELEPHONE LINE
- UGE — ELECTRIC LINE
- W — WATER LINE
- SS — SANITARY SEWER LINE
- GAS — GAS LINE
- FL — FIRE LANE

LINE TABLE

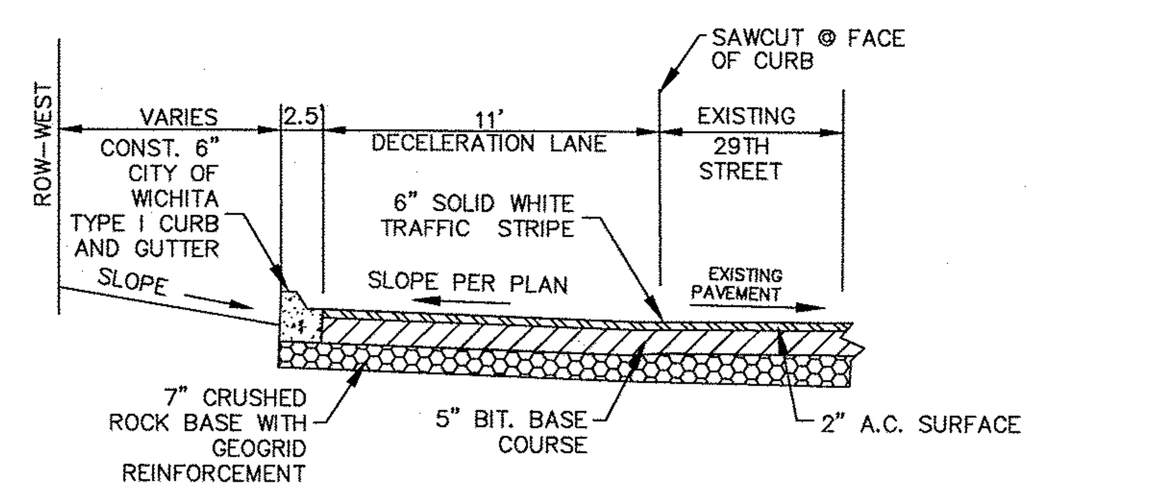
LINE	LENGTH	BEARING
L1	13.19	N1°48'23.02"W
L2	14.68	S1°48'23.02"E
L4	60.01	N88°13'01.30"E
L6	29.80	S82°22'09.96"E
L7	31.18	N88°11'36.98"E
L8	90.36	S1°42'12.72"E
L9	36.64	S7°41'12.05"W
L10	33.59	N88°11'36.98"E
L11	96.35	S1°38'03.15"E
L12	28.65	S8°32'10.44"W
L13	172.26	S88°05'08.67"W

CURVE TABLE

CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	30.00'	48.12'	N44°08'54"E	43.13'	91°54'46"	31.02'
C2	30.00'	47.11'	S46°47'50"E	42.42'	89°58'54"	29.99'
C3	30.00'	47.11'	S43°10'41"W	42.41'	89°58'08"	29.98'
C4	30.00'	35.39'	S57°59'23"E	33.37'	67°35'00"	20.08'
C5	211.00'	34.75'	S87°05'16"E	34.71'	9°26'13"	17.42'
C6	200.00'	36.20'	S86°37'12"E	36.16'	10°22'19"	18.15'
C7	50.00'	57.44'	N55°15'55"E	54.34'	65°49'33"	32.36'
C8	30.00'	46.66'	S47°17'19"E	42.09'	89°06'16"	29.53'
C9	30.00'	47.01'	S46°54'42"E	42.35'	89°47'23"	29.89'
C10	50.00'	78.42'	S43°11'39"W	70.62'	89°51'31"	49.88'
C11	200.00'	32.42'	S3°02'35"W	32.38'	9°17'14"	16.25'
C12	200.00'	31.00'	S2°38'04"W	30.97'	8°52'54"	15.53'
C13	30.16'	47.15'	S46°43'04"E	42.49'	89°33'04"	29.93'
C14	50.02'	77.41'	S42°42'31"W	69.91'	88°40'09"	48.87'
C15	200.00'	34.91'	S3°32'16"W	34.86'	9°59'59"	17.50'
C16	200.00'	36.10'	S3°21'54"W	36.05'	10°20'33"	18.10'
C17	200.00'	43.65'	S81°50'00"W	43.56'	12°30'17"	21.91'
C18	200.00'	44.32'	S81°55'44"W	44.23'	12°41'45"	22.25'



SECTION A-A
TYPICAL DECELERATION LANE
N.T.S.



SECTION B-B
TYPICAL DECELERATION LANE
N.T.S.

N / W / E / S

GRAPHIC SCALE 30' (0, 30', 60')

STOP!
CALL BEFORE YOU DIG
KANSAS ONE-CALL
1-800-DIG-SAFE
(@ least 72 hours prior to digging)

CAUTION!!
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No.	Date	Revisions	App.

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Dallas, Texas 75251
Tel. No.(972) 770-1300
Fax No.(972) 239-3820
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KEVIN S. GASKEY
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18257
KANSAS
PROFESSIONAL ENGINEER

STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

29TH STREET DECEL LANE PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-07

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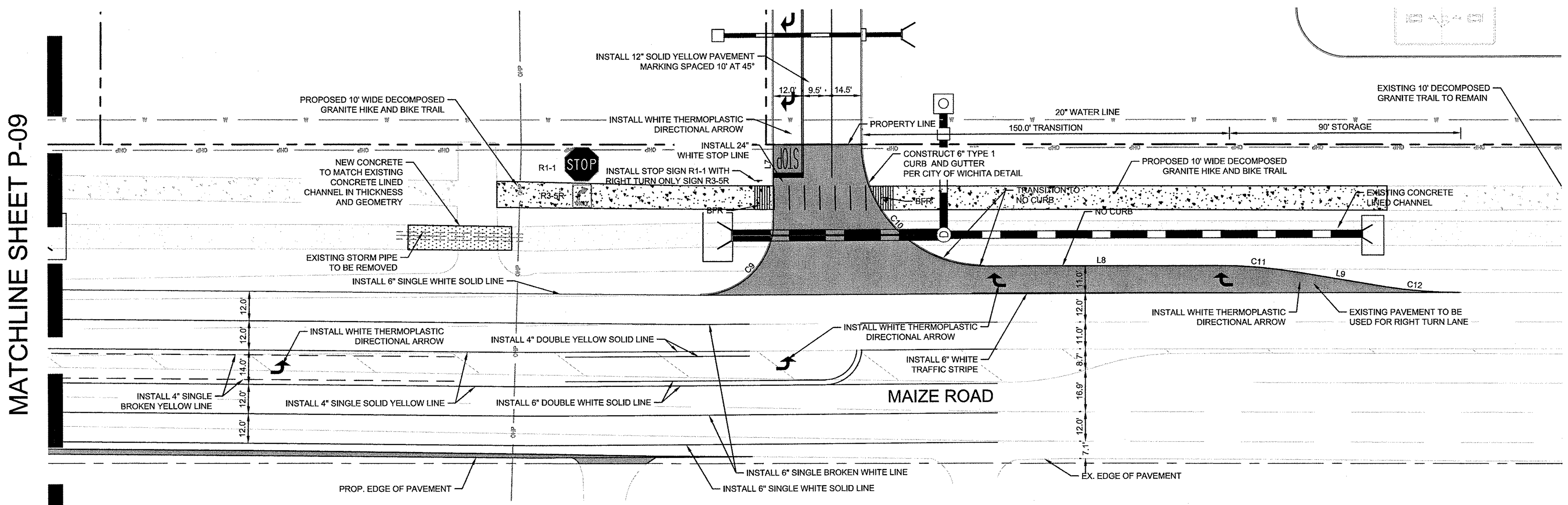
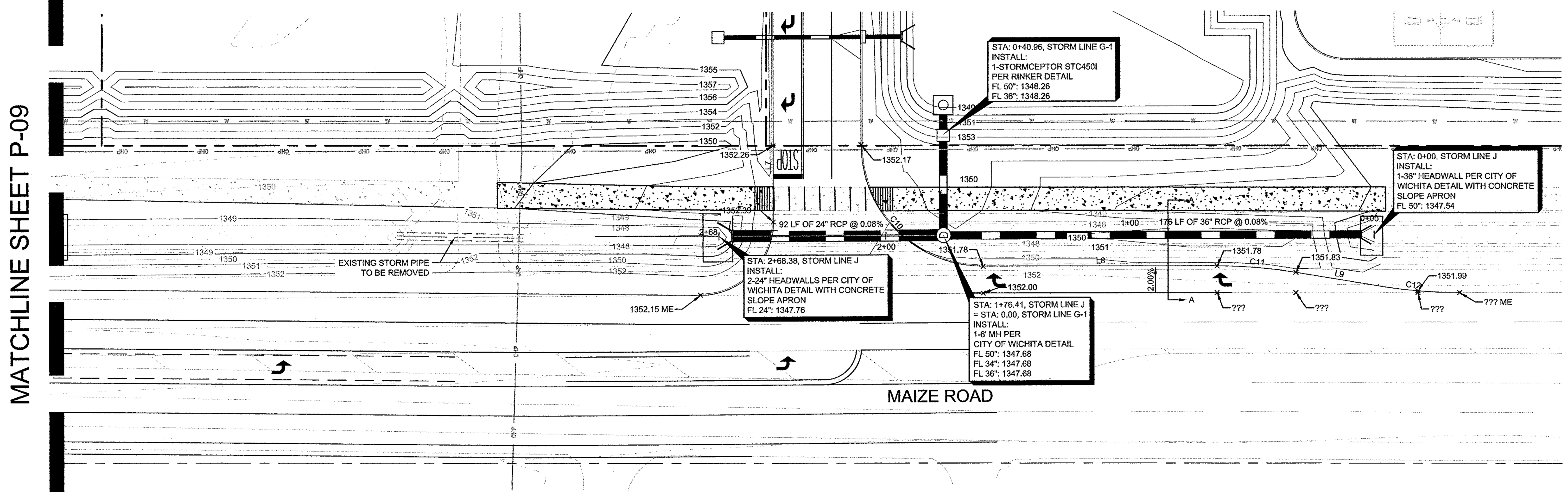


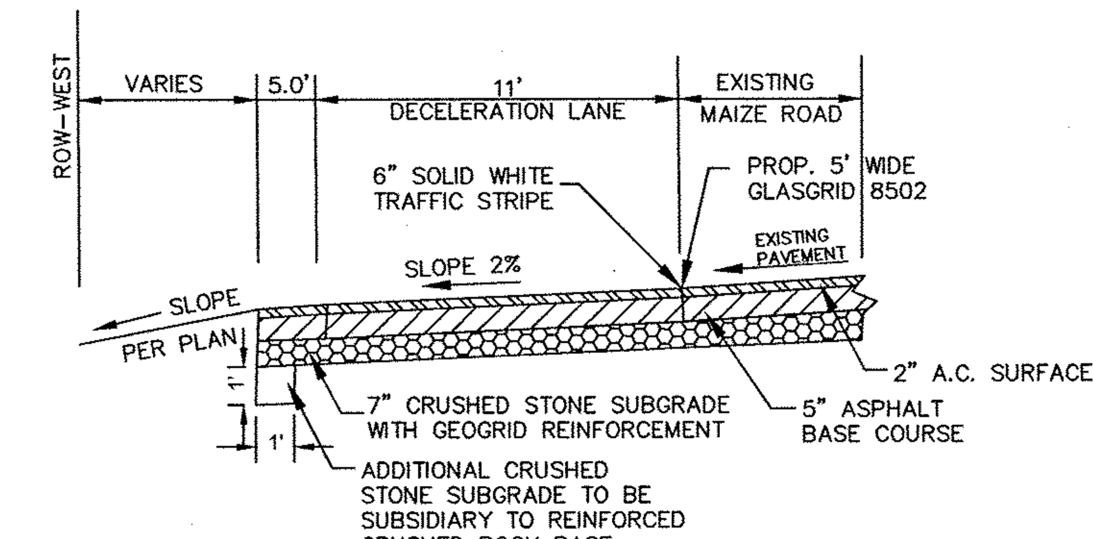
DIMENSION CONTROL AND PAVING PLAN



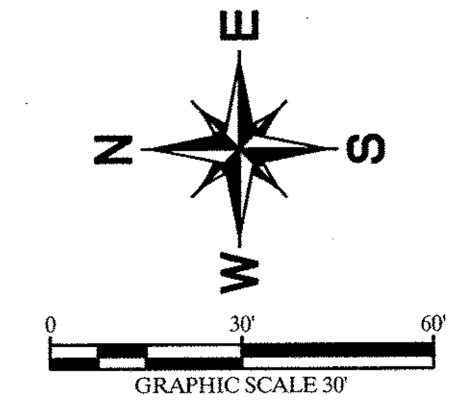
GRADING AND DRAINAGE PLAN

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	30.00'	48.12'	N44°08'54"E	43.13'	91°54'46"	31.02'
C2	30.00'	47.11'	S46°47'50"E	42.42'	89°58'54"	29.99'
C3	30.00'	47.11'	S43°10'41"W	42.41'	89°58'08"	29.98'
C4	30.00'	35.39'	S57°59'23"E	33.37'	67°35'00"	20.08'
C5	211.00'	34.75'	S87°05'16"E	34.71'	9°26'13"	17.42'
C6	200.00'	36.20'	S86°37'12"E	36.16'	10°22'19"	18.15'
C7	50.00'	57.44'	N55°15'55"E	54.34'	65°49'33"	32.36'
C8	30.00'	46.66'	S47°17'19"E	42.09'	89°06'16"	29.53'
C9	30.00'	47.01'	S46°54'42"E	42.35'	89°47'23"	29.89'
C10	50.00'	78.42'	S43°11'39"W	70.62'	89°51'31"	49.88'
C11	200.00'	32.42'	S3°02'35"W	32.38'	9°17'14"	16.25'
C12	200.00'	31.00'	S2°38'04"W	30.97'	8°52'54"	15.53'
C13	30.16'	47.15'	S46°43'04"E	42.49'	89°33'04"	29.93'
C14	50.02'	77.41'	S42°42'31"W	69.91'	88°40'09"	48.87'
C15	200.00'	34.91'	S3°32'16"W	34.86'	9°59'59"	17.50'
C16	200.00'	36.10'	S3°21'54"W	36.05'	10°20'33"	18.10'
C17	200.00'	43.65'	S81°50'00"W	43.56'	12°30'17"	21.91'
C18	200.00'	44.32'	S81°55'44"W	44.23'	12°41'45"	22.25'

LINE TABLE		
LINE	LENGTH	BEARING
L1	13.19	N1°48'23.02"W
L2	14.68	S1°48'23.02"E
L4	60.01	N88°13'01.30"E
L6	29.80	S82°22'09.96"E
L7	31.18	N88°11'36.98"E
L8	90.36	S1°42'12.72"E
L9	36.64	S7°41'12.05"W
L10	33.59	N88°11'36.98"E
L11	96.35	S1°38'03.15"E
L12	28.65	S8°32'10.44"W
L13	172.26	S88°05'08.67"W

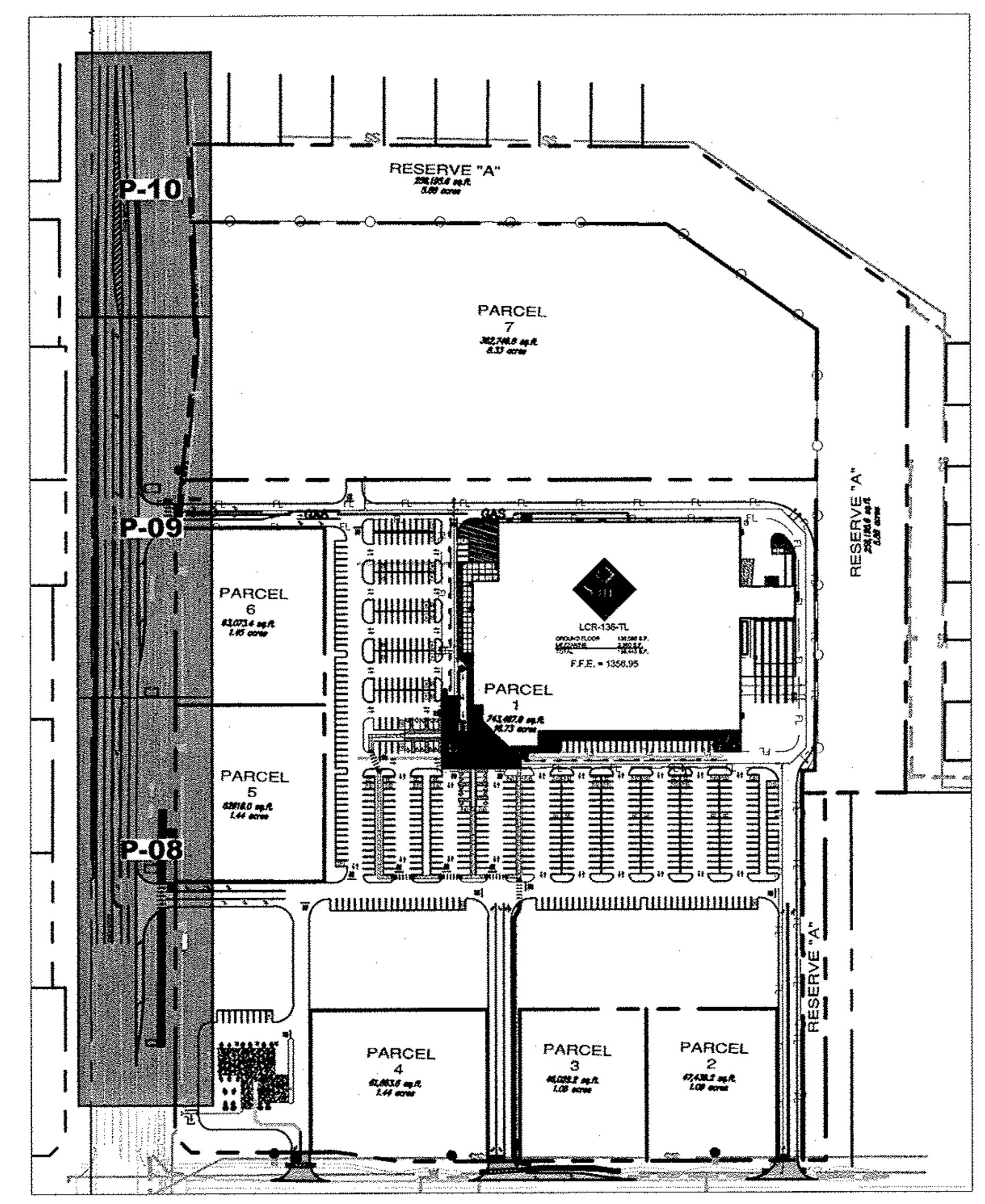


SECTION A-A
TYPICAL DECELERATION LANE
WITH SUBGRADE TOE WALL
N.T.S.



LEGEND

1355	EXISTING CONTOURS
1355	PROP. CONTOURS
× 1356.24	TOP OF PAVEMENT OR PROPOSED GRADE
× 1356.24 ME	MATCH EXISTING PAVEMENT ELEVATION
	PROPOSED STORM SEWER
	SAW CUT LINE
	PROPOSED CURB INLET
	PROPOSED ASPHALT PAVEMENT
UGT	TELEPHONE LINE
UGE	ELECTRIC LINE
W	WATER LINE
SS	SANITARY SEWER LINE
GAS	GAS LINE
FL	FIRE LANE



MAIZE KEY MAP

STOP!
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1-800-DIG-SAFE
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CAUTION!!
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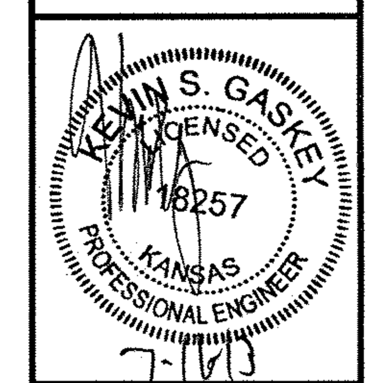
Fax No.(972) 239-3820

No.	Revisions	Date	App.



STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

MAIZE DECEL LANE PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-08

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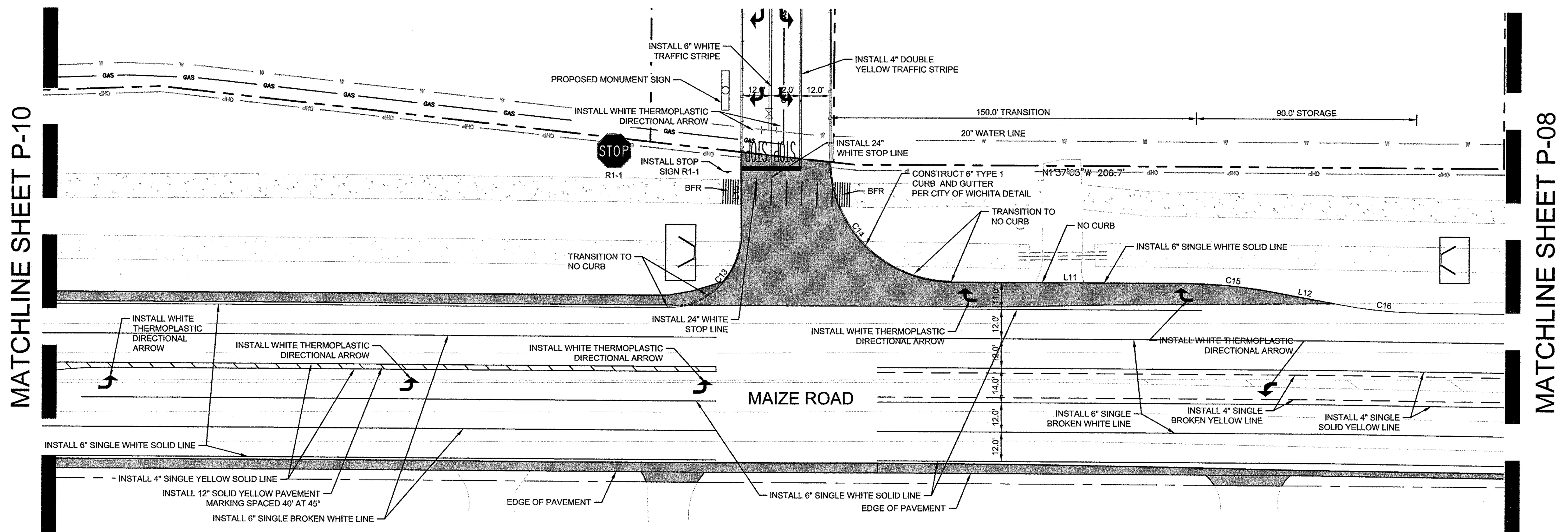
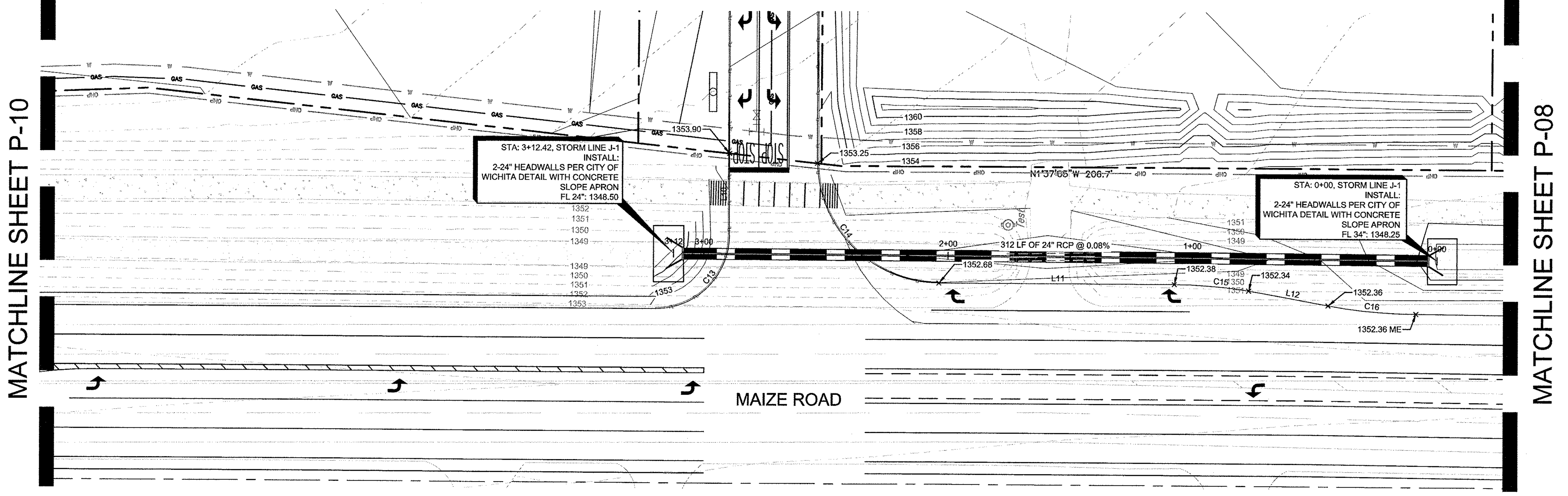


DIMENSION CONTROL AND PAVING PLAN

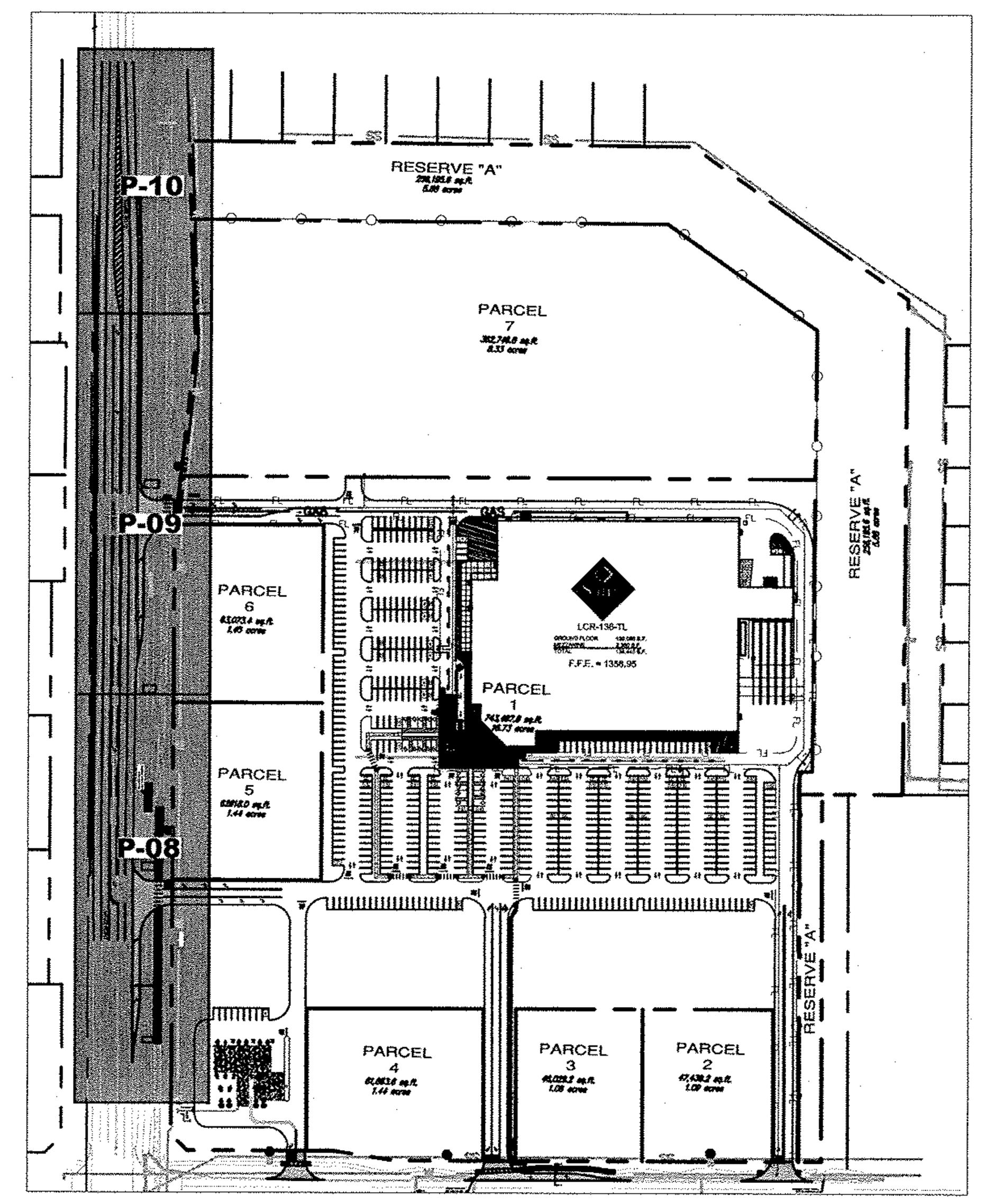


GRADING AND DRAINAGE PLAN

GRAPHIC SCALE 30'

LEGEND

Symbol	Description
1355 (dashed)	EXISTING CONTOURS
1355	PROP. CONTOURS
× 1356.24	TOP OF PAVEMENT OR PROPOSED GRADE
× 1356.24 ME	MATCH EXISTING PAVEMENT ELEVATION
	PROPOSED STORM SEWER
	SAW CUT LINE
	PROPOSED CURB INLET
	PROPOSED ASPHALT PAVEMENT
UGT	TELEPHONE LINE
UGE	ELECTRIC LINE
W	WATER LINE
SS	SANITARY SEWER LINE
GAS	GAS LINE
FL	FIRE LANE



MAIZE KEY MAP

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	30.00'	48.12'	N44°08'54"E	43.13'	91°54'46"	31.02'
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C3	30.00'	47.11'	S43°10'41"W	42.41'	89°58'08"	29.98'
C4	30.00'	35.39'	S57°59'23"E	33.37'	67°35'00"	20.08'
C5	211.00'	34.75'	S87°05'16"E	34.71'	9°26'13"	17.42'
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C17	200.00'	43.65'	S81°50'00"W	43.56'	12°30'17"	21.91'
C18	200.00'	44.32'	S81°55'44"W	44.23'	12°41'45"	22.25'

LINE TABLE		
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L6	29.80	S82°22'09.96"E
L7	31.18	N88°11'36.98"E
L8	90.36	S1°42'12.72"E
L9	36.64	S7°41'12.05"W
L10	33.59	N88°11'36.98"E
L11	96.35	S1°38'03.15"E
L12	28.65	S8°32'10.44"W
L13	172.26	S88°05'08.67"W

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(@ least 72 hours prior to digging)

CAUTION!!
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12750 Merit Drive, Suite 1000
Dallas, Texas 75251
Tel. No. (972) 770-1300
Fax No. (972) 239-3820

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KEVIN S. GASKEY, LICENSED PROFESSIONAL ENGINEER, KANSAS, 18257

STORE #6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

MAIZE DECEL LANE AND LEFT TURN LANE PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-09

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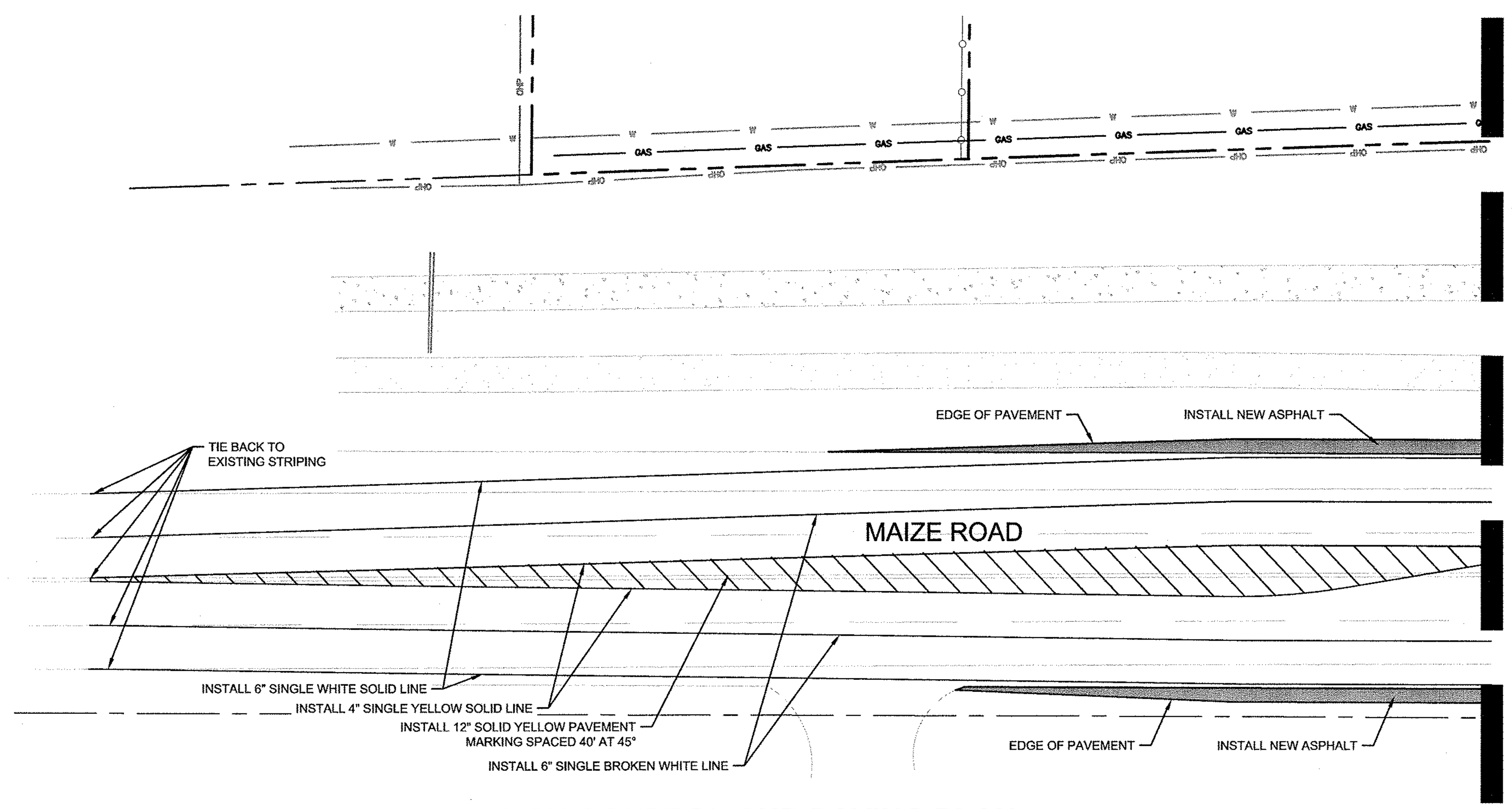
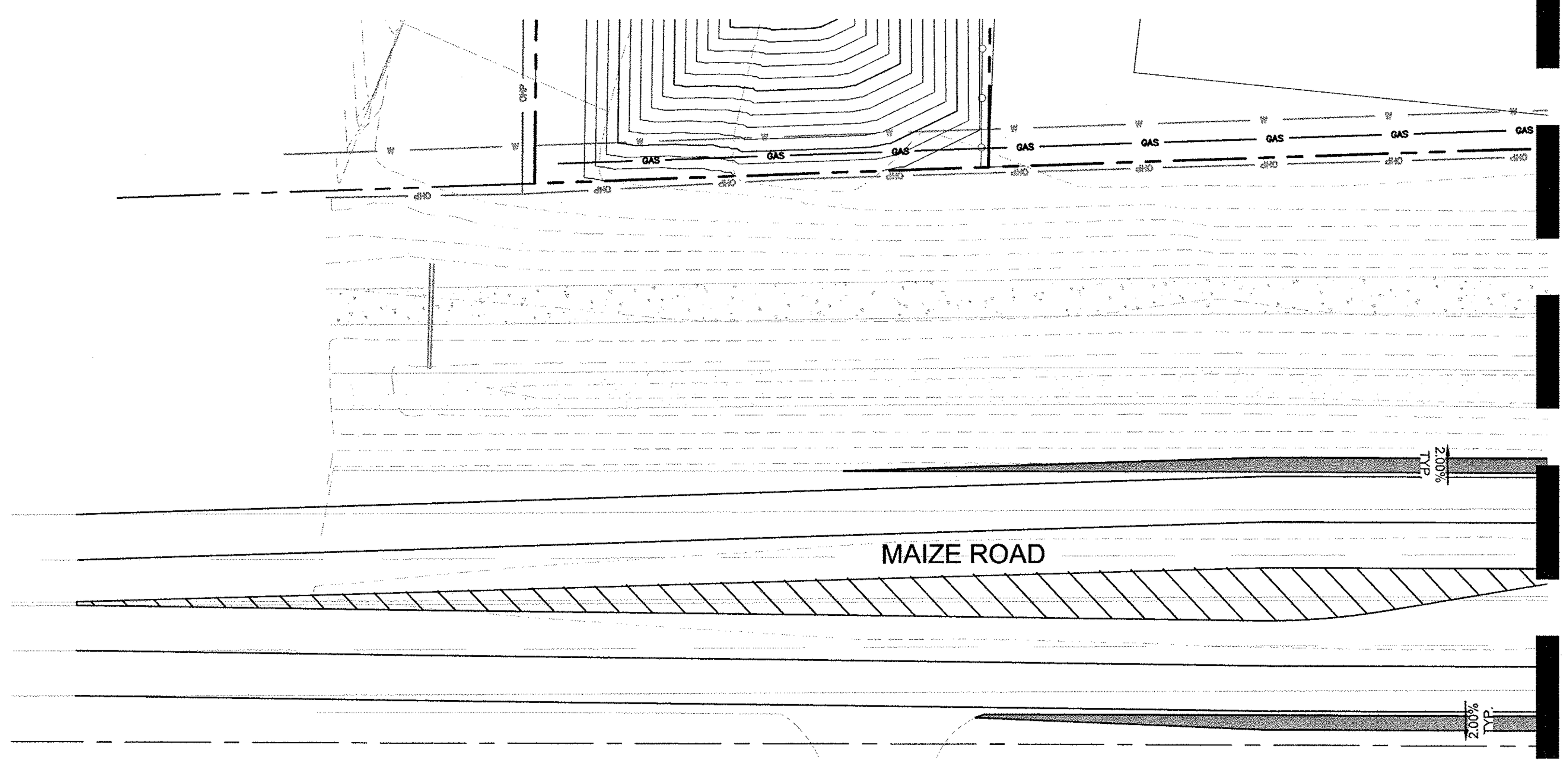


DIMENSION CONTROL AND PAVING PLAN

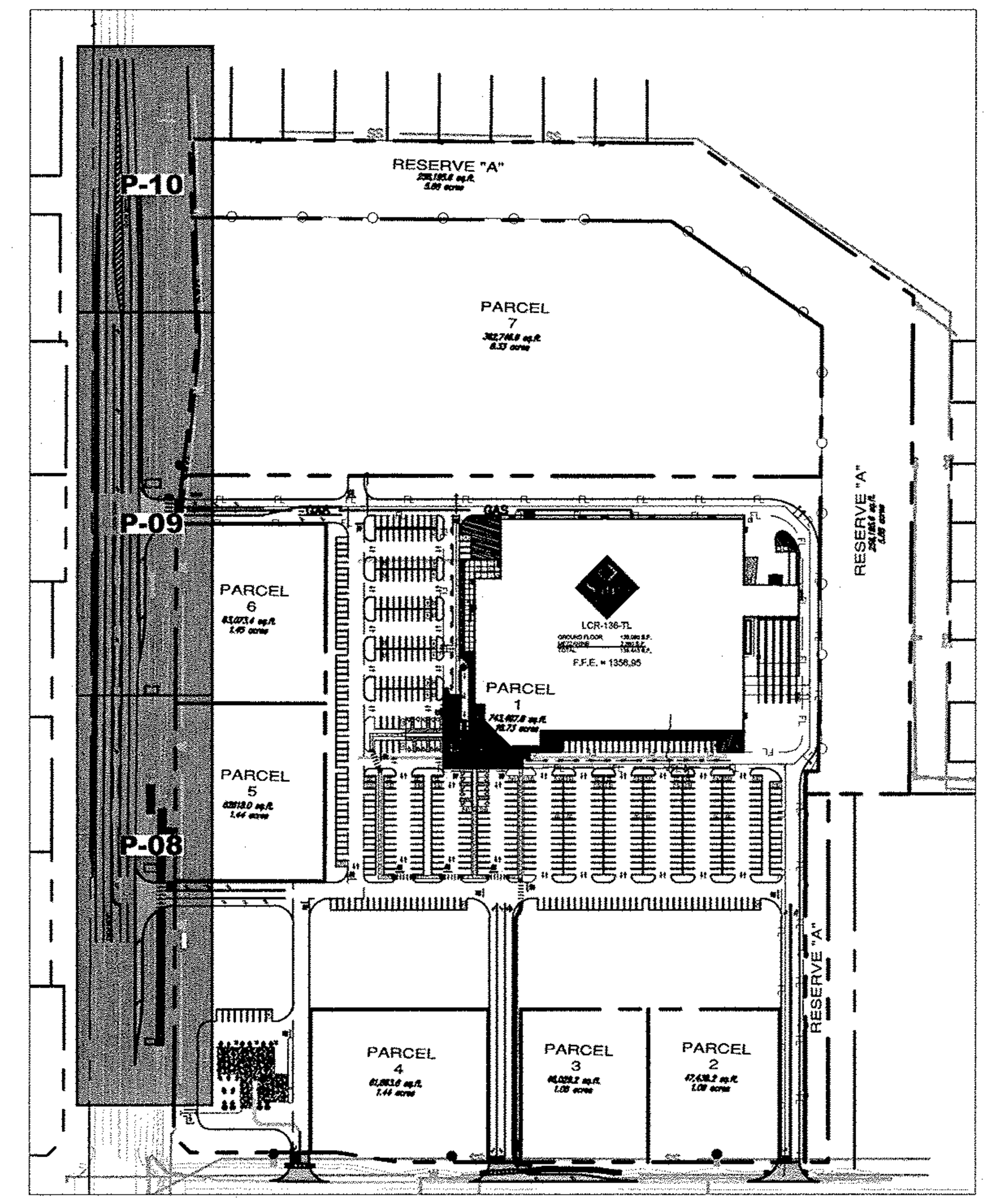


GRADING AND DRAINAGE PLAN

GRAPHIC SCALE 30'

LEGEND

1355 (dashed)	EXISTING CONTOURS
1355 (solid)	PROP. CONTOURS
× 1356.24	TOP OF PAVEMENT OR PROPOSED GRADE
× 1356.24 ME	MATCH EXISTING PAVEMENT ELEVATION
	PROPOSED STORM SEWER
	SAW CUT LINE
	PROPOSED CURB INLET
	PROPOSED ASPHALT PAVEMENT
UGT	TELEPHONE LINE
UGE	ELECTRIC LINE
W	WATER LINE
SS	SANITARY SEWER LINE
GAS	GAS LINE
FL	FIRE LANE



MAIZE KEY MAP

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1-800-DIG-SAFE
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STORE # 6275-00
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WICHITA, KANSAS 67205

MAIZE DECEL LANE AND LEFT TURN LANE PLAN

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-10

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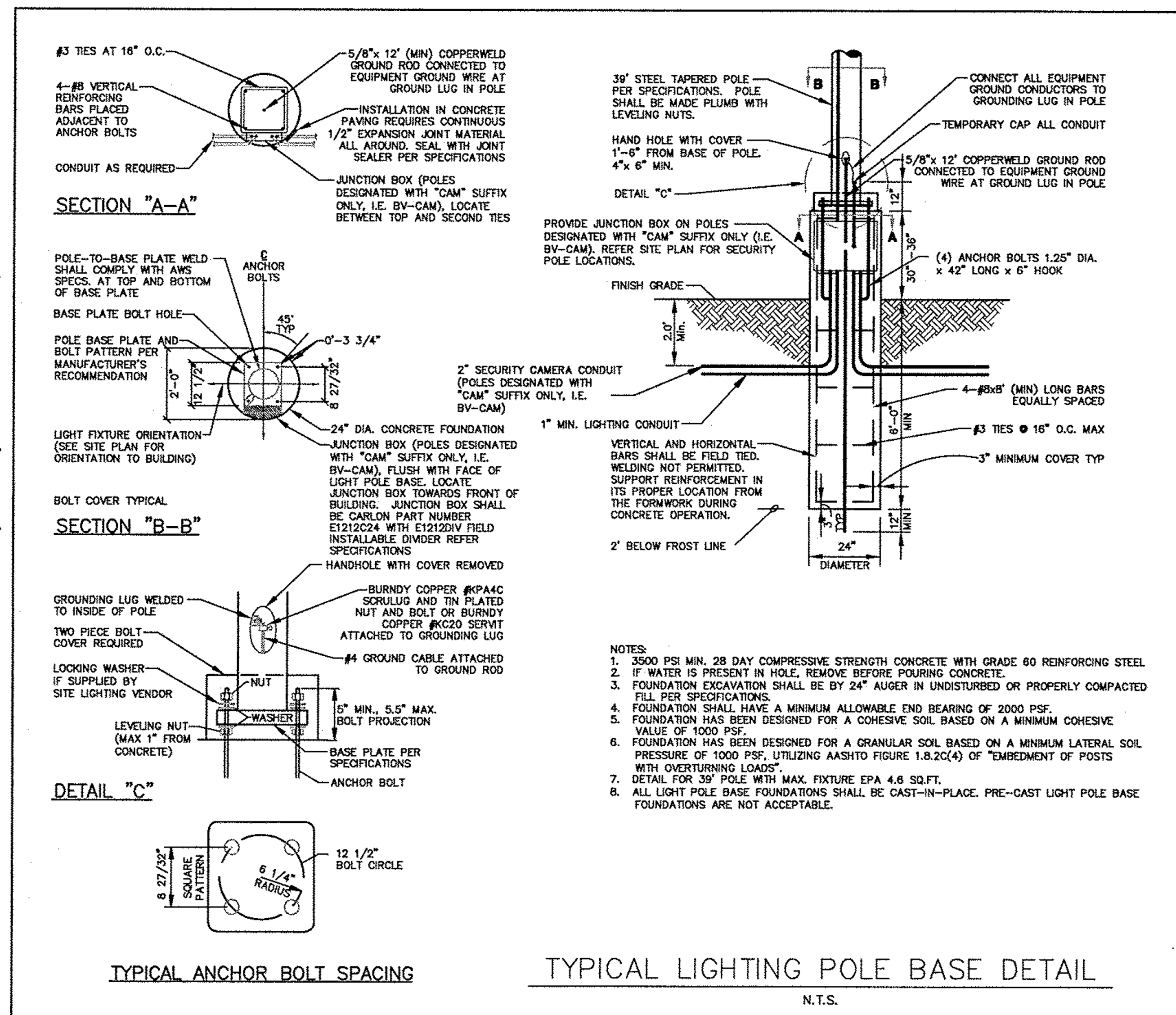
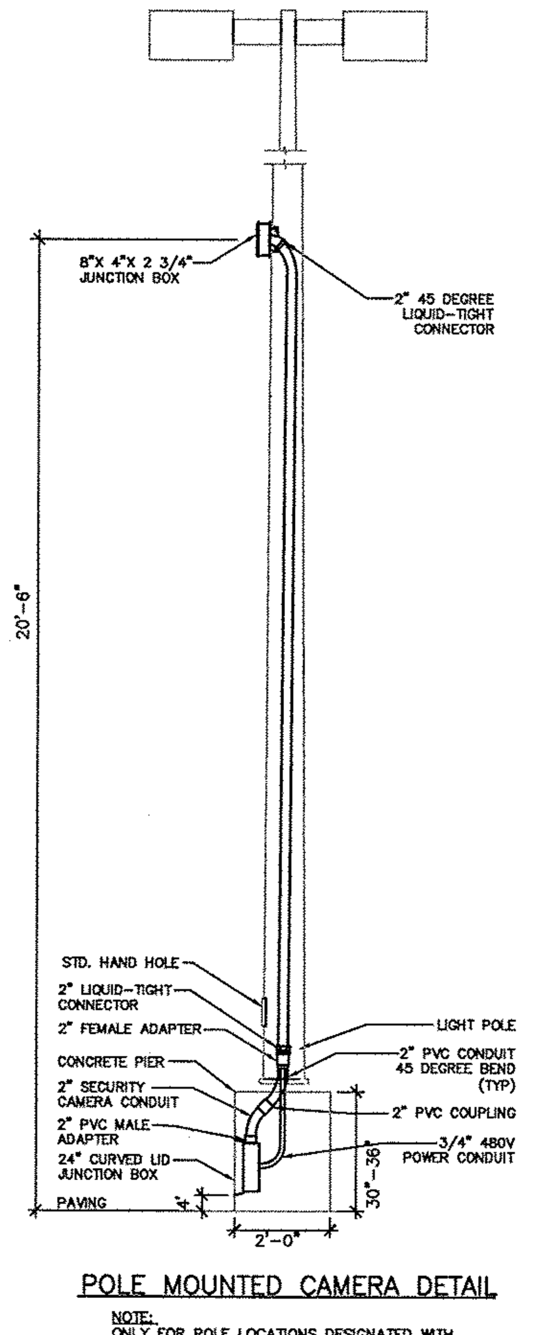


NOTES:
1. 3500 PSI MIN. 28 DAY COMPRESSIVE STRENGTH CONCRETE WITH GRADE 60 REINFORCING STEEL
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 24" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVE VALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF, UTILIZING AASHTO FIGURE 1.8.2C(4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
7. DETAIL FOR 39' POLE WITH MAX. FIXTURE EPA 4.6 SQ.FT.
8. ALL LIGHT POLE BASE FOUNDATIONS SHALL BE CAST–IN–PLACE. PRE–CAST LIGHT POLE BASE FOUNDATIONS ARE NOT ACCEPTABLE.

TYPICAL LIGHTING POLE BASE DETAIL

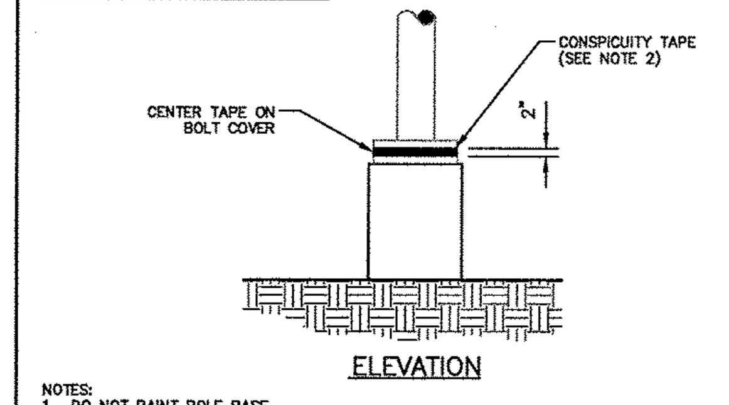
TYPICAL LIGHTING POLE BASE DETAIL | 10/02/07



POLE MOUNTED CAMERA DETAIL

NOTE: ONLY FOR POLE LOCATIONS DESIGNATED WITH "CAM" SUFFIX ONLY, I.E. BV–CAM. CAMERAS AND WIRING BY OTHERS.

DO NOT PAINT THE CONCRETE LIGHT POLE BASE- (SAM'S CLUB ONLY)

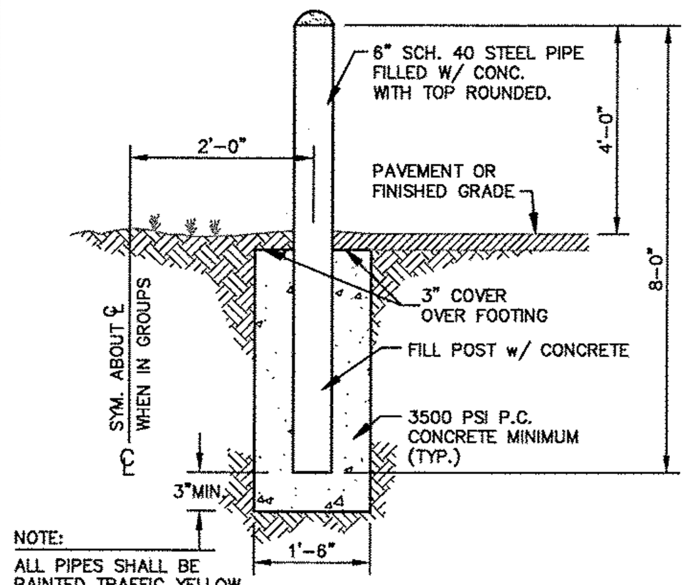


NOTES:
1. DO NOT PAINT POLE BASE.
2. CONSPICUITY TAPE SHALL BE "DOT C2 APPROVED" ALTERNATING RED/WHITE WITH EACH COLOR AT A MINIMUM 2" HIGH AND 6" TO 18" LONG. DOE COLOR CANNOT EXCEED 2/3 OF THE TOTAL SEGMENT.

SAM'S LIGHT BASE DETAIL

N.T.S.

10/02/07 | SAM'S LIGHT BASE

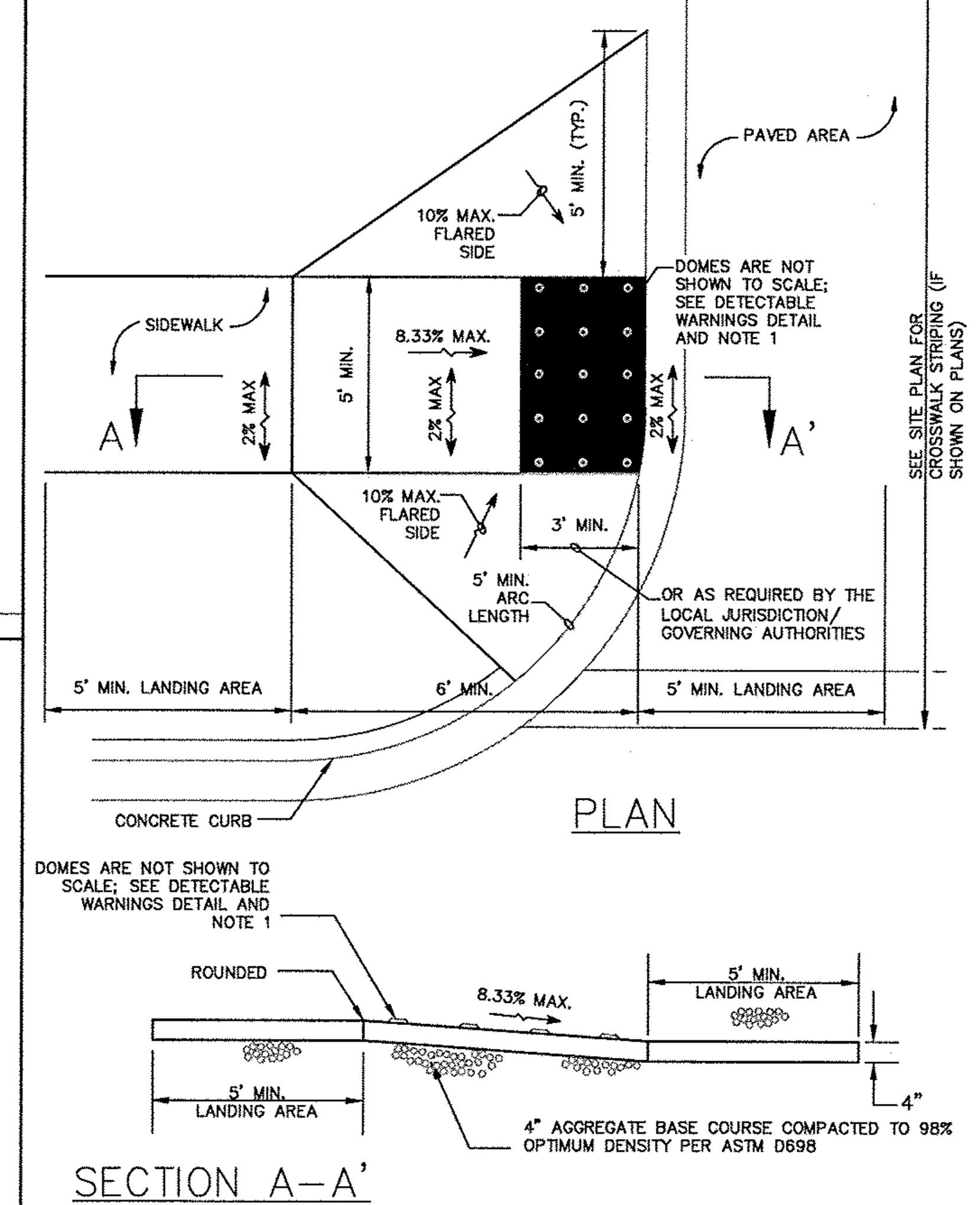


NOTE: ALL PIPES SHALL BE PAINTED TRAFFIC YELLOW

PIPE BOLLARD

N.T.S.

DTDRDPST | 06/17/09



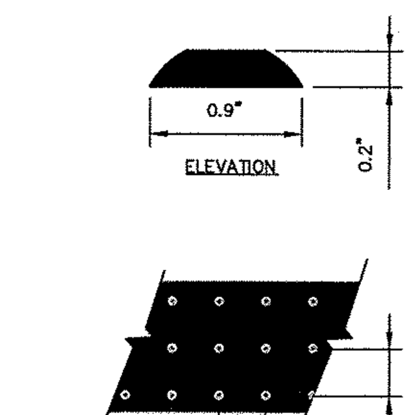
1. THE SURFACE OF RAMP SHALL HAVE DETECTABLE WARNINGS AS SHOWN. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES. SEE DETECTABLE WARNINGS DETAIL.

2. RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 10% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP.

3. CONSTRUCT PER A.D.A. STANDARDS.

4. REFER TO PLANS FOR ADJACENT SLOPES.

5. THE CROSS SLOPE OF THE RAMP SURFACE SHALL BE NO GREATER THAN 1:50.



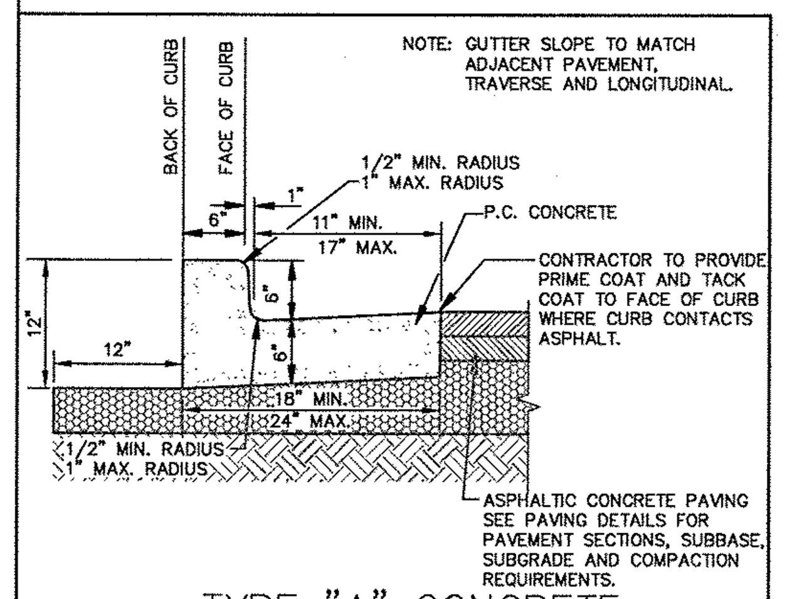
NOTE: PREFABRICATED PANELS PER A.D.A. ACCESSIBILITY GUIDELINES SECTION 4.29.2 & A4.29.2 SHALL BE USED.

DETECTABLE WARNINGS DETAIL

ADA RAMP IN SIDEWALK

N.T.S.

ADA RAMP IN SIDEWALK | 03/14/08

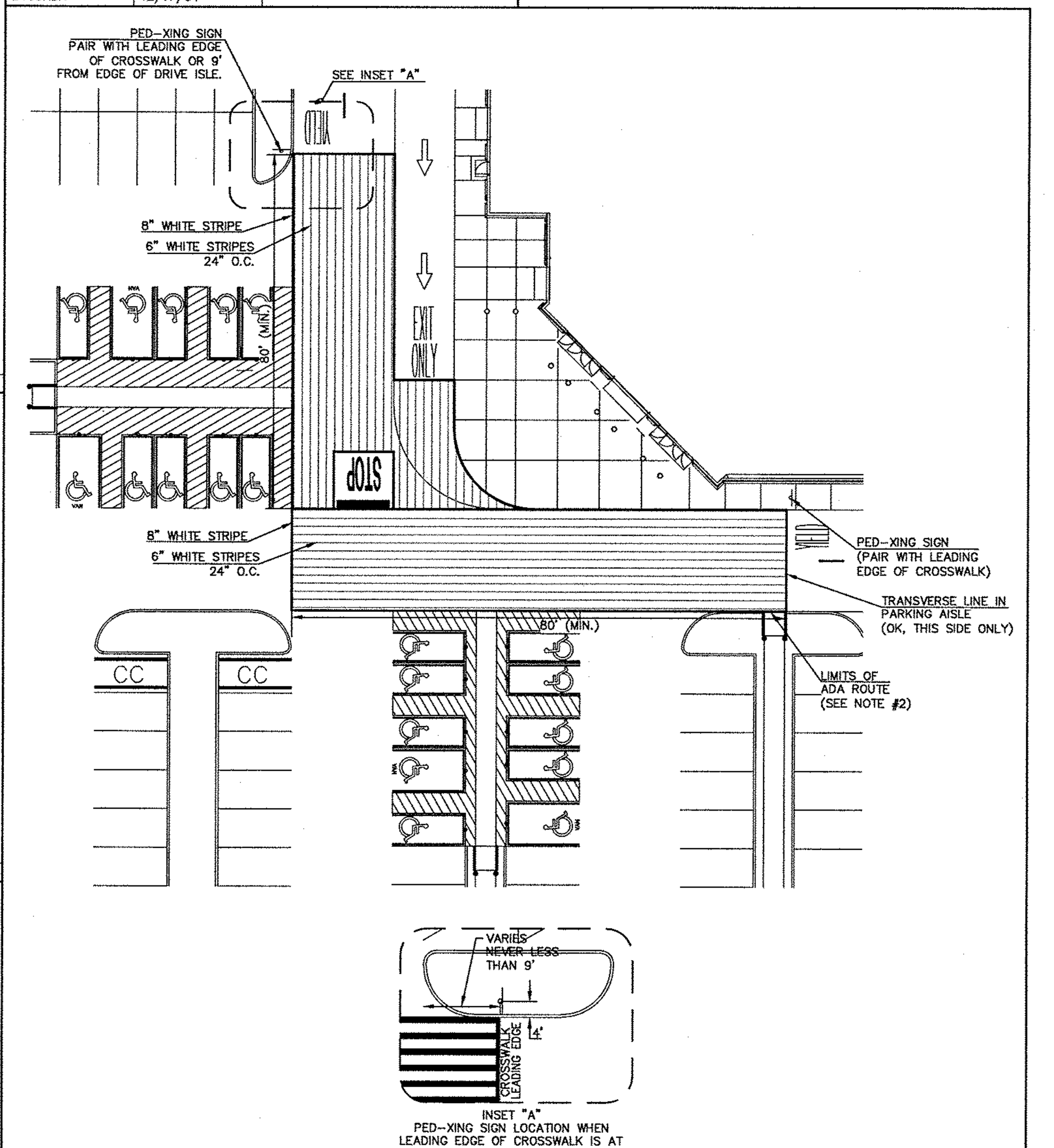


NOTE: GUTTER SLOPE TO MATCH ADJACENT PAVEMENT, TRAVERSE AND LONGITUDINAL.

TYPE "A" CONCRETE CURB AND GUTTER

N.T.S.

DTCURBA | 12/17/04



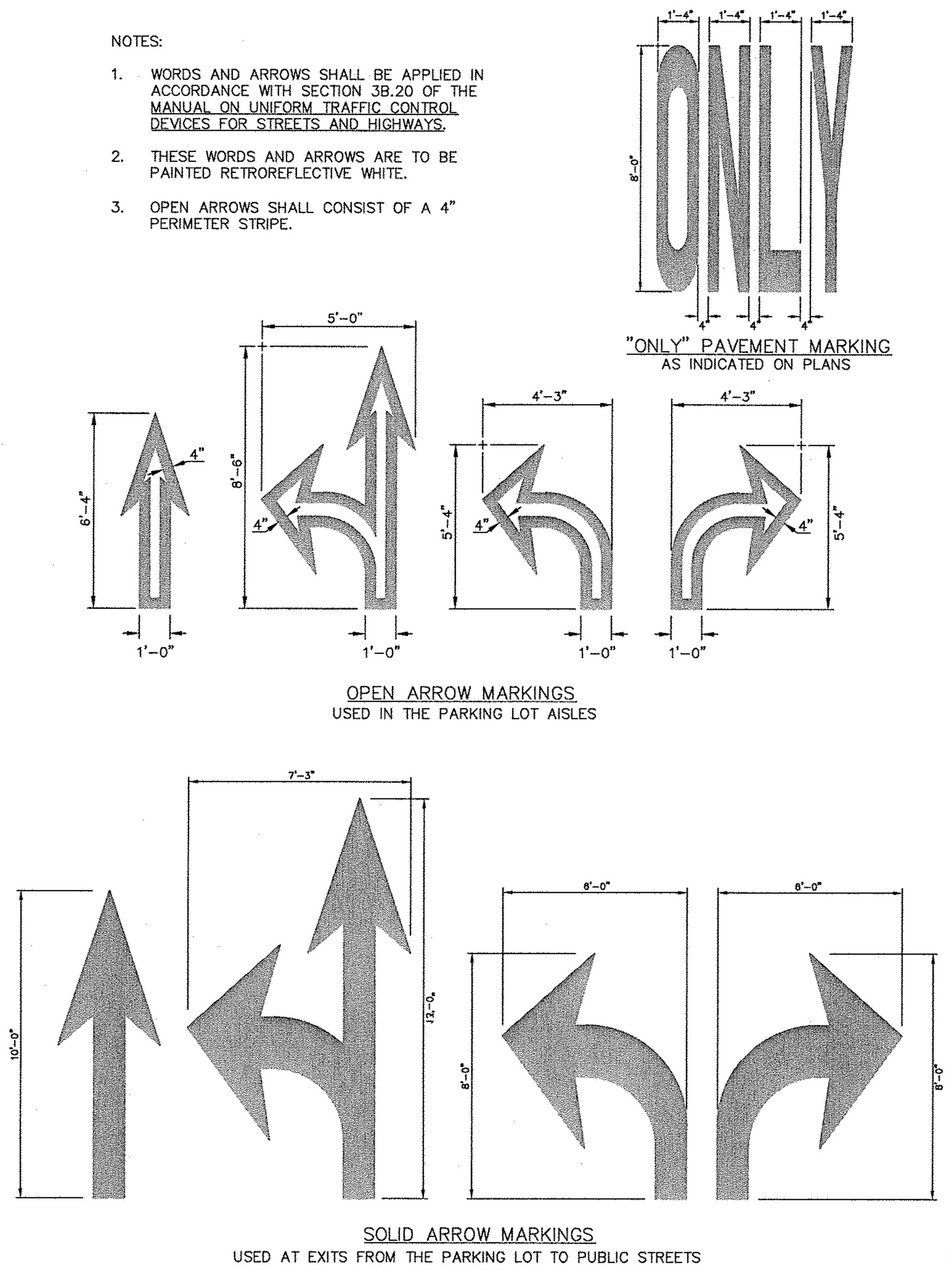
NOTES:
1. REFERENCE EACH VESTIBULE ON THE SITE PLAN FOR FINAL LAYOUT, DIMENSIONS AND SIGN LOCATION.
2. TRANSVERSE LINE OF CROSSWALK SHALL BE LOCATED AT END OF PARKING STALL, LIMITS OF ADA ROUTE OR 5' BEYOND VESTIBULE DOORS. TRANSVERSE LINE (FOR TRAFFIC MOVING RIGHT TO LEFT PER THIS DETAIL) CAN'T END IN A PARKING AISLE ON THE PARKING LOT SIDE OF THE FRONT DRIVE.
3. SEE INSETS "A", "B" AND "C" FOR SIGN LOCATION FOR EACH OF THE THREE OPTIONS.

VESTIBULE CROSSWALK STRIPING

N.T.S.

DTVXWALK | 03/04/11

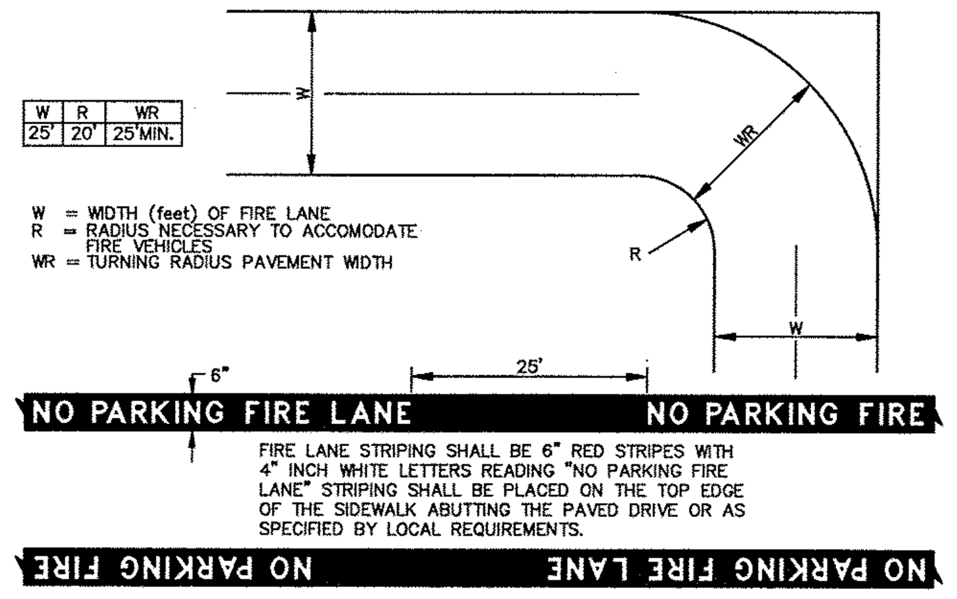
NOTES:
1. WORDS AND ARROWS SHALL BE APPLIED IN ACCORDANCE WITH SECTION 3B.20 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. THESE WORDS AND ARROWS ARE TO BE PAINTED RETROREFLECTIVE WHITE.
3. OPEN ARROWS SHALL CONSIST OF A 4" PERIMETER STRIPE.



PAVEMENT MARKINGS

N.T.S.

DTRLTURN | 03/03/11

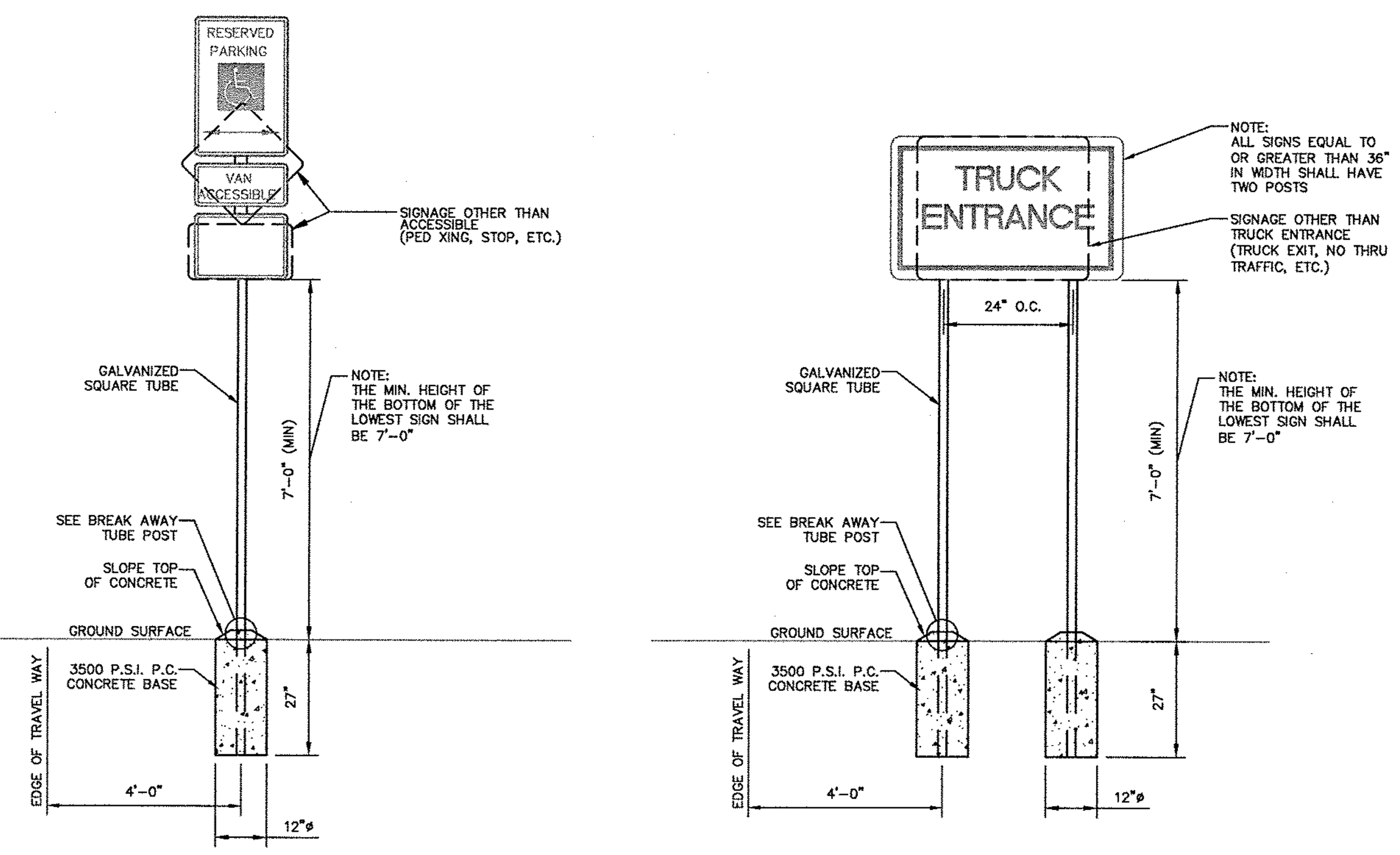


FIRE LANE STRIPING SHALL BE 6" RED STRIPES WITH 4" INCH WHITE LETTERS READING "NO PARKING FIRE LANE" STRIPING SHALL BE PLACED ON THE TOP EDGE OF THE SIDEWALK ABUTTING THE PAVED DRIVE OR AS SPECIFIED BY LOCAL REQUIREMENTS.

FIRE LANE MARKING

N.T.S.

DTFIRELN | 12/17/04



SINGLE POST

N.T.S.

DOUBLE POST

N.T.S.

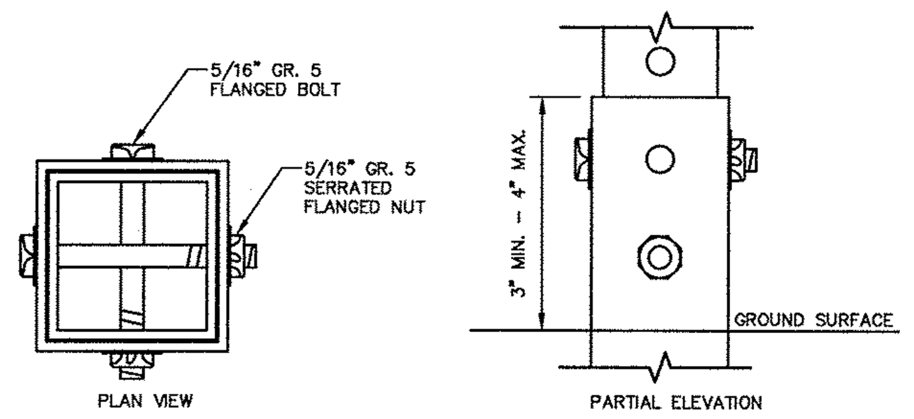
NOTES:
1. ALL SIGNS SHALL COMPLY WITH U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LOCAL CODES AND AS SPECIFIED. MOUNT SIGNS TO POST IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. GALVANIZED SQUARE TUBE

POST TUBES – 2"x2"x3/16" 14ga
POST TUBE SHALL MEET ASTM A1011 GRADE 50.
POST TUBE GALVANIZED AS PER ASTM A653 GRADE 90.

ANCHOR TUBE – 2–1/4"x2–1/4"x3/16" 14ga
HEAVY DUTY ANCHOR TUBE SHALL MEET ASTM A500 GRADE B.
STRUCTURAL TUBE AND STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123.

THE UPPER SIGN POST SHALL TELESCOPE INSIDE THE ANCHOR TUBE A MINIMUM OF 12". THE ANCHOR TUBE SHALL BE A MINIMUM 27" DEEP WITH 3" MIN. 4" MAX. EXPOSED ABOVE FINISH GRADE.



SQUARE TUBE BREAK AWAY POST

N.T.S.

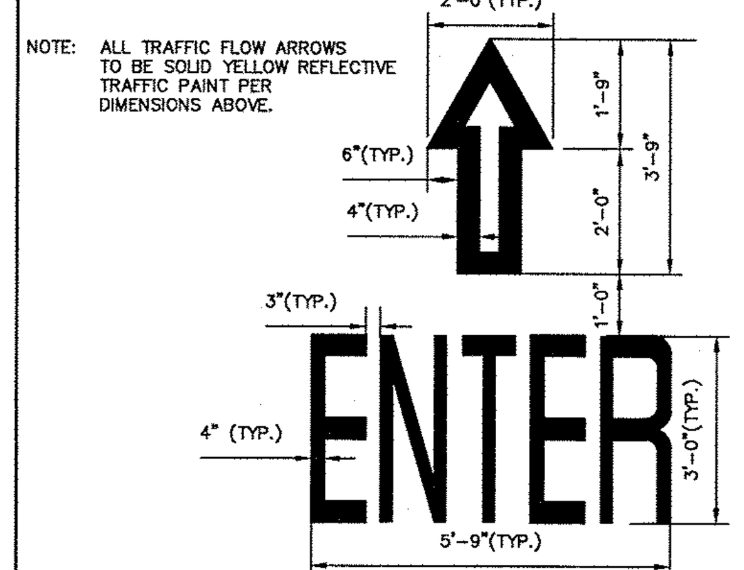
SIGN LOCATIONS – 90° PARKING

SIGN LOCATIONS – 60° PARKING

SIGN MOUNTING AND BASE WITHOUT BOLLARD (USE WHERE SIGN IS WITHIN CURBED ISLAND)

N.T.S.

NOTE: ALL TRAFFIC FLOW ARROWS TO BE SOLID YELLOW REFLECTIVE TRAFFIC PAINT PER DIMENSIONS ABOVE.

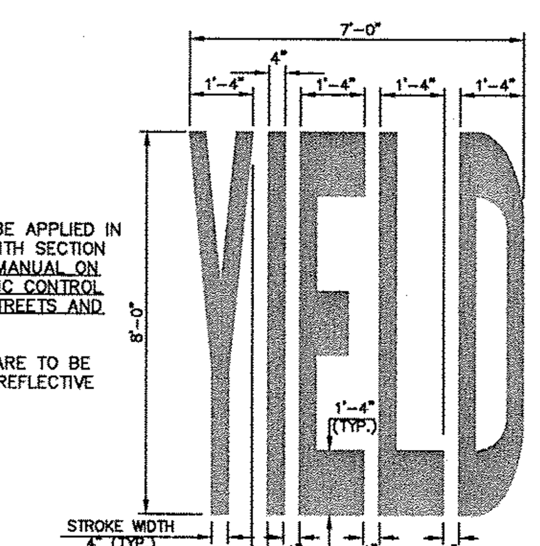


"ENTER" PAVEMENT MARKER W/ARROW

N.T.S.

DTENTER | 12/17/04

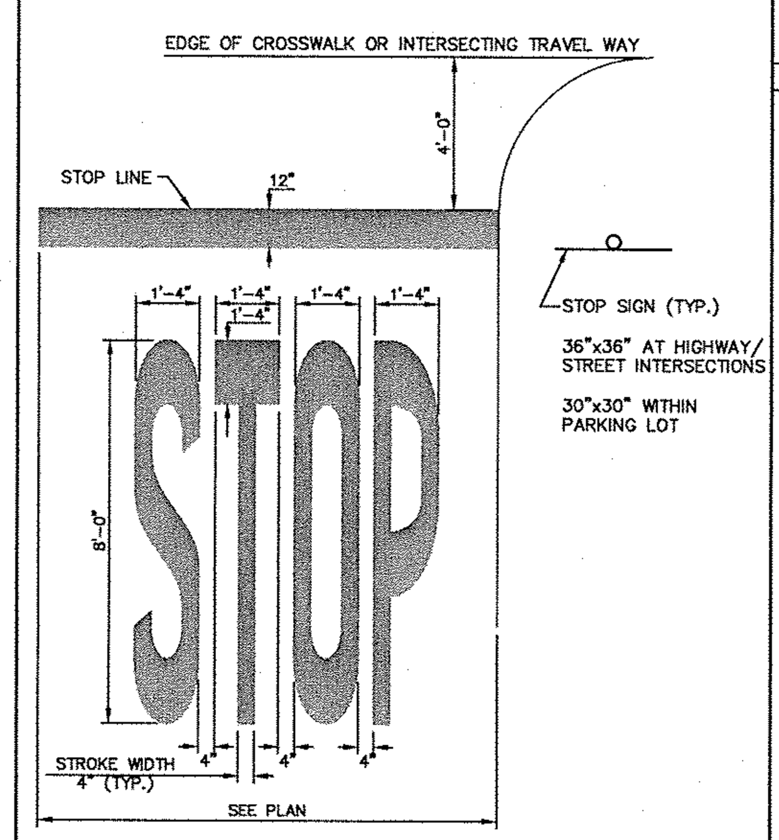
NOTES:
1. WORDS SHALL BE APPLIED IN ACCORDANCE WITH SECTION 3B.20 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. THESE WORDS ARE TO BE PAINTED RETROREFLECTIVE WHITE.



"YIELD" PAVEMENT MARKING

N.T.S.

DTYIELDM | 03/04/11

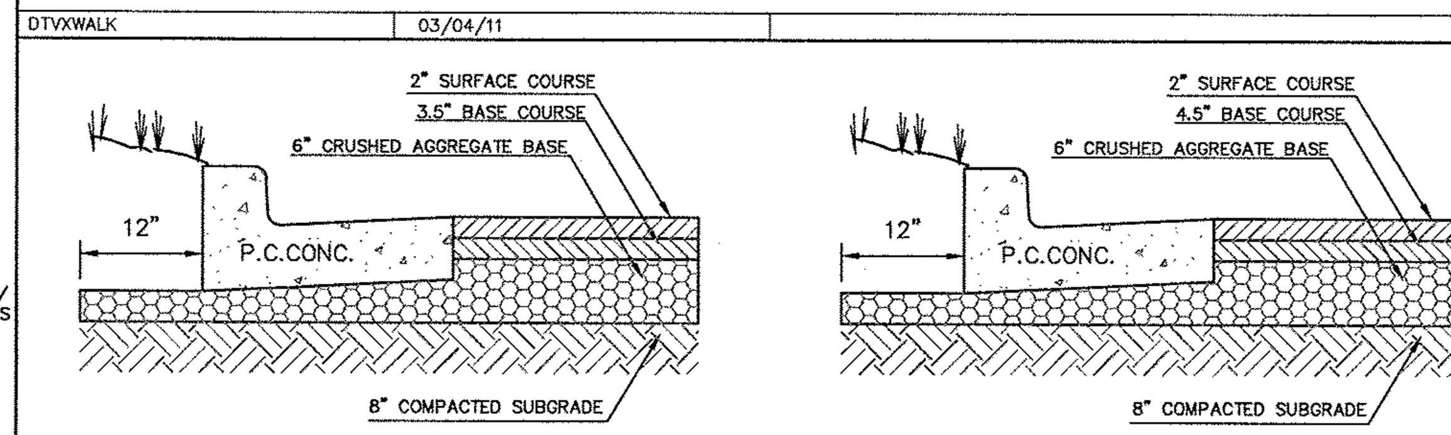


NOTE:
1. WORDS AND LINES SHALL BE APPLIED IN ACCORDANCE WITH SECTIONS 3B.16 AND 3B.20 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. THESE WORDS AND BAR ARE TO BE PAINTED RETROREFLECTIVE WHITE.

STOP SIGNAGE AND MARKING

N.T.S.

DTSTOPBR | 03/04/11



STANDARD DUTY ASPHALT PAVING

HEAVY DUTY ASPHALT PAVING

ASPHALT PAVING

NOTES:
1. ALL MATERIALS SHOULD MEET THE KDOT 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

PAVING DETAILS

N.T.S.

DTPAVING | 12/04/08

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Dallas, Texas 75251
Tel. No.(972) 770-1300
Fax No.(972) 239-3820
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KEVIN S. GASKEY LICENSED 18257 KANSAS PROFESSIONAL ENGINEER

STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

CONSTRUCTION DETAILS

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET

P-11

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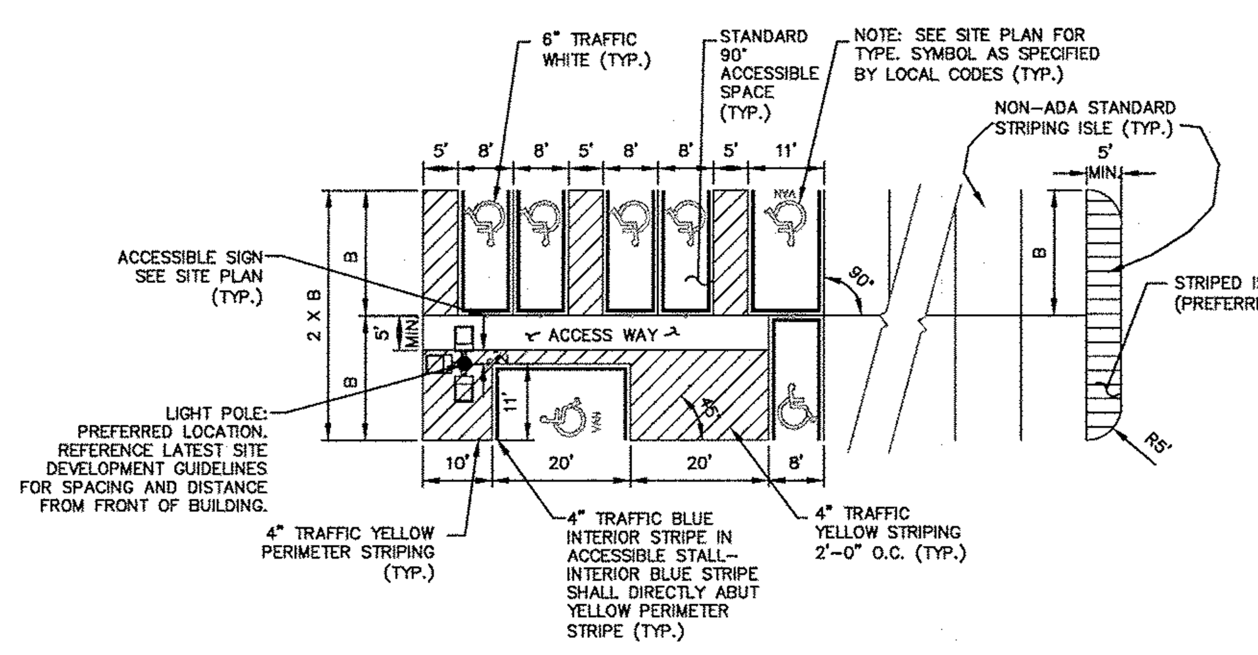
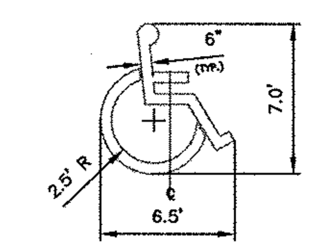
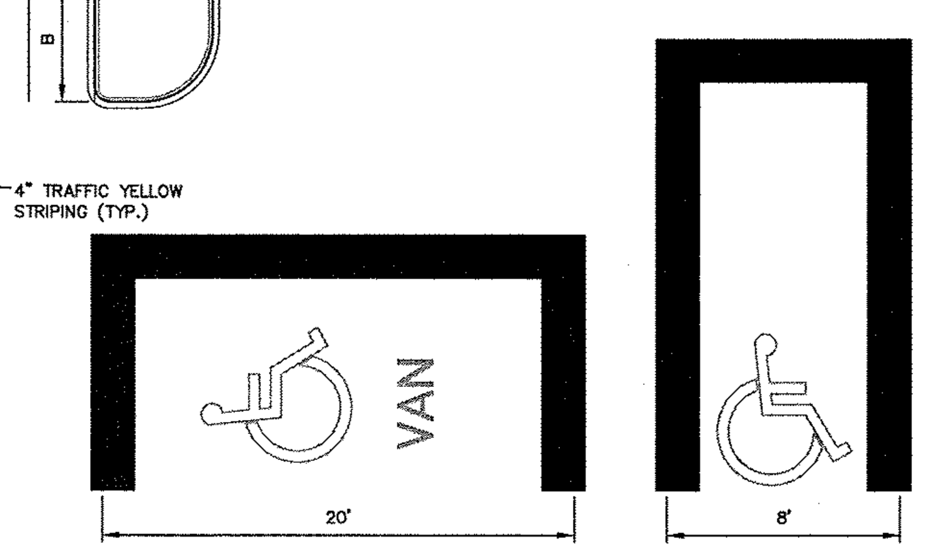


90° STRIPING DETAIL



ACCESSIBLE PARKING SYMBOL

LOCATE AT EDGE OF PARKING SPACE UNLESS ACCOMPANIED BY "VAN" LETTERING

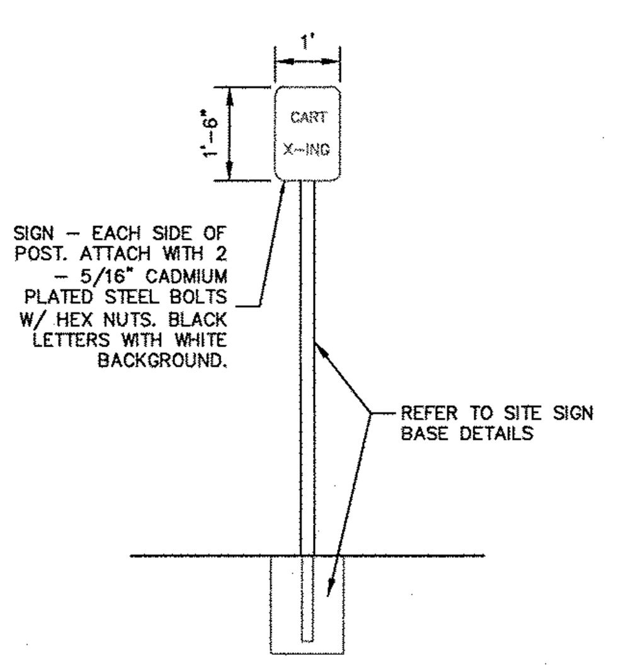


N.T.S.

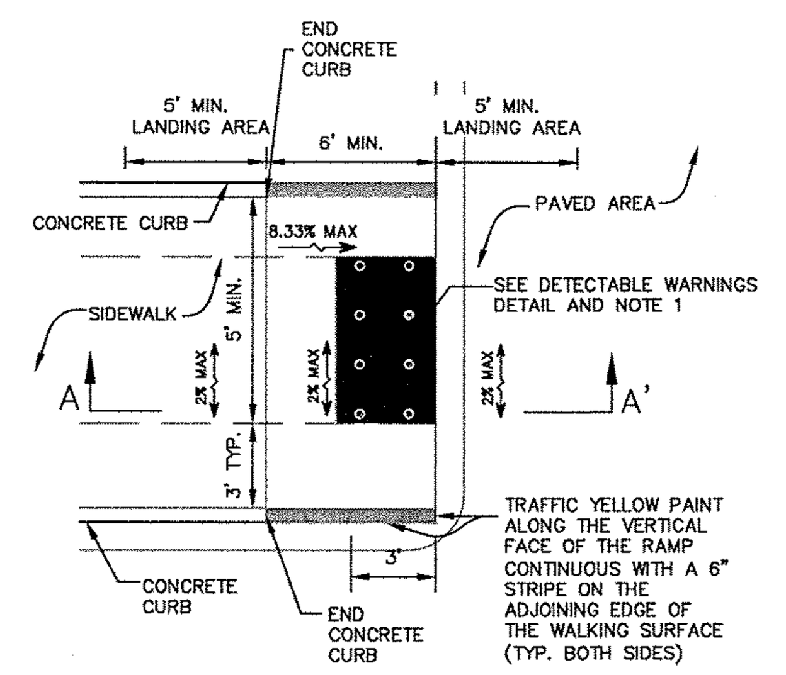
TYPICAL ACCESSIBLE STALL STRIPING

STANDARD PARKING STRIPING

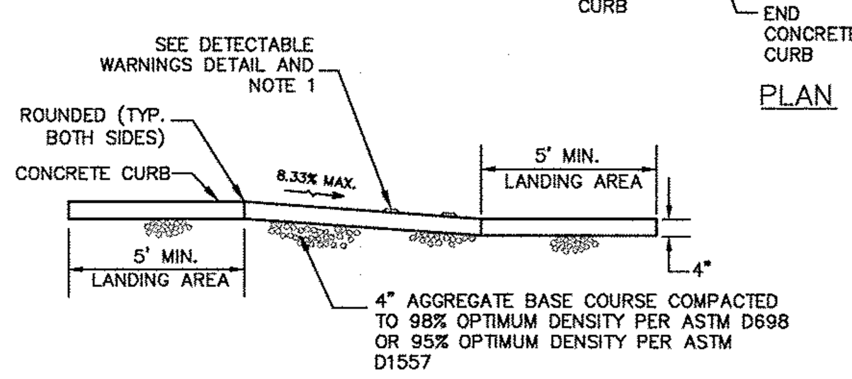
12/08/11 | DSPKSTRP



CART CROSSING SIGN

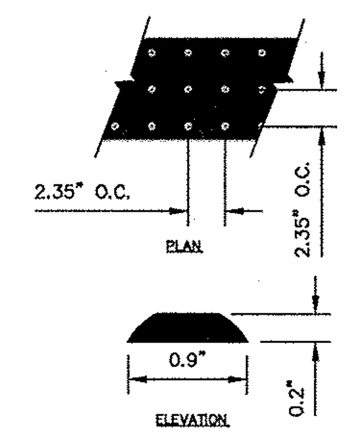


PLAN



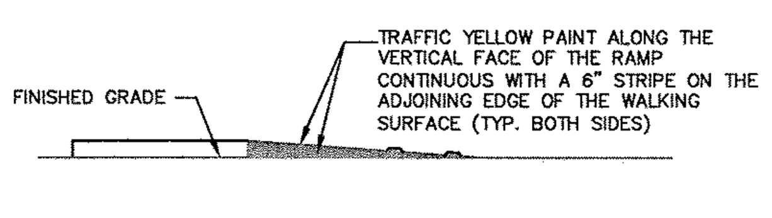
SECTION A-A'

ADA RAMP IN ISLAND



NOTE: PREFABRICATED PANELS PER A.D.A. ACCESSIBILITY GUIDELINES SECTION 4.29.2 & A4.29.2 SHALL BE USED.

DETECTABLE WARNINGS DETAIL



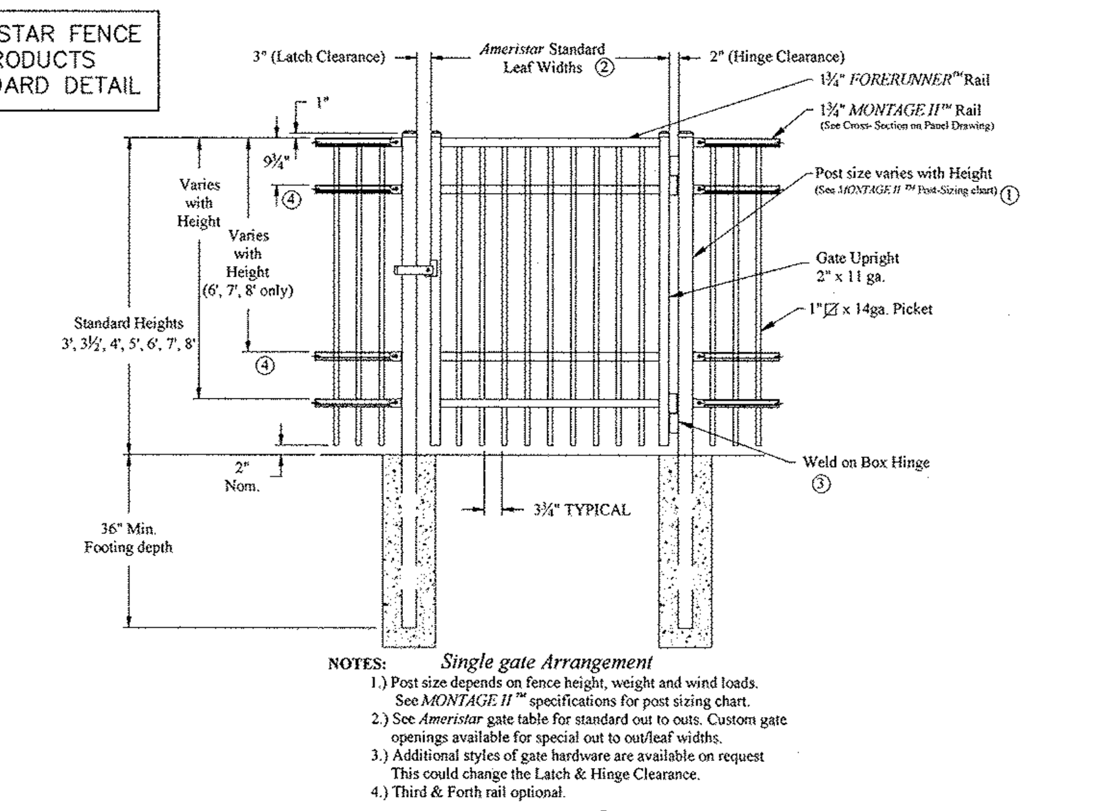
ELEVATION A-A'

ADA STALL AND WALKWAY

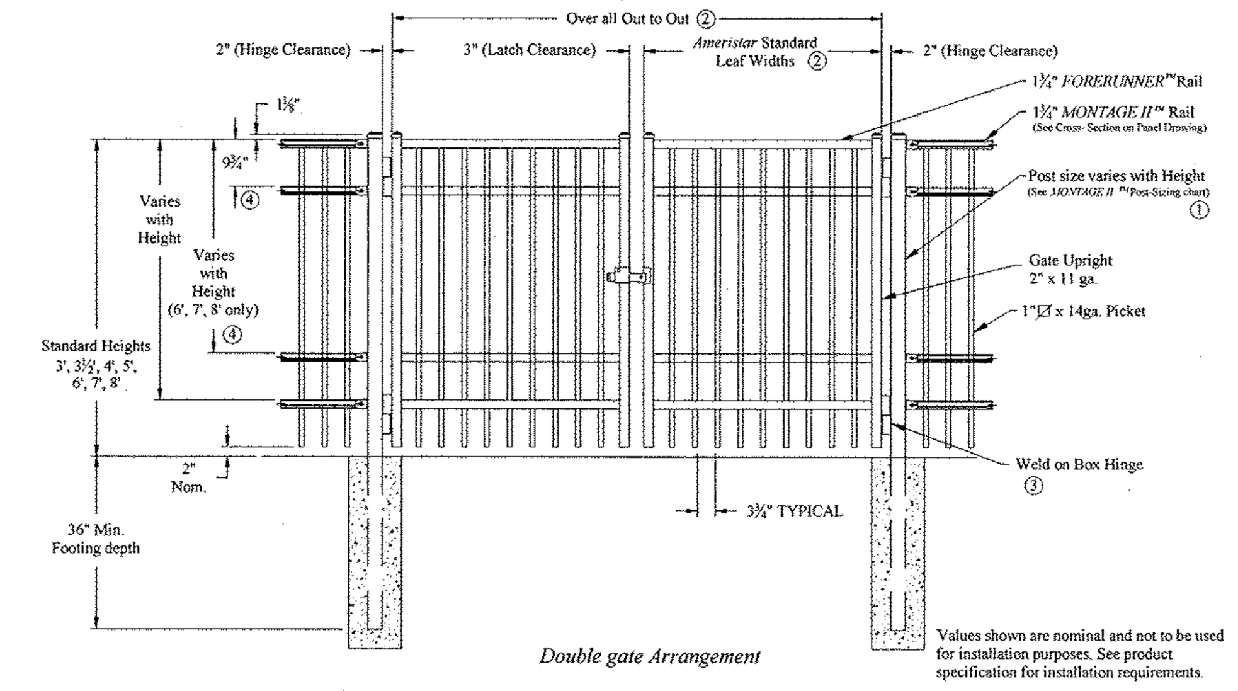
N.T.S.

05/19/09 | STD. PED-X CC

AMERISTAR FENCE PRODUCTS STANDARD DETAIL



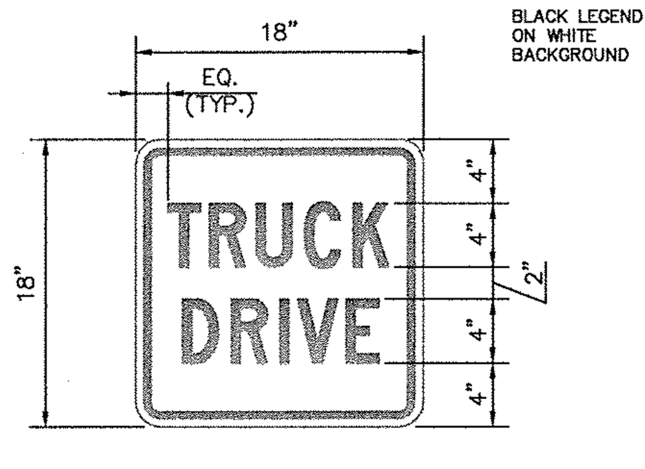
Single gate Arrangement



Double gate Arrangement

METAL FENCE GATE DETAIL

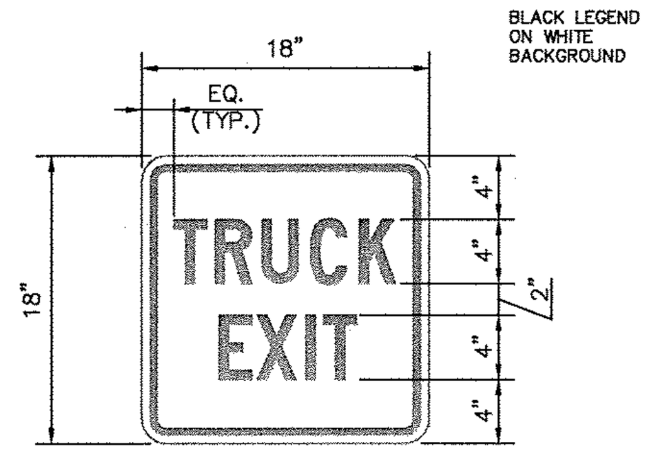
N.T.S.



ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"TRUCK DRIVE" SIGN

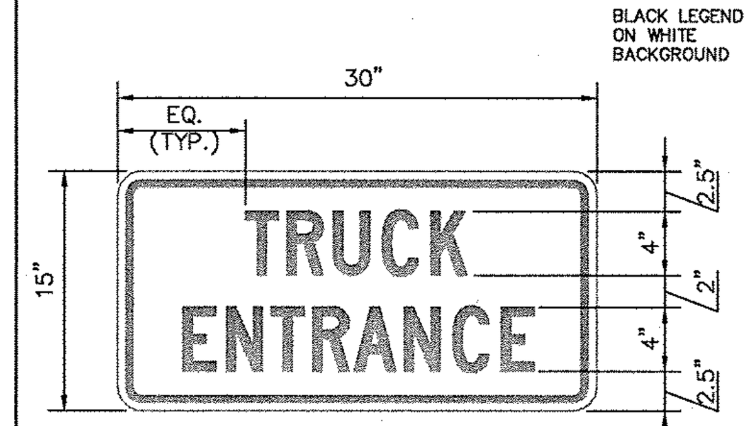
N.T.S.



ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"TRUCK EXIT" SIGN

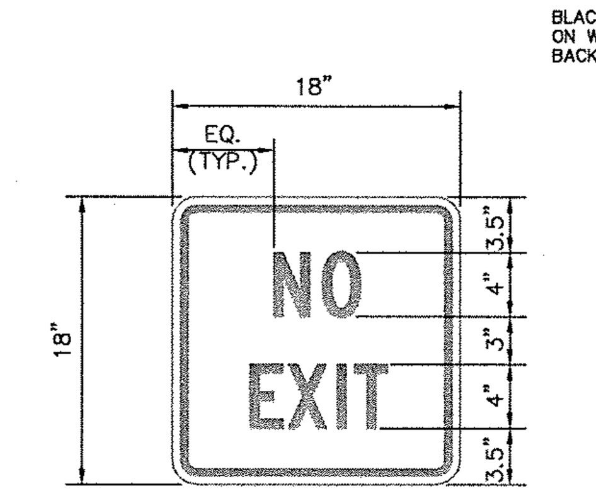
N.T.S.



ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"TRUCK ENTRANCE" SIGN

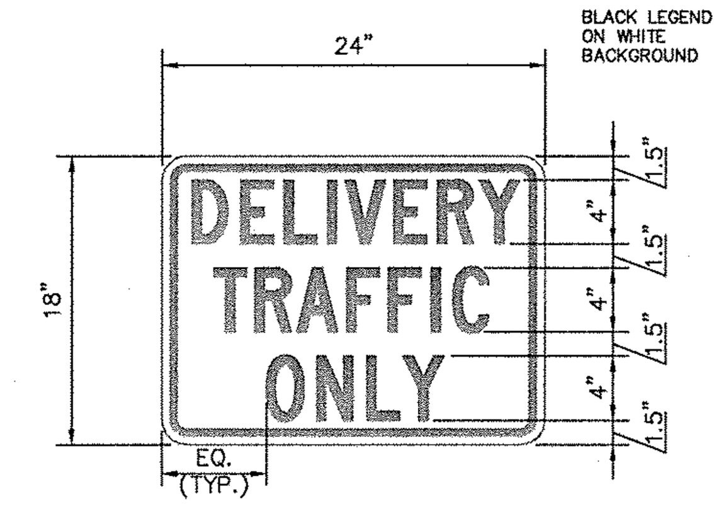
N.T.S.



ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"NO EXIT" SIGN

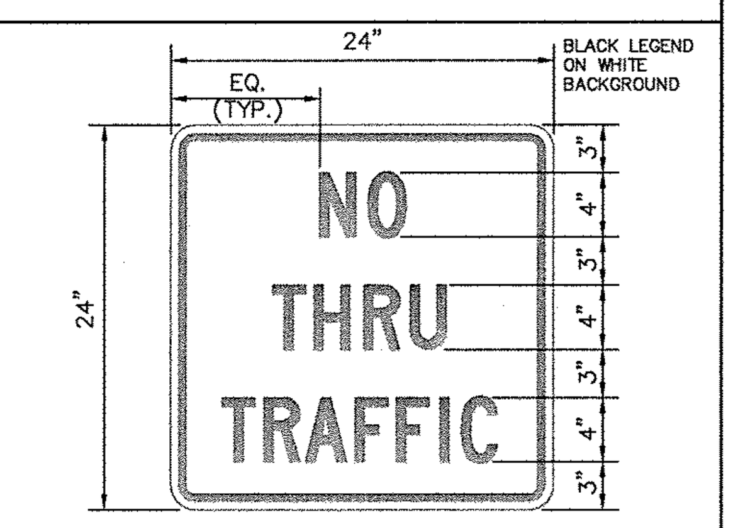
N.T.S.



ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"DELIVERY TRAFFIC ONLY" SIGN

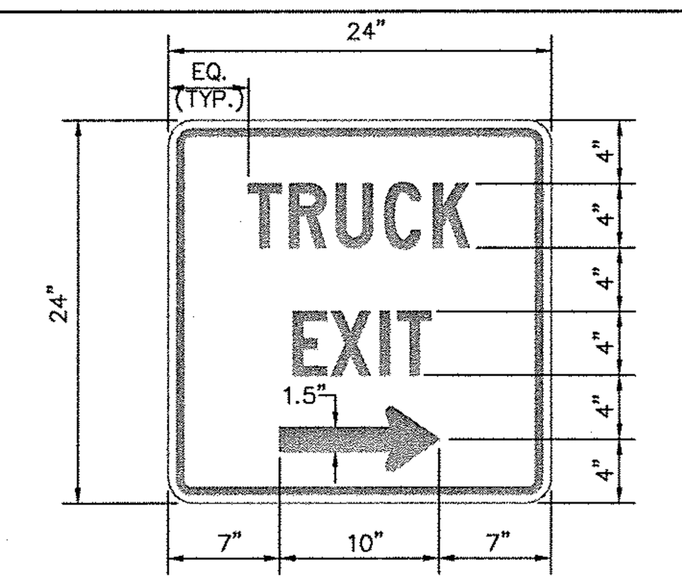
N.T.S.



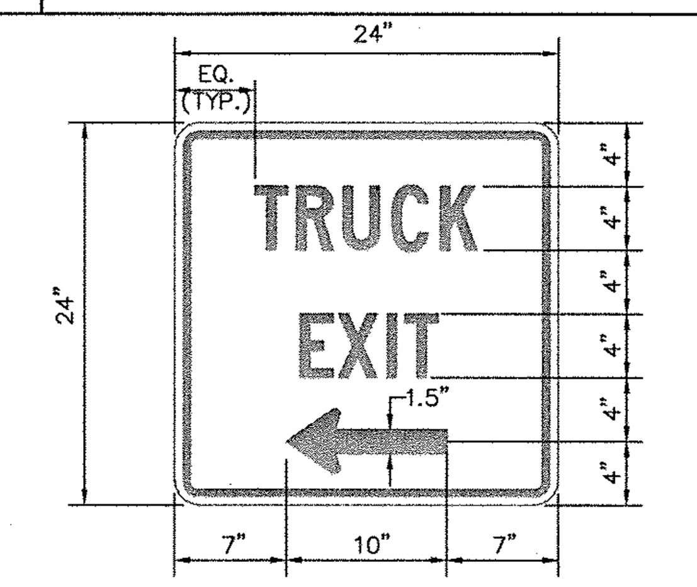
ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"NO THRU TRAFFIC" SIGN

N.T.S.

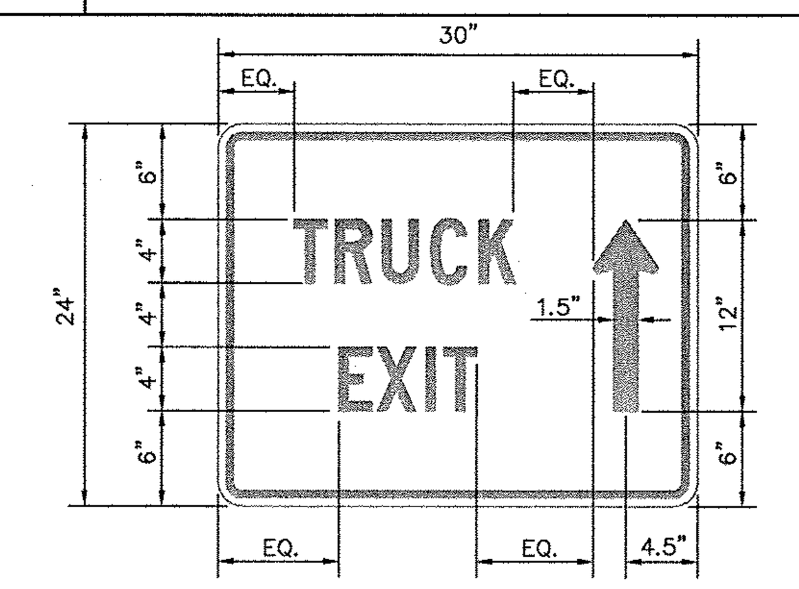


ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)



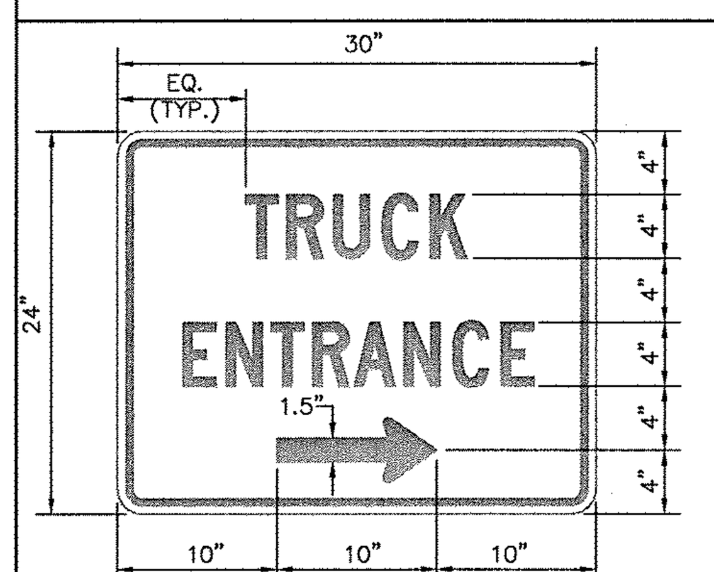
"TRUCK EXIT" SIGN (W/ ARROW)

N.T.S.

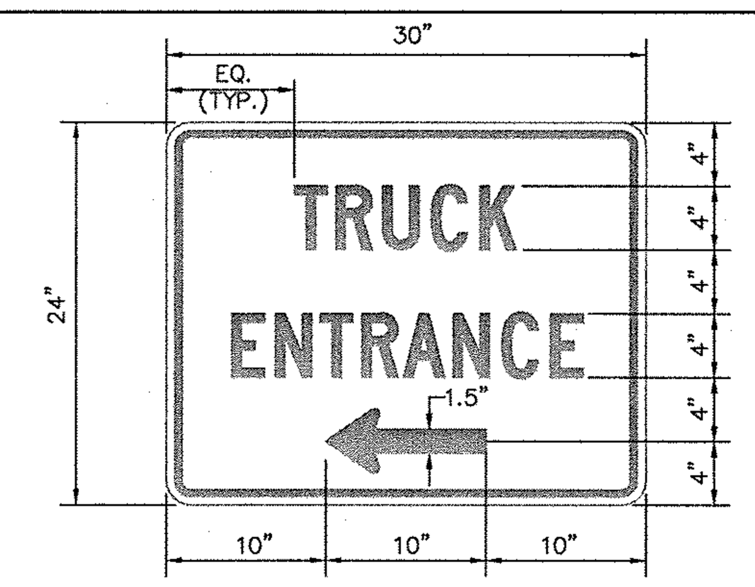


BLACK LEGEND ON WHITE BACKGROUND (TYP) HORIZONTAL ALIGNMENT (TYP) VERTICAL ALIGNMENT (TYP)

03/03/11 | DTSIGNSP

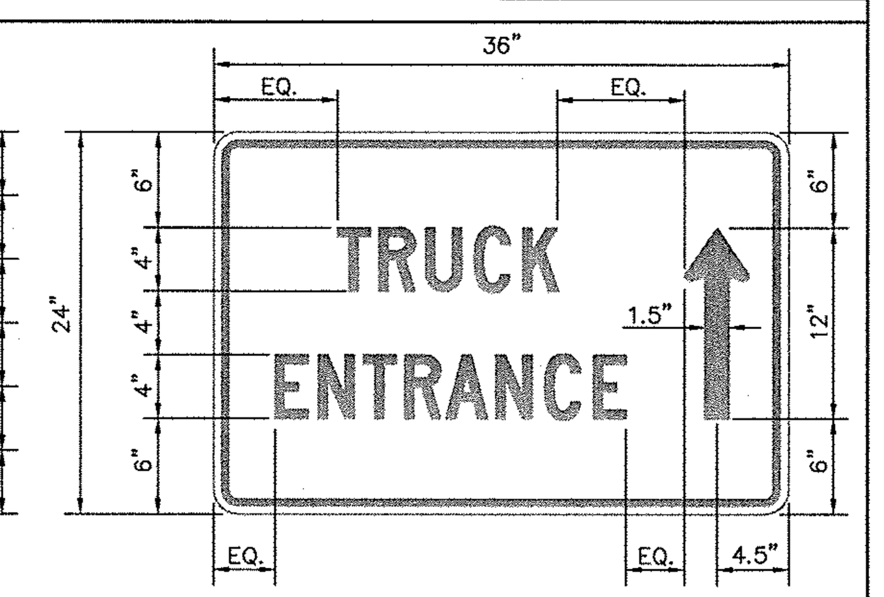


ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

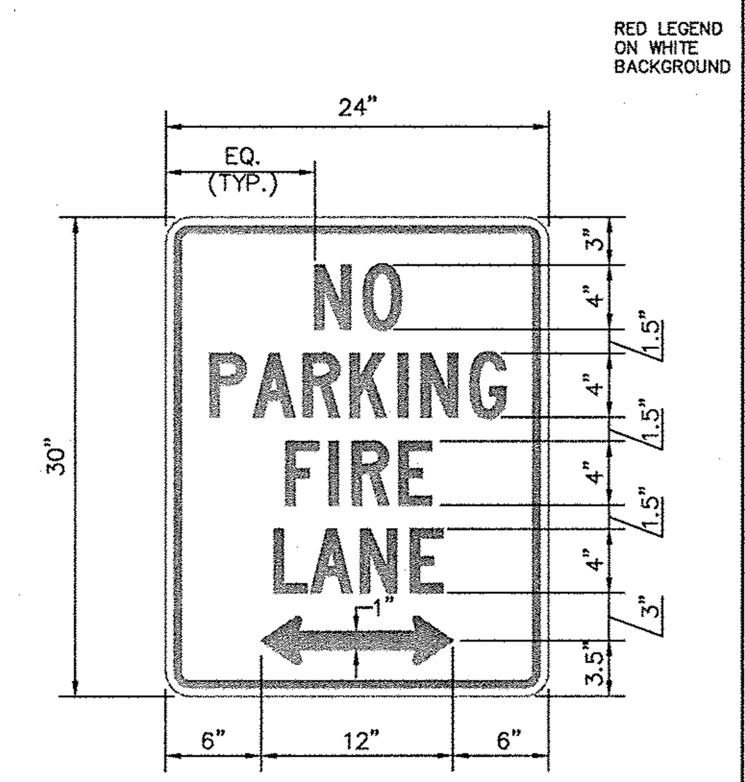


"TRUCK ENTRANCE" SIGN (W/ARROW)

N.T.S.



BLACK LEGEND ON WHITE BACKGROUND (TYP) HORIZONTAL ALIGNMENT (TYP) VERTICAL ALIGNMENT (TYP)



ALL SIGN LETTERS TO COMPLY WITH STANDARD ALPHABETS FOR HIGHWAY SIGNS (SERIES C 2000)

"NO PARKING – FIRE LANE" SIGN

N.T.S.

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Kimley-Horn and Associates, Inc.
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12750 Merit Drive, Suite 1000
Dallas, Texas 75251
Tel. No.(972) 770-1300
Fax No.(972) 239-3820

No.	Date	Revisions	App.

STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

CONSTRUCTION DETAILS

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063382230

SHEET

P-12

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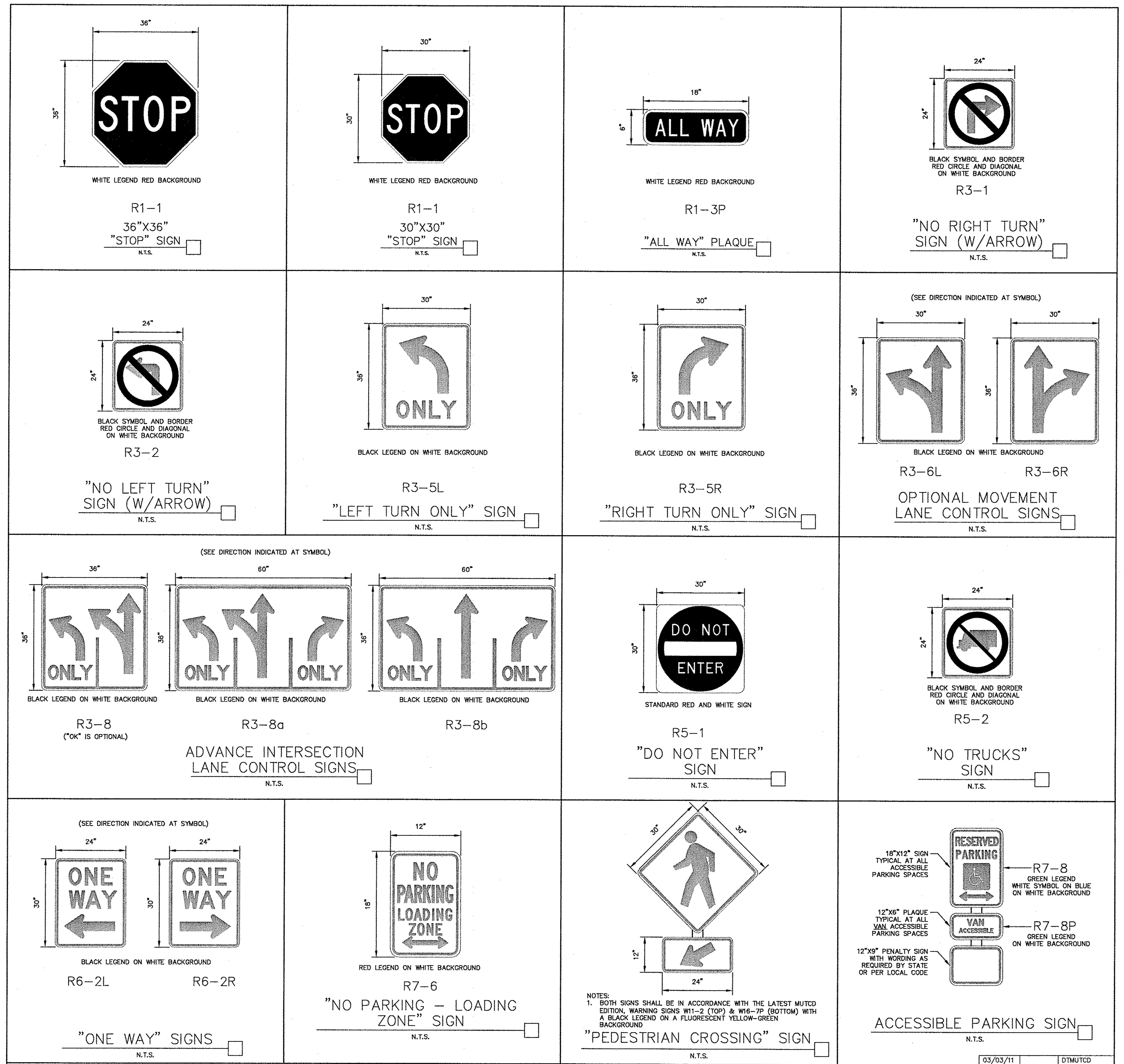
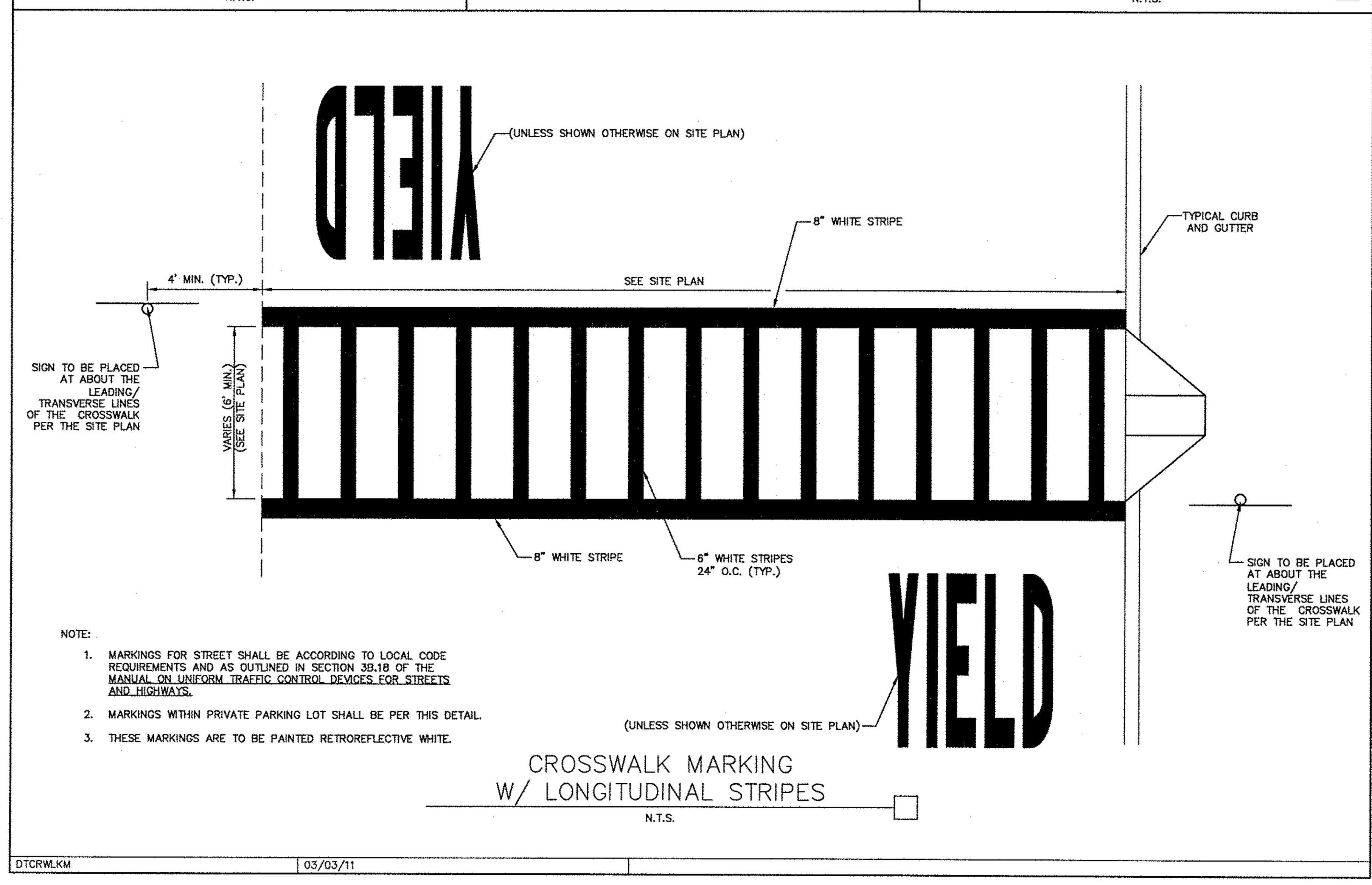
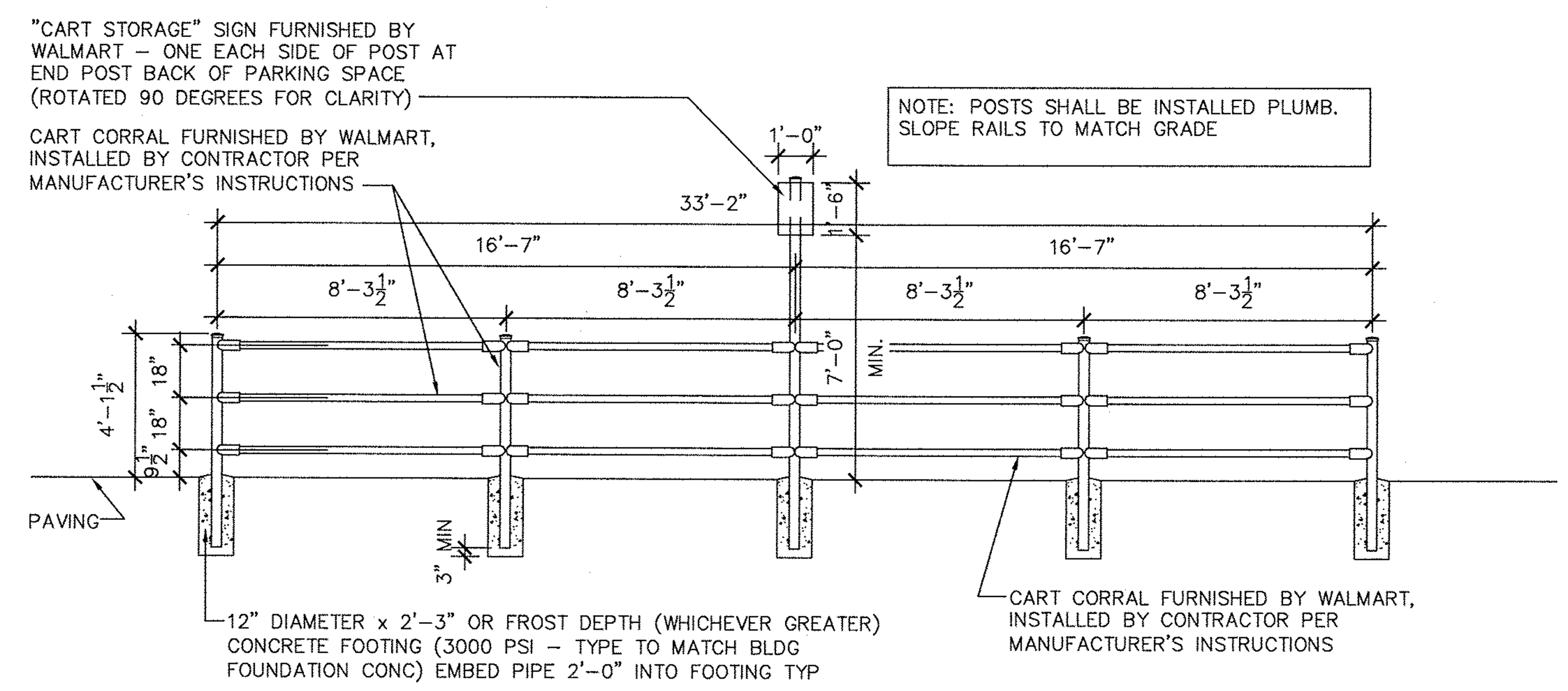
CONSTRUCTION DETAILS



STOP
R1-1
36"X36"
"STOP" SIGN
WHITE LEGEND RED BACKGROUND
STOP
R1-1
30"X30"
"STOP" SIGN
ALL WAY
R1-3P
"ALL WAY" PLAQUE
R3-1
"NO RIGHT TURN" SIGN (W/ARROW)
BLACK SYMBOL AND BORDER RED CIRCLE AND DIAGONAL ON WHITE BACKGROUND
R3-2
"NO LEFT TURN" SIGN (W/ARROW)
ONLY
R3-5L
"LEFT TURN ONLY" SIGN
R3-5R
"RIGHT TURN ONLY" SIGN
BLACK LEGEND ON WHITE BACKGROUND
(SEE DIRECTION INDICATED AT SYMBOL)
R3-6L
R3-6R
OPTIONAL MOVEMENT LANE CONTROL SIGNS
R3-8
("OK" IS OPTIONAL)
R3-8a
R3-8b
ADVANCE INTERSECTION LANE CONTROL SIGNS
DO NOT ENTER
STANDARD RED AND WHITE SIGN
R5-1
"DO NOT ENTER" SIGN
R5-2
"NO TRUCKS" SIGN
ONE WAY
R6-2L
R6-2R
"ONE WAY" SIGNS
NO PARKING LOADING ZONE
RED LEGEND ON WHITE BACKGROUND
R7-6
"NO PARKING – LOADING ZONE" SIGN
NOTES:
1. BOTH SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST MUTCD EDITION. WARNING SIGNS W11-2 (TOP) & W16-7P (BOTTOM) WITH A BLACK LEGEND ON A FLUORESCENT YELLOW-GREEN BACKGROUND
"PEDESTRIAN CROSSING" SIGN
RESERVED PARKING
R7-8
GREEN LEGEND WHITE SYMBOL ON BLUE ON WHITE BACKGROUND
VAN ACCESSIBLE
R7-8P
GREEN LEGEND ON WHITE BACKGROUND
ACCESSIBLE PARKING SIGN
N.T.S.
03/03/11
DTMUTCD

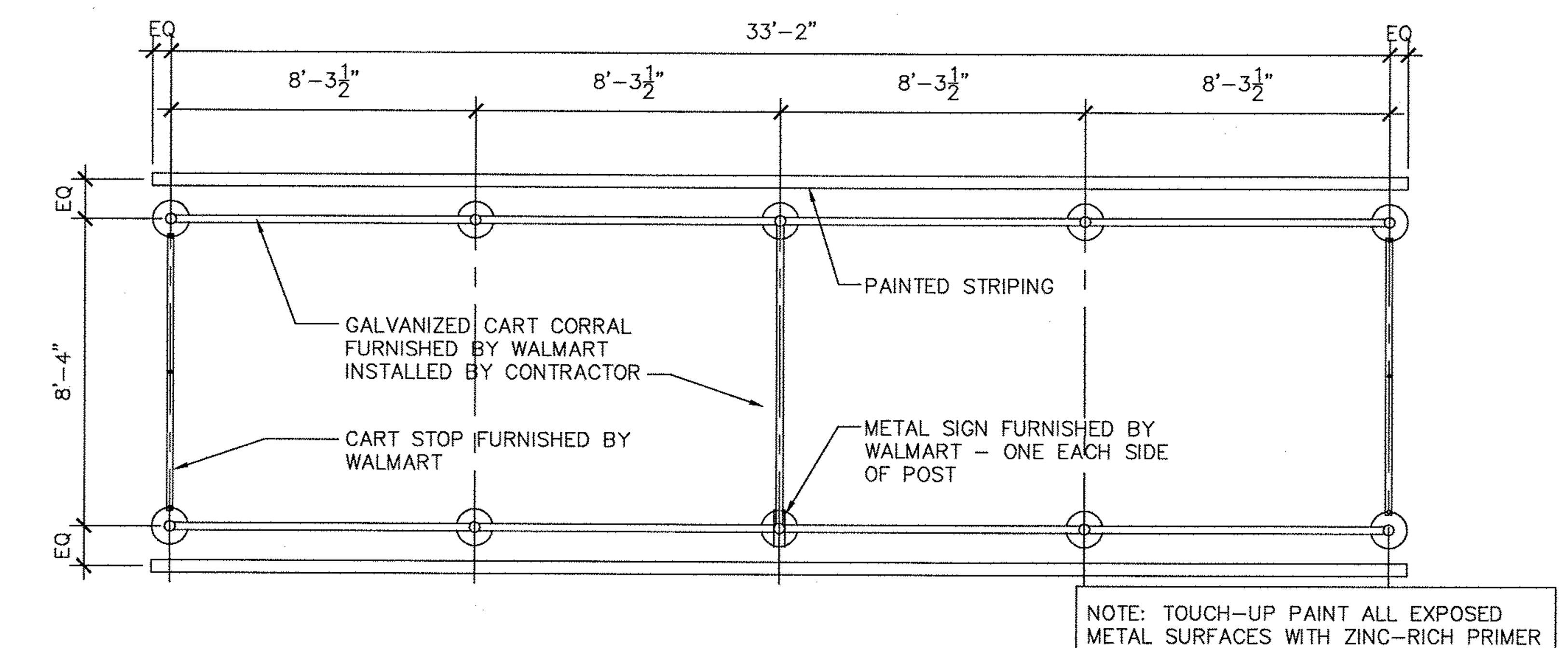


YIELD
(UNLESS SHOWN OTHERWISE ON SITE PLAN)
8" WHITE STRIPE
TYPICAL CURB AND GUTTER
4' MIN. (TYP.)
SEE SITE PLAN
SIGN TO BE PLACED AT ABOUT THE LEADING/ TRANSVERSE LINES OF THE CROSSWALK PER THE SITE PLAN
VARIES (6' MIN.) (SEE SITE PLAN)
8" WHITE STRIPES 24" O.C. (TYP.)
NOTE:
1. MARKINGS FOR STREET SHALL BE ACCORDING TO LOCAL CODE REQUIREMENTS AND AS OUTLINED IN SECTION 3B.18 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. MARKINGS WITHIN PRIVATE PARKING LOT SHALL BE PER THIS DETAIL.
3. THESE MARKINGS ARE TO BE PAINTED RETROREFLECTIVE WHITE.
CROSSWALK MARKING W/ LONGITUDINAL STRIPES
N.T.S.
DTCRWLKM
03/03/11



"CART STORAGE" SIGN FURNISHED BY WALMART – ONE EACH SIDE OF POST AT END POST BACK OF PARKING SPACE (ROTATED 90 DEGREES FOR CLARITY)
CART CORRAL FURNISHED BY WALMART, INSTALLED BY CONTRACTOR PER MANUFACTURER'S INSTRUCTIONS
NOTE: POSTS SHALL BE INSTALLED PLUMB. SLOPE RAILS TO MATCH GRADE
33'-2"
16'-7"
8'-3½"
7'-0" MIN.
PAVING
3" MIN
12" DIAMETER x 2'-3" OR FROST DEPTH (WHICHEVER GREATER) CONCRETE FOOTING (3000 PSI – TYPE TO MATCH BLDG FOUNDATION CONC) EMBED PIPE 2'-0" INTO FOOTING TYP
CART CORRAL FURNISHED BY WALMART, INSTALLED BY CONTRACTOR PER MANUFACTURER'S INSTRUCTIONS

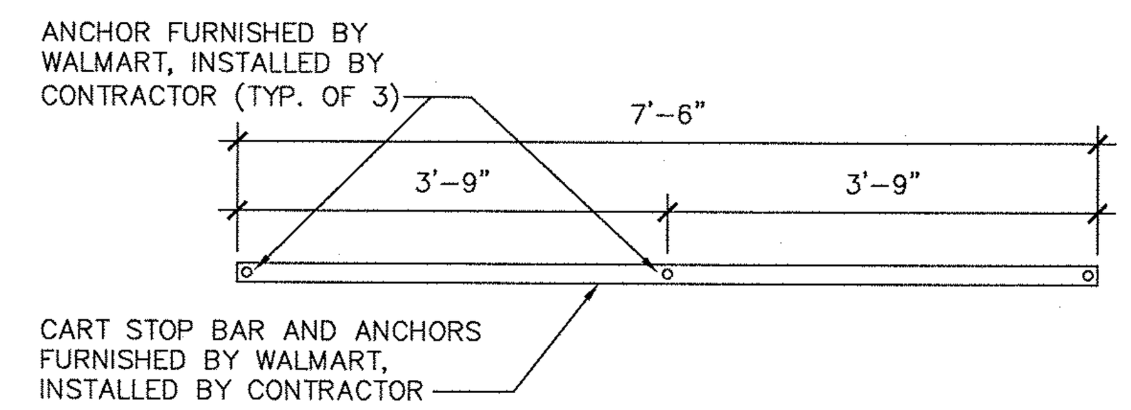
X CART CORRAL ELEVATION
1/4" = 1'-0" 093011



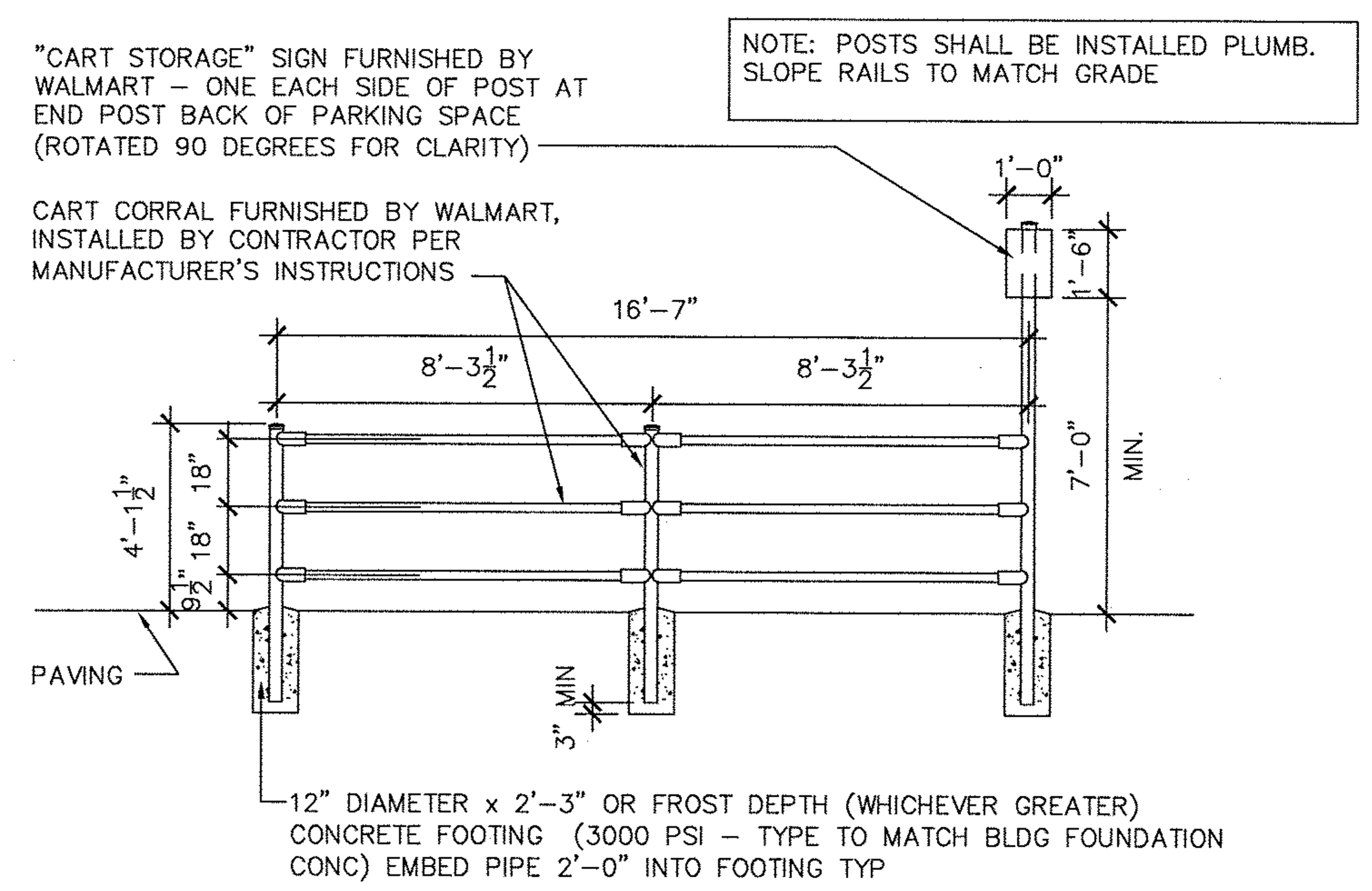
NOTE: TOUCH-UP PAINT ALL EXPOSED METAL SURFACES WITH ZINC-RICH PRIMER AFTER INSTALLATION IS COMPLETE

NOTE: POSTS SHALL BE INSTALLED PLUMB. SLOPE RAILS TO MATCH GRADE

X CART CORRAL PLAN
1/4" = 1'-0" 102811

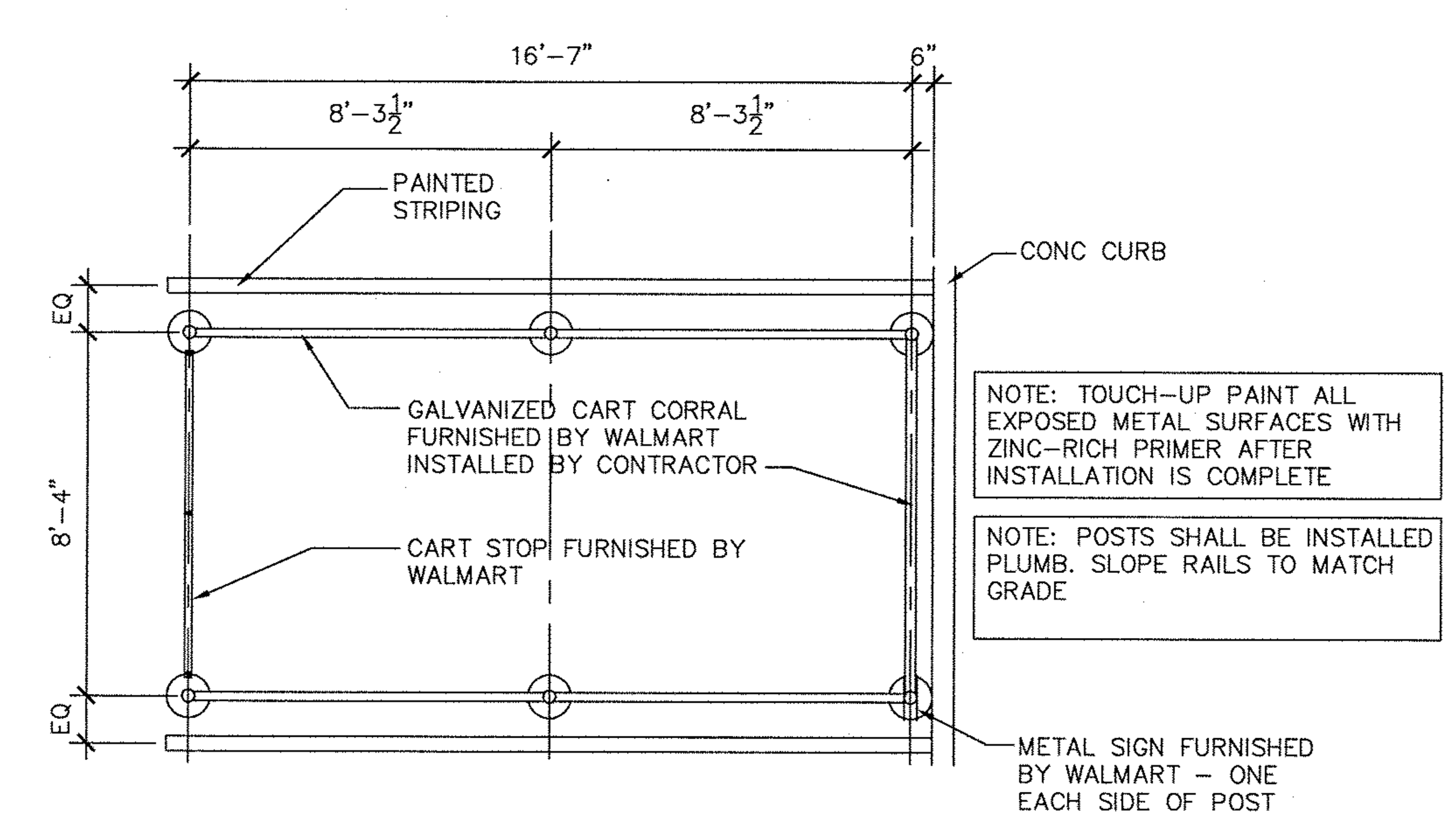


X CART STOP DETAIL
NTS 032610



"CART STORAGE" SIGN FURNISHED BY WALMART – ONE EACH SIDE OF POST AT END POST BACK OF PARKING SPACE (ROTATED 90 DEGREES FOR CLARITY)
NOTE: POSTS SHALL BE INSTALLED PLUMB. SLOPE RAILS TO MATCH GRADE
CART CORRAL FURNISHED BY WALMART, INSTALLED BY CONTRACTOR PER MANUFACTURER'S INSTRUCTIONS
16'-7"
8'-3½"
7'-0" MIN.
PAVING
3" MIN
12" DIAMETER x 2'-3" OR FROST DEPTH (WHICHEVER GREATER) CONCRETE FOOTING (3000 PSI – TYPE TO MATCH BLDG FOUNDATION CONC) EMBED PIPE 2'-0" INTO FOOTING TYP

X HALF CART CORRAL ELEVATION
1/4" = 1'-0" 093011



NOTE: TOUCH-UP PAINT ALL EXPOSED METAL SURFACES WITH ZINC-RICH PRIMER AFTER INSTALLATION IS COMPLETE

NOTE: POSTS SHALL BE INSTALLED PLUMB. SLOPE RAILS TO MATCH GRADE

X HALF CART CORRAL PLAN
1/4" = 1'-0" 102811

ALL DETAILS ARE WALMART STANDARD DETAILS UNLESS OTHERWISE NOTED.

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Tel. No.(972) 770-1300 Fax No.(972) 239-3820
KEVIN S. BASKEY 18257 KANSAS PROFESSIONAL ENGINEER

STORE # 6275-00
LCR-136-TL
WEST 29TH STREET
WICHITA, KANSAS 67205

Scale:	AS SHOWN
Designed by:	STW
Drawn by:	STW
Checked by:	KSG
Date:	JULY 2013
Project No.	063362230

SHEET
P-13

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX

CONSTRUCTION AND MATERIAL REQUIREMENTS FOR TRAFFIC SIGNAL INSTALLATIONS

1. **DESCRIPTION.** These specifications are intended to describe the equipment, material, and construction requirements for the lump sum bid item Traffic Signal Installation. The installation shall include all poles, foundations, conduit, pull boxes, wiring, signal heads, detectors, control equipment and such other miscellaneous parts and materials as shown in the Plans or as otherwise required by the Engineer.

2. **CONSTRUCTION.**

2.1. **GENERAL.** The traffic signal installation shall be constructed according to Section 814 of the Standard Specifications, as modified by these specifications. All incidental parts which are not shown in the Plans or in the Specifications and which are necessary to complete the traffic signal installation shall be furnished and installed as though such parts are shown in the the Plans or specified herein. The traffic signal system shall be complete and in operation to the satisfaction of the Engineer and the Maintaining Agency at the time of acceptance of the work. All signs, signals, and markings shall conform to the latest edition of the M.U.T.C.D.

2.2. **COORDINATION OF STANDARD SPECIFICATIONS, PLANS, SPECIAL PROVISIONS, AND PROJECT SPECIAL PROVISIONS.** Coordination of discrepancies between the Standard Specifications, Plans, Special Provisions, shall be in accordance with Section 105.06 of the Standard Specifications. In the case of a discrepancy within the Plans, the plan notes shall govern over the standard installation details, and the installation details shall govern over these specifications.

2.3. **CERTIFICATION OF CONTRACTOR PERSONNEL.** All traffic signal installation work shall be done by, or in the presence of and under the responsible charge of an employee of the Contractor who holds a Level II Traffic Signal Electrician or Level II Traffic Signal Technician certification which has been granted by the International Municipal Signal Association, or an equivalent certification approved by the Bureau of Transportation Safety and Technology (BTST).

2.3.1. Before starting work, the Contractor shall provide the Engineer with the names of the Level II Traffic Signal Electricians and/or Level II Traffic Signal Technicians who have been assigned to perform traffic signal related work, and a photocopy of each such person's certification card. If the Level II Traffic Signal Electricians or Level II Traffic Signal Technicians are dismissed from the work, all traffic signal installation work shall cease until the names and photocopies of certification cards for replacement personnel are provided to the Engineer.

2.4. **TRAFFIC SIGNAL MATERIALS LIST.** Before commencement of installation of the traffic signals, the Contractor shall submit, for the approval of the Engineer, a complete list of traffic signal materials proposed for the installation. See the materials section of these specifications for the basis of acceptance. The list should be submitted as soon a practicable. Materials approved for use are included in the "Pre-qualified Materials Listing" located on the KDOT web site, www.ksdot.org, "Doing Business With Us", "Information for Highway Contractors", Materials and Rearch Section. All other material items intended for use shall be submitted to the Bureau of Transportation Safety and Technology for acceptance approval.

2.5. **LOCATION OF UNDERGROUND UTILITIES.** The plan location of underground utilities are not guaranteed. Additional existing utilities may also be encountered. The Contractor shall have all underground utilities located and marked before beginning any construction excavation, and will be required to work around any existing utilities located within the right-of-way which do not conflict with the proposed construction. The Contractor will be fully responsible for all damages which may be occasioned by failure to exactly locate and preserve all underground utilities.

2.6. **NOTIFICATION OF LOCAL POWER COMPANY.** The Contractor shall notify the local power company prior to beginning work to determine the proper type and method of hook-up for the particular location. The Contractor shall be responsible for payment of any fees assessed by the power company for the power hook-up, regardless of whether these costs have been listed in the Plans. The fees may include, but are not limited to, costs for conduit, lead-in wire, service pole, meter landing, and power used during testing and until the traffic signals are accepted.

2.7. **STAKING OF POLES, PEDESTALS, PULL BOXES, CONTROLLER, AND LOOP LOCATIONS.** The locations for signal poles, pedestals, service boxes, junction boxes, controller and detector loops shall be staked by the Contractor. Staked locations shall be approved by the Engineer prior to construction of each item. This work shall be included in the lump sum bid item Traffic Signal Installation.

2.8. **TRAFFIC SIGNAL IMPROVEMENT POLICIES.** The work included in this project may involve replacement and/or modification of existing traffic signal equipment at a location which is presently controlled by operating traffic signals. The following policies are to be observed during the proposed modifications and improvements:

2.8.1. EXISTING OPERATION. Unless otherwise noted in the Plans, the Contractor shall provide continuous operation of the traffic signals during the signal modifications and improvements except for shutdowns to allow for alterations as required for installation of the proposed improvements.

2.8.2. PERIODS OF DISRUPTION. Some periods of disruption of the existing signal operation can be tolerated during installation of the proposed improvements; however, the Contractor shall coordinate any planned disruption of signal operations with the Engineer at least 48 hours in advance of such disruption of operations.

2.8.3. DISRUPTION TIMES. Planned disruption of signal operations shall be limited to the hours between 9:00 a.m. and 4:00 p.m., unless otherwise noted in the Plans. Traffic control during signal disruptions shall be provided as directed by the Engineer. The signal controls shall be operable during all other periods.

2.8.4. EXISTING WIRING. All existing wiring within existing controller cabinets shall be identified by the Contractor and each conductor properly labeled prior to de-energizing the existing controller to install the proposed modifications and improvements.

2.9. **SALVAGED EQUIPMENT.**

2.9.1. REINSTALLED. When salvaged equipment is to be reinstalled, the Contractor shall furnish and install all necessary new materials and equipment including anchor bolts, nuts, washers, concrete, etc. required to complement the salvaged equipment in the new installation.

2.9.2. NOT REINSTALLED. When salvaged equipment is not to be reinstalled, it shall be stored on site for removal by the owner of the equipment. The Contractor shall notify the owner of the equipment within 24 hours of its removal. The stored equipment shall be the responsibility of the Contractor until the owner removes it from the work site. Unless otherwise agreed between the owner and the Contractor, any equipment that is not retrieved by the owner within 3 working days after notification shall become the property of the Contractor.

2.10. **REMOVAL OF EXISTING FOUNDATIONS.** Existing foundations for traffic signal poles, pedestals and controllers shall be removed a minimum of 24 inches below finished grade, and the area backfilled according to the Standard Specifications.

2.11. **CONDUIT INSTALLATION.** Conduit shall be installed per Section 814.3 of the Standard Specifications and as noted below. The conduit shall be of the type indicated in the Plans. If the Plans do not specifiy the type of conduit, the Contractor may install any approved conduit of the size noted in the Plans, except as noted below. Conduit shall be of one type from outlet to outlet.

2.11.1. Conduit under existing pavement, sidewalk, or driveways shall be installed using an approved jacking or boring method. Conduit under existing pavement in District One shall be installed by using an approved boring method only.

2.11.2. All electrical conduit installed above ground shall be metallic. Conduit attached to bridges shall have expansion fittings installed at the end of the bridge and at each expansion joint on the bridge. Any attachments to bridges on the state highway system must be approved by the Bridge Management Engineer.

2.11.3. All metallic conduits shall be electrically bonded by a grounding bushing and ground wire as detailed in the Plans.

2.11.4. The PVC conduit joints shall be made in accordance with the manufacturer's recommendations.

2.11.5. Polyethylene conduit shall be continuous from outlet to outlet, with no splices allowed. Bend radii shall not exceed the manufacturer's recommendations.

2.12. **PULL BOXES.** Service box and junction box installations shall be per Section 814.3 of the Standard Specifications, and as noted below. The location of boxes may be adjusted during installation to clear obstructions and facilitate wiring as approved by the Engineer. The quantity of boxes as shown in the Plans may not be reduced. Additional boxes may be provided at the Contractor's expense. Boxes shall not be located in sidewalk ramps. All boxes shall be free of trash, wire scraps, etc.

2.12.1. BEDDING. A 6 inches thick layer of aggregate shall be provided under all pull boxes. The aggregate shall meet the requirements of CPA-4 described in Section 1102, Table 1102-3 of the Standard Specifications and will be visually accepted by the Engineer.

2.12.2. CONDUIT ENTRANCES. The area around the conduit entrance in in-ground boxes shall be filled with a mortar grout or a silicone sealant.

2.12.3. CABLE HOOKS. Cable hooks shall be installed in service boxes as detailed in the Plans.

2.12.4. BRIDGE MOUNTED. Junction boxes mounted to bridges shall be mounted with wedge anchor bolts of sufficient size and strength to safely secure the box to the structure. The surface of the junction box which comes in contact with concrete shall be covered with aluminum colored butyl rubber sealant (caulking compound). Any attachments to bridges on the state highway system must be approved by the Bridge Management Engineer.

2.13. **FOUNDATIONS.** Concrete foundations for poles, pedestals and cabinets shall be constructed per Section 814.3 of the Standard Specifications, as modified below, and as detailed in the Plans.

2.13.1. Reinforcing steel shall meet the requirements of Section 1601 of the Standard Specifications. It shall be free of rust and dirt, and shall be of the size, number and dimensions shown in the Plans.

2.13.2. Before placing the concrete for the foundation, the Contractor shall ensure that the appropriate anchor bolts are placed in proper orientation, elevation and verticality. This may be accomplished by using positioning plates and/or tying or welding the anchor bolt assembly to the reinforcing steel cage. "Stabbing" of anchor bolts will not be permitted.

2.13.3. The anchor bolt threads shall be protected from concrete fouling when the concrete is poured.

2.13.4. Foundations shall be constructed in one pour. The top 6 inches of pole and pedestal foundations shall be formed in a square and shall be level with the adjacent sidewalk, or approximately 2 inches above finished grade if no sidewalk is present. The work apron on the controller pad shall be level with the adjacent sidewalk or approximately 1 inch above finished grade if no sidewalk is present.

2.14. **TRAFFIC SIGNAL POLES AND PEDESTALS.**

2.14.1. TRAFFIC SIGNAL POLES. The traffic signal poles shall be plumbed after the mast arm and other loads have been applied. Adjustment shall be made using the leveling nuts on the anchor bolts. The final distance between the top of the concrete foundation and the bottom of the leveling nuts shall not exceed 1 inch. The nuts shall be thoroughly tightened to the manufacturer's recommendations and covered with the nut covers provided with the poles.

2.14.1.1. The mast arm and luminaire arm(s) (on combination poles) shall be attached to the pole with the clamps furnished with the poles. The clamps shall be installed to the manufacturer's recommendations.

2.14.1.2. All other attachments to the poles and mast arms shall be located in the field, and all wire entrances into the pole or mast arm shall be drilled or punched in the field. All drilled or punched surfaces shall be carefully reamed to remove any sharp edges or burs before application of a field coat of organic zinc rich paint as described in Section 1803 of the Standard Specifications. The 1 inch rubber grommets supplied with the poles shall be installed at all outlets for signal wiring before the wires are installed.

2.14.1.3. Once all loads have been applied and the pole has been plumbed, the Contractor shall grout the area between the top of the concrete foundation and the bottom of the pole base plate with a cement mortar grout. Before the grout sets, weep holes shall be formed by inserting a greased ½ inch dowel through the grout and into the bottom of the pole from each side of the base plate. The weep holes shall be sloped so that moisture will drain out of the base.

2.14.1.4. The end caps provided with the poles shall be securely installed on the end of the arms and the top of the pole prior to acceptance of the signals.

2.14.2. PEDESTALS. The cast aluminum pedestal bases shall be bolted to the concrete foundation and tightened to the manufacturer's recommendations.

2.14.2.1. All attachments to the pedestal shall be located in the field and all wire entrances into the pedestal shaft shall be drilled or punched in the field. All drilled or punched surfaces shall be carefully reamed to remove any sharp edges or burs. Plastic or rubber bushings shall be installed at each opening before the wires are installed.

2.14.2.2. The post cap and hand hole cover provided with the pedestal shall be securely installed prior to acceptance of the signals.

2.15. **TRAFFIC SIGNAL HEAD INSTALLATION.**

2.15.1. GENERAL. Signal heads shall be installed as close to signal turn-on as practicable. All signal heads shall be mounted with their faces directed away from traffic, or be completely covered until signal turn-on. Signal heads shall not be installed more than 10 days prior to the signal turn-on, unless otherwise approved by the Engineer.

2.15.1.1. All heads shall be plumbed as viewed from the direction in which they face. The Engineer shall direct the final positioning of the signal heads for optimum visibility.

2.15.2. MAST ARM MOUNTING. Mast arm signal head assemblies shall be rigidly mounted by approved brackets. The brackets shall be securely attached to the mast arm according to the manufacturer's recommendations. Construction shall be such that all conductors are concealed within the assembly.

2.15.2.1. All mast-arm signal heads shall be attached to the mast arm at the time of mast arm installation to minimize the effects of vibration. Special care must be taken before drilling the arm for attaching the signal heads in order to assure that the signal heads will be in proper orientation over the intended traffic lanes.

2.15.2.2. Mast arm mounted signal heads shall be installed at a height of 15 to 19 feet from the pavement to the bottom of the signal head, with 17 feet being the desirable minimum height.

2.15.3. SIDE-OF-POLE MOUNTING. Side-of-pole signal heads shall be supported by approved side-of-pole brackets. All members shall be either plumb or level, symmetrically arranged, and securely assembled. Mounting brackets shall be attached to the pole with heavy duty stainless steel banding and buckles. Construction shall be such that all conductors are concealed within the assembly.

2.15.3.1. Side-of-pole traffic signal heads shall be installed at a minimum height of 10 feet from the base of pole to the bottom of signal head. Pedestrian signal heads shall be mounted at a minimum of 8 feet from the base of pole to the bottom of the signal head.

2.16. **WIRE AND CABLE INSTALLATION.**

2.16.1. GENERAL. Wire and cable shall be installed per Section 814.3 of the Standard Specifications, as modified herein, and in accordance with the wiring diagram in the Plans. No splicing of conductors will be allowed except for the following:

2.16.1.1. LOOPS. The ends of the wire forming each loop shall be spliced in the nearest pull box to a detector lead-in cable. Splices between loops and lead-in cables shall be twisted and secured with a wire nut, and the splice shall be carefully waterproofed including the end of the loop wire tubing. An approved loop splice kit may be used. Taped splices will not be permitted. The wires shall be positioned in the pullbox so that the splice is situated in the upper 75 percent of the box.

2.16.1.2. MULTICONDUCTOR CABLE IN PEDESTAL BASES. Multiconductor cable runs to pedestal bases shall be spliced in the pedestal base to the multiconductor cables running up the pedestal shaft to the signal heads and/or push-buttons. Each conductor shall be clearly labeled as to its function with a permanent label and the splices shall be carefully waterproofed. The wires shall be arranged in the base to prevent the splices from coming into contact with the sides of the base or top of the foundation. Any unused conductors shall be taped.

2.16.2. PULLING WIRES AND CABLES THROUGH CONDUIT. When pulling wires into the conduit, a pulling sock or other similar device shall be used to equalize pulling strain on the conductors.

2.16.3. EXCESS CABLE. A minimum of 3 feet of slack or excess multiconductor cable, detector lead-in cable, loop detector wire, and lighting distribution wire shall be left in each pull box. The excess cable in service boxes shall be neatly coiled and placed on the cable hooks. The excess cable in junction boxes shall be neatly coiled and placed in the bottom of the box. At least 3 feet of excess multiconductor cable shall be left in each pole base to allow for connection to the terminal block.

2.16.4. TERMINATION OF FIELD WIRES IN THE CABINET. The Contractor shall clearly identify each field wire coming into the cabinet as to its function with a permanent label, and shall connect all field wires to their respective terminals within the cabinet per the wiring diagram furnished with the cabinet.

2.16.5. POLE WIRING. Each signal head shall have a separate run of multiconductor cable from the terminal block in the pole base to the terminal block in the signal head. A separate five-conductor cable shall run to each three-section signal head; a separate seven-conductor cable shall run to each four- or five-section signal head; a five-conductor cable shall run to each pair of pedestrian heads; a two-conductor cable shall run to each pedestrian push-button. The ends of any unused conductors shall be taped.

2.17. **GROUNDING.** The traffic signal system shall be grounded per Section 814.3 of the Standard Specifications and as specified herein. All traffic signal poles, pedestals, controller cabinets, and service circuit breakers shall be grounded by means of a ground wire bolted to the inside of these devices with a ¾ inch internal ground lug. All ground wires shall be attached by means of a ground clamp to a ground rod. Ground rods shall be installed as detailed in the Plans.

2.17.1. The detector lead-in shielding and drain wire shall be electrically floating (not attached to earth ground) at the pullbox. The recommendations of the loop detector manufacturer should be followed concerning whether or not the cabinet end is grounded.

2.18. **DETECTOR LOOP INSTALLATION.**

2.18.1. GENERAL. Detector loops shall be installed as close as practicable to the locations shown in the Plans. Loops shall be centered in their respective lanes; or if they cover more than one lane, they shall be centered over the width of the intended zone of detection. The longitudinal orientation of loops installed in concrete pavement shall be adjusted such that no loop begins or ends within 12 inches of a transverse joint.

2.18.2. PRE-FORMED LOOPS. Pre-formed loops shall be installed in new pavement during the pavement construction in accordance with the manufacturer's recommendations. Special care must be taken to place the loops in their proper location in relation to the final lane configuration.

2.18.3. SAW-CUT LOOPS. Saw-cut loops shall be installed in saw cuts as detailed in the Plans. The location of each loop shall be marked on the pavement with crayon or spray paint and approved by the Engineer prior to loop installation. The Contractor shall drill 2 inch diameter holes centered on each point of intersection of the loop slots prior to cutting the slots. The slots shall be cut using a saw equipped with a depth gauge and horizontal guide to assure proper depth and

NO.	DATE	REVISIONS	BY	APP'D
2	6/11/12	Update Std Spec. Sect. no.& Bureau Name	CPA	
1	3/26/03	Current Version		

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL SPECIFICATIONS

TEI20A

FHWA APPROVAL			6/11/12	APP'D	Brian D. Gower, P.E.		
DESIGNED	C.P.A.	DETAILED	C.P.A.	QUANTITIES		TRACED	
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.		TRACE CK.	

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File : $$DGNSPEC$$ $$KDOTGRP$$

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alignment of the slot. The blade used for the saw cut shall provide a a clean, straight, well-defined saw cut of the width and depth indicated in the Plans without damage to adjacent areas. Where the loop changes direction, the saw cuts shall be overlapped to provide full depth at all points of intersection.

2.18.3.1. Before installing the loop wire, the slots shall be checked for the presence of jagged edges or protrusions. Should these exist, they must be removed. The slots must be cleaned and dried to remove cutting dust, grit, oil, moisture or other contaminants. Cleaning shall be achieved by flushing the slot with a high pressure water jet stream. The slot shall then be cleared of water and dried using oil-free compressed air.

2.18.3.2. Loop wire shall be installed in the slot using a dull edge wooden paddle or wheel to prevent damage to the loop jacket. Conductors of each loop shall be run continuously from the nearest pull box with no splices permitted. All loops shall be wound in the same direction with the start and end of each clearly marked with a permanent label at the pull box. The loop conductors running from the loop to the adjacent pull box shall be twisted a minimum of 10 turns per meter. In addition, each loop conductor shall be permanently identified by the loop number shown in the Plans. Paired loops shall be joined in the pull box in series or parallel so that optimum sensitivity as recommended by the detector manufacturer is obtained at the sensor unit.

2.18.3.3. After the conductors are installed in the slots, the loops shall be tested for continuity and shorts with a meg-ohm-meter set at 500 Volts. Any defective wire shall be replaced. After testing, the slots shall be filled with an approved loop sealant to within ⅛ inch of the pavement surface. Before setting, surplus sealant shall be removed from the adjacent road surfaces without the use of solvents.

2.18.4. The Contractor may, at his own expense, use approved pre-formed loops instead of saw cut loops.

2.18.5. The loop conductors for each loop shall be spliced in the pull box to a detector lead-in cable in accordance with section 2.16.1.1 of these specifications. The detector lead-in cable shall run continuously from the pull box to the field terminal in the cabinet with no splices permitted.

2.19. **SIGNS.**

2.19.1. OVERHEAD STREET NAME SIGNS. Street name signs shall be installed on mast arms after all other loads are applied to the mast arm. The signs shall be located in accordance with the plan details. Signs shall be mounted so that the legend is level. The final location shall be determined by the Engineer.

2.19.1.1. Installation of signs on mast arms shall be accomplished with suitable stainless steel banding, clamps, and brackets capable of withstanding 100 miles/hour winds. Street name signs over 18 inches in height shall be installed using approved sign mounting brackets as shown in the Plans. All bolts inserted through sign faces shall have flat fiber washers installed between the reflective sheeting and bolt heads. Bolt holes in signs shall be drilled in the field

2.19.2. REGULATORY SIGNS. The R10-Series signs shall be mounted on the mast arm to the right of the left turn signal head using an approved sign mounting bracket as shown in the traffic signal installation details.

2.19.3. PEDESTRIAN PUSH-BUTTON SIGNS. Pedestrian push-button signs shall be mounted to the traffic signal pole above the appropriate pedestrian push-button. Mounting shall be accomplished using suitable stainless steel banding, clamps and brackets capable of withstanding 100 mph winds. As an alternative, the pedestrian sign mounting bracket may be constructed integral to the pedestrian push-button assembly.

2.20. **PEDESTRIAN PUSH-BUTTONS.** Pedestrian push-buttons shall be installed on the poles or pedestals indicated in the Plans. They shall be installed at a height of 36" above the adjacent sidewalk (or ground if no sidewalk is present). The push-button shall be located on the side of pole nearest the pedestrian walkway, and perpendicular to the intended crossing direction.

2.21. **TRAFFIC SIGNAL TURN-ON.**

2.21.1. FLASHING OPERATION. At locations without previous traffic signal control, the new traffic signals shall be flashed 2 to 3 business days prior to full signal system turn-on.

2.21.2. SYSTEM TURN-ON. The signal system turn-on shall not occur on Fridays, weekends, or holidays and shall be completed prior to 3:00 p.m. on the day of the turn-on.

2.21.3. SUPPLIER REPRESENTATIVE. The supplier of control equipment shall have a representative present at the signal system turn-on.

2.21.4. TRAFFIC ENGINEERING NOTIFICATION. The Bureau of Transportation Safety and Technology shall be notified at least one week in advance of the date of signal turn-on.

2.22. **TEST PERIOD.** Following completion of all electrical apparatus hook-ups and the system turn-on, the signals shall operate satisfactorily for 30 days under normal operation prior to acceptance by the State. During the test period, the signals shall operate trouble-free with no major failures of the controller or its components. Should any defect develop under normal and proper operating conditions during the testing period and prior to acceptance by the State, this malfunction shall be corrected by and at the expense of the Contractor, including all labor, materials and associated costs. Minor failures such as lamp failures or loop detector re-tuning will not be the basis for starting a new test period, provided the failures are repaired immediately and the same failures do not recur during the remainder of the test period. A major malfunction or failure of the controller and its components will result in a new 30 day test period being implemented after the repairs have been made.

2.23. **GUARANTEE.** All equipment furnished on a project by the Contractor shall be guaranteed against any imperfections in workmanship and materials. The customary manufacturers' warranties shall be assigned to the Maintaining Agency.

2.24. **MANUALS.** A minimum of 2 manuals shall be provided for each controller and shall include complete nomenclature, wiring diagrams, schematics showing test voltages, functional description of circuits, parts list and cross reference to standard part numbers, appropriate testing procedures, and other pertinent data.

3. MATERIALS.

3.1. **DESCRIPTION.** These specifications cover the general materials and miscellaneous hardware for the installation of a traffic signal to be constructed in accordance with and at locations indicated in the contract, shown in the Plans or designated by the Engineer.

3.2. **MATERIAL REQUIREMENTS.**

3.2.1. **GENERAL.** All materials used in the fabrication or assembly of the items listed below shall be new, shall be of the best quality and workmanship, shall be the best standard product of a manufacturer regularly engaged in the production of this type of equipment and shall be of the manufacturer's latest approved design. Major items of electronic equipment installed under this contract shall be of the same type and consist of products supplied by the same supplier in order to secure uniformity, single responsibility, and most satisfactory service.

3.2.1.1. The traffic signal shall be complete, and the Contractor shall furnish and install all equipment necessary for the satisfactory operation of the signal system whether specifically mentioned or not.

3.2.2. **N.E.M.A. TRAFFIC CONTROLLER ASSEMBLY.**

3.2.2.1. **GENERAL.** The N.E.M.A. Traffic Controller Assembly shall meet the requirements of the N.E.M.A. Standards Publication No. TS 2-2003. The N.E.M.A. traffic controller assembly shall be either pole mounted or pad mounted. The specific requirements of each type are listed below.

3.2.2.2. **CONTROLLER UNIT.** The controller unit shall meet the requirements of a Type 1 and Type 2 per Section 3.2 of the N.E.M.A. Standards

3.2.2.3. **MALFUNCTION MANAGEMENT UNIT.** The malfunction management unit shall meet the requirements of Section 4 of the N.E.M.A. Standards.

3.2.2.4. **TERMINALS AND FACILITIES.** The controller assemblies' terminals and facilities shall, as a minimum, meet the requirements of Section 5 of the N.E.M.A. Standards.

3.2.2.4.1. POLE MOUNTED CONTROLLER ASSEMBLIES. The pole mounted controller assemblies shall, as a minimum, be equipped with wired sockets and bus interface units of the quantities listed for Configuration 2 of Table 5-2 of the N.E.M.A. Standards.

3.2.2.4.2. PAD MOUNTED CONTROLLER ASSEMBLIES. The pad mounted controller assemblies shall be classified as either Type I or Type II. Type I pad mounted controller assemblies shall be equipped the same as pole mounted controller assemblies. Type II pad mounted controller assemblies shall, as a minimum, be equipped with wired sockets and bus interface units of the quantities listed for Configuration 4 of Table 5-2 of the N.E.M.A. Standards. If the Plans require more than 16 channels of detection, then additional detector racks of Type 2 configuration shall be added to provide the necessary detector slots.

3.2.2.4.3. AC SERVICE TRANSIENT SUPRESSION. The transient protection device for primary feed of the cabinet shall be connected on the load side of the cabinet overcurrent protection device shall meet Section 5.4.2.4 of the N.E.M.A standards, except that it shall have a clamp voltage of 250 Volts and be designed to absorb power line noises in the range of 10 kilohertz to 20 megahertz.

3.2.2.4.4. LIGHTING FIXTURE. The light fixture shall be flourescent or LED and provided with an appropriate flourescent lamp or LED.

3.2.2.4.5. LIGHTING FIXTURE SWITCH. The light switch shall be door actuated.

3.2.2.4.6. POLICE COMPARTMENT SWITCHES. The panel behind the police door shall contain 2 switches to accomplish the following functions: (1) change from normal operation to flashing, and vice versa and (2) interrupt power to the signal heads.

3.2.2.4.7 CABINET POWER SUPPLY. Shall provide regulated DC power, unregulated AC power, and a line frequency reference for the Detector rack, for all Bus-Interface units, Load Switches, and other auxiliary equipment. Detectors for ATS-2 Type 1. The Type 2 controller interface provides 500mA of +24 VDC power. As such, the use of cabinet power supply is optional when using a Type 2 controller.

3.2.2.5. **AUXILIARY DEVICES.** The auxiliary plug-in devices shall, as a minimum, meet the requirements of Section 6 of the N.E.M.A. Standards.

3.2.2.5.1. THREE-CIRCUIT SOLID STATE LOAD SWITCHES. The load switches shall meet the requirements of Section 6.2 of the N.E.M.A. Standards.

3.2.2.5.2. SOLID STATE FLASHERS. The flashers shall meet the requirements of Section 6.3 of the N.E.M.A. Standards.

3.2.2.5.3. FLASH TRANSFER RELAYS. The flash transfer relays shall meet the requirements of Section 6.4 of the N.E.M.A. Standards.

3.2.2.5.4. INDUCTIVE LOOP DETECTORS. The inductive loop detectors shall, as a minimum, meet the requirements of Section 6.5 of the N.E.M.A. Standards.

3.2.2.6. **CABINETS.** The cabinets shall meet the requirements of Section 7 of the N.E.M.A. Standards, as modified below.

3.2.2.6.1. HOUSING. The cabinets shall be of unpainted sheet aluminum alloy construction.

3.2.2.6.2. POLE MOUNTED CONTROLLER ASSEMBLIES. The pole mounted controller cabinet shall meet the requirements of Section 7.8.1 of the N.E.M.A. Standards. The cabinet shall have a continuously welded bottom of the same material as the rest of the cabinet.

3.2.2.6.3. PAD MOUNTED CONTROLLER ASSEMBLIES. Type I pad mounted controller assembly cabinets shall be size 5 per Table 7.8.3.1 of the N.E.M.A. Standards. Type II pad mounted controller assembly cabinets shall be size 6 per Section 7.8.3.2 of the N.E.M.A. Standards.

3.2.2.7. **BUS INTERFACE UNIT.** The bus interface units shall meet the requirements of Section 8 of the N.E.M.A. Standards.

3.2.3. **TYPE 170E TRAFFIC SIGNAL CONTROL SYSTEM**

3.2.3.1. **GENERAL.** The 332 / 170 Type traffic signal control system shall, as a minimum, meet the Caltrans Transportation Electrical Equipment Specifications (TEES), dated March 12, 2009.

3.2.3.2. **RESPONSIBLE PARTIES.** Any reference to the State, State of California, or Agency shall mean the local agency responsible for maintaining the traffic signal. Any reference to the Contractor shall mean equipment manufacturer or supplier.

3.2.3.3. **TESTING MANUALS.** Two manuals containing the flow chart, listing, and instructions of the test program shall be furnished to the agency responsible for maintaining the traffic signal when the controller unit is delivered.

3.2.3.4. **CABINETS.** The cabinets shall be Model 332L and 336L meeting the requirements of Chapter 6 of the TEES with the following modifications.

3.2.3.4.1. FINISH. The cabinet finish shall be natural aluminum.

3.2.3.4.2. LIFT EYES. The cabinet lift eyes shall be removable so that they can be turned down after installation of the cabinet.

3.2.3.4.3. LIGHT FIXTURES. Cabinets shall be furnished with fluorescent light fixtures, including lamps, over the front and back doors that are controlled by door-activated switches.

3.2.3.4.4. PLAN DRAWER/WORK SURFACE. A drawer shall be mounted in the EIA rack between the Controller and the top input file. It shall be mounted on sliding tracks having lockout and quick-disconnect features. The drawer shall be able to extend out 14 inches, and shall be capable of supporting a 40 lb. load when fully extended. The drawer shall be provided with a hinged aluminum top covered with a chemical-proof Formica-type plastic sheet that can be lifted to gain access to the interior of the drawer. The interior of the drawer shall have nominal dimensions of 1 inch high, 13 inches deep, and 16 inches wide.

3.2.3.4.5. ADDITIONAL MODEL 336A REQUIREMENTS. The Model 336A cabinets shall be furnished with a continuously welded bottom of the same material as the rest of the cabinet, and all of the hardware necessary to permit mounting to a 12 inches outside diameter pole.

3.2.3.4.6. ADDITIONAL MODEL 332B REQUIREMENTS. The Model 332B cabinets shall be furnished with the power distribution assembly #2 in lieu of the power supply and power distribution #1 assemblies. The cabinets shall be supplied with the circuit breaker option per Chapter 6 Section 4 of the TEES. The cabinet shall be furnished with anchor bolts, nuts and washers.

3.2.3.4.7. ADDITIONAL OUTPUT FILE #1 REQUIREMENTS. The output file #1 supplied with the cabinet shall be modified to provide compatibility with the red monitoring features of the conflict monitor.

3.2.3.5. **CONTROLLER.** The controller unit shall be a Model 170E per Chapter 2 of the TEES, dated March 12, 2009.

3.2.3.6. **PROGRAM MODULE.** The program module shall be a standard Model 412C as specified in Chapter 3, Section 6 of the TEES, dated March 12, 2009. The program module shall be provided with the latest version of the Wapiti Micro Systems W41KS software.

3.2.3.7. **CONFLICT MONITOR.** The conflict monitor shall meet the requirements of a Model 210 per Chapter 3, Section 6 of the TEES with the following additional monitoring functions: red monitoring; absence of signal on a channel; simultaneous multiple indications on a channel; program card ajar; power interrupt after failure; short or absence of yellow; AC line monitoring; full systems compatibility with Wapiti Microsystems Traffic Systems software.

3.2.3.8. **FLASHER.** The flasher shall meet the requirements of a Model 204 flasher per Chapter 3 Section 3 of the TEES.

3.2.3.9. **LOAD SWITCH.** The load switch shall have modular switches that can be easily replaced with the use of a screwdriver, and meet the requirements of a Model 200 switch pack per Chapter 3 Section 2 of the TEES.

3.2.3.10. **FLASH TRANSFER RELAYS.** The flash transfer relays shall be heavy duty relays meeting the requirements of the Model 430 per Chapter 6 Section 4 (6.4.6) of the TEES.

3.2.3.11. **SURGE PROTECTOR.** The surge protector shall be a filtering surge protector that absorbs power line noise and switching transients, and provides lightning protection. It shall consist of three basic sub circuits: primary clamp, secondary clamp, and the filter. It shall be rated for a peak current of 20,000 amps from an 8 by 20 microsecond wave shape. The clamp voltage shall never exceed 280 volts during a peak surge. It shall provide a maximum of 10 amps continuous service current at 120 volts AC and 60 Hertz. It shall have an operating temperature range of -40 to +85 degrees Celsius. The filter shall be designed to absorb power line noises in the range of 10 kilohertz to 20 Megahertz.

3.2.3.12. **DC ISOLATOR.** The DC isolator shall meet the requirements of a Model 242 two-channel DC isolator per Chapter 5 Section 4 of the TEES.

3.2.3.13. **AC ISOLATOR.** When called for in the Plans, the AC isolator shall meet the requirements of a Model 252 two-channel AC isolator per Chapter 5 of the TEES.

3.2.3.14. **DETECTOR.** The detector sensor units provided shall, as a minimum, meet the specifications given in Chapter 5 Section 2 of the TEES. In addition, the following features shall be included: push-wheel or push button switch to allow selection of a minimum of 8 pulse sensitivities, 7 presence levels and an "off" made per channel; open loop test switch that displays previous faults on channel indicators while continuing to process and output valid detections; multiple channel sequential scanning; an inductance range of 20-2000 microhenries.

3.2.4. **SIGNAL HEADS.** All signal heads on a project shall be the product of one manufacturer with the exception of programmed visibility signal heads and one piece pedestrian signal indications. The signal heads shall be in general conformance with the latest edition of the Equipment and Materials Standards of the Institute of Transportation Engineers - Vehicle Traffic Control Signal Heads, and as specified below.

3.2.4.1. **STANDARD VEHICLE TRAFFIC SIGNAL HEADS.** The housing for each vehicle traffic signal section shall be made of a durable polycarbonate. The housing shall be yellow with black doors. The visors for each signal section shall be of the tunnel type, and be made of a durable black polycarbonate of not less than $\frac{3}{32}$ of an inch in thickness. The reflectors shall be of either specular aluminum or metallized plastic. All lenses shall be 12 inch diameter glass.

3.2.4.1.1. ARROW LENSES. The arrow may be formed of either enamel baked or fired onto the glass lens, or an arrow shield placed behind the lens. The arrow shield shall only allow light through the arrow display, with no extraneous light around the edges.

3.2.4.2. **PEDESTRIAN TRAFFIC SIGNAL HEADS.** The pedestrian traffic signal heads shall be of either two piece polycarbonate or one piece cast aluminum construction. The housing shall be yellow with black doors. The visors for each signal section of the two piece heads shall be of the tunnel type, and made of a durable black polycarbonate

NO.	DATE	REVISIONS	BY	APP'D
3	6/11/12	Added LED to Controller Lighting Fixture	CPA	
2	6/11/12	Chg Bureau Name,Update NEMA & TEES ref.	CPA	
1	1/18/05	Corrected Typos		

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL SPECIFICATIONS

TE120B

FHWA APPROVAL				6/11/2012	APP'D	Brian D. Gower, P.E.	
DESIGNED	C.P.A	DETAILED		C.P.A.	QUANTITIES		TRACED
DESIGN CK.	B.D.G	DETAIL CK.		B.D.G.	QUAN. CK.		TRACE CK.

KDOT Graphics Certified 06-22-2012

Sh. No. XXX

KDOT Graphics Certified

Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				

of not less than 0.1 inch in thickness. The visors on the one piece heads shall be black, and be of the eggcrate type with a depth of 1½ inches and a thickness of 0.03 inch. The pedestrian signal indications shall be in general conformance with the latest edition of the Equipment and Materials Standards of the Institute of Transportation Engineers - Pedestrian Traffic Control Signal Indications. Pedestrian lenses shall be rectangular, with a side dimension of 12 inches if two pieces, or with dimensions of 18½ inches wide by 18¾ inches high if one piece. The message shall consist of a Don't Walk "HAND" symbol in Portland Orange, and a Walk "WALKING PERSON" symbol in Lunar White. The pedestrian symbols shall be a minimum of 9 inches high. The lenses shall be of a molded prismatic glass. The indication shall be formed on the lenses in the same manner as specified for arrows.

3.2.4.3. **PROGRAMMED VISIBILITY SIGNAL HEADS.**

3.2.4.3.1. HOUSING. The programmed visibility signal heads shall be constructed of die cast aluminum. They shall be yellow, with black doors. Each section shall be provided with a black sheet aluminum sun visor.

3.2.4.3.2. VISIBILITY. The visibility of the signal indication shall be adjustable within the signal head to fit the lane or lanes in which traffic is to be controlled. During daylight, the signal indications shall be visible only in those areas or lanes designated. During dusk or darkness, a faint glow visible to the side will be permissible. External illumination shall not cause a signal indication, nor shall a signal indication in one signal section cause a signal indication in another signal section. Each section of a signal face shall provide a nominal 12 inch diameter round indication or arrow indication meeting the Institute of Transportation Engineers' dimensions as required.

3.2.4.3.3. PROGRAMMING. The indication of each signal head, when not programmed, shall be visible from anywhere within 15 degrees of the optical axis. The signal head shall be able to be preset at angles between 10 degrees above and 10 degrees below the horizontal, and shall be preset at 4 degrees (side-of-pole) or 8 degrees (mast arm) below the horizontal.

3.2.4.3.4. CANDLEPOWER. The signal section with the yellow indication, prior to programming, when directed downward 5 degrees from the horizontal, shall provide a minimum candlepower of 2500 candela in the direction of the axis and a maximum candlepower of 100 candela at 15 degrees horizontally in each direction from the axis. Said signal head with yellow indication shall be programmed so that a minimum candlepower of 2500 candela can be directed along the optical axis and a candlepower of less than 100 candela directed at ½ degree horizontal from the axis and no measurable light is directed from 1 to 15 degrees horizontal from the axis. Under the same conditions, the candlepower of the red indication shall be at least 19 percent of the yellow indication, and the candlepower of the green indication shall be at least 38 percent of the yellow indication.

3.2.4.3.5. DIMMING DEVICES. Dimming devices shall be provided to gradually reduce the candlepower as a function of the individual background illumination of each signal head for nighttime operation to approximately 15 percent of that for daytime operation.

3.2.4.4. **L.E.D. LENSES.** When specified in the Plans, the lenses in each signal head shall be a 12" L.E.D. lens meeting the requirements of the I.T.E. June 1998 Proposed Interim Purchase Specification for Light Emitting Diode (LED) Vehicle Traffic Signals.

3.2.4.5. **L.E.D. PEDESTRIAN SIGNALS.** Light emitting diodes (LED) Pedestrian Signals shall meet all applicable I.T.E. Specifications for L.E.D. traffic signals. The symbol designs shall conform to those set forth in the "Standard Highway Signs" book. These signal indications consist of the illuminated symbols of a "Walking Person" (symbolizing Walk) and an "Upraised Hand" (symbolizing Don't Walk) and shall be independently illuminated and emit a single color. The upraised hand symbol shall be Portland Orange, and the walking person shall be White. Symbols for each pedestrian phase shall be of a fully (filled) illuminated style and be at least 9 inches tall. Pedestrian signal heads shall be a singular module with a nominal, minimum size of 16 inches by 18 inches display area. The module can display either side-by-side symbols, or have an overlaid symbol configuration. Signal modules must be moisture and dust resistant. Signal modules shall operate in an 80v. to 135v. voltage range, (60 Hz AC).

3.2.5. **SIGNAL LAMPS.** All vehicle traffic signal lamps shall meet the requirements of the latest edition of the Equipment and Materials Standards of the Institute of Transportation Engineers - Traffic Signal Lamps. A nominal 150 watt, 120 volt, A21 clear traffic signal lamp shall be used in all 12 inch vehicle traffic signal indications. A nominal 116 watt, 120 volt, A21 clear traffic signal lamp shall be used in all 12 inch pedestrian signal indications.

3.2.5.1. As an alternative, nominal 135 watt, 120 volt, AT21 traffic signal lamps containing a minimum of 80 percent Krypton fill may be used in all 12 inch vehicle traffic signal indications, and nominal 105 watt, 120 volt, AT21 traffic signal lamps containing a minimum of 80 percent Krypton fill may be used in all 12 inch pedestrian signal indications.

3.2.6. **SIGNAL MOUNTING BRACKETS.**

3.2.6.1. **MAST-ARM BRACKET.** The mast arm signal mounting brackets shall be fabricated of high strength aluminum. They shall provide for rigid mounting of the traffic signal heads while allowing signal aiming adjustment in all planes. The brackets shall be designed to strap to the mast arm using heavy-duty stainless steel banding material or aircraft-type cable which shall be pinned to the bracket at one end and which shall provide a turnbuckle style tightening adjustment on the other. The brackets shall incorporate wiring channels so that after installation, all signal cables shall be protected from the effects of exposure to the weather.

3.2.6.2. **SIDE-OF-POLE BRACKETS.** Side-of-pole signal mounting brackets shall be molded of yellow polycarbonate and shall incorporate a mounting arm and pole plate into a single member which shall include guides to correctly position the banding material on the pole plate. The dimensions of the mounting brackets shall be as required to provide proper signal head alignment. Each bracket shall have molded serrations to assure a positive lock with the signal head and allow positioning of the traffic signal heads in increments of 5 degrees. The bracket shall be designed to provide a wiring raceway for signal cable exiting the support pole and entering the signal head.

3.2.7. **BACKPLATES.** Backplates shall be of sufficient size to provide a minimum of 5 inches of dark background for the signal indications. They shall be fabricated from a minimum of 0.12 inch black ultraviolet stabilized ABS plastic. They shall have a haircell finish on front and smooth finish on the back. They shall be one-piece construction capable of withstanding a 100 miles/hour wind. Backplates shall be furnished with all necessary hardware to attach to the signal heads.

3.2.8. **PEDESTRIAN PUSH-BUTTON.** The pedestrian push button assembly shall consist of a high density aluminum housing fitted with a suitable push button switch. It shall contain a silicon or neoprene cover to body gasket. Cover screws shall be stainless steel. The switch and actuator shall be protected from dust and moisture with a silicon or neoprene cover.

3.2.9. **PEDESTRIAN SIGN.** The pedestrian information signs shall bear the legend as detailed in the Plans. The sign blank shall be constructed of minimum ⅛ inch thick aluminum alloy. The sign face shall have a non-reflective black legend direct screened on white regular performance sign sheeting. The sign shall be visually accepted by the Engineer.

3.2.10. **STEEL TRAFFIC SIGNAL POLES.**

3.2.10.1. TAPERED TUBULAR SHAFTS. Steel traffic signal pole and mast arm shafts shall conform to Section 1608 of the Standard Specifications and the requirements in the Plans. All pole and mast arm shafts shall be constructed of one of the following methods:

3.2.10.1.1. NO TRANSVERSE WELDS. Pole and mast arm shafts shall be tapered tubular members made only of one length of structural steel sheet of not less than No. 7 Manufacturing Standard Gauge (Exception: Signal arms designed for lengths of 38 feet or greater may have arm extensions, of not less than No. 11 gauge steel, with bolted telescopic field joints so as to develop full strength of the adjacent shaft sections to resist bending action). Round (Type I) members shall meet the requirements of the latest edition of A.S.T.M. A595 Grade A or B. Multi-sided (Type II) members have a minimum of 12 sides and meet the requirements of the latest edition of A.S.T.M. A570 or A.S.T.M. A572 with a minimum yield strength of 55,000 PSI and a maximum silicone content of 0.06 percent. Only one longitudinal weld, and no transverse welds, shall be permitted in the fabrication of the tubular members made only of one length of structural steel.

3.2.10.1.2. TRANSVERSE WELDS. Pole and mast arm shafts shall be fabricated from the best, hot rolled basic open hearth steel conforming to A.S.T.M. A570 for thickness' of No. 11 and No. 7 Manufacturing Standard Gauge, A283 Grade D for No. 3 gauge and A36 modified for 0 gauge. The shaft shall be longitudinally cold rolled to flatten the weld and increase the physical characteristics so that the metal will have minimum yield strength of 48,000 psi. Where transverse full penetration circumferential welds are used, the fabricator of the shaft shall furnish to the Engineer Certification: (1) that all such welds have been magnetic particle tested by an independent testing laboratory using a qualified Nondestructive Testing (NDT) Technician and (2) that the NDT equipment has been calibrated annually.

3.2.10.2. POLES. The poles shall include a suitable clamp for attaching the mast arm to the pole shaft; a reinforced hand hole with gasketed cover located near the bottom of the pole and oriented 180 degrees from the mast arm; a grounding lug in the handhole or inside the pole near the handhole; a J or C hook wire support inside the pole near the top of the pole; 4 nut covers; and a removable pole cap. The poles shall be pre-drilled for the mast arm attachments prior to galvanizing. Rubber grommets shall be furnished for all wire entrances into the pole.

3.2.10.3. COMBINATION POLES. When combination lighting and signal poles are specified in the Plans, the poles shall also have suitable clamps for attaching the luminaire arm to the pole shaft. The pole shaft shall be pre-drilled for the luminaire arm attachment prior to galvanizing, with the luminaire arm to be mounted in the same vertical plane as the signal arm. In addition, a reinforced nominal 3 inch by 5 inch hand hole shall be located 180 degrees from and just above the mast arm, and a J or C hook wire support shall be welded inside the pole just above the mast arm.

3.2.10.4. MAST ARMS. All signal mast arms shall have suitable clamp-on attachment devices for attaching to the pole shaft, and a removable end cap. Rubber grommets shall be furnished for all wire entrances into the mast arm.

3.2.10.5. LUMINAIRE ARMS. Luminaire arms shall be either single tube or truss-type arms as indicated in the plans. All luminaire arms shall have suitable clamp-on attachment devices for attachment to the pole shaft. Single tube arms shall be welded to one half of the luminaire arm clamp. Truss-type arms shall be furnished with two clamp-on simplex fittings as detailed in the plans.

3.2.10.6. GALVANIZING. The poles, mast arms, luminaire arms and all steel accessories shall be galvanized to the requirements of the latest edition of A.S.T.M. A123.

3.2.10.7. DESIGN LOAD. All traffic signal poles shall be designed to accommodate the standard signal head, signing, and luminaire arm loadings established by the Bureau of Transportation Safety and Technology. The design shall conform to the latest edition of the A.A.S.H.T.O. Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals handbook with a wind load of 90 miles/hour and a minimum of 1.14 gust effect factor. The poles shall also accommodate wind loadings which may cause deflections of the mast arm in the vertical plane. These deflections shall never result in less than a 15 foot clearance between the roadway and the lowest point of the signal assembly.

3.2.10.8. ANCHOR BOLTS. Anchor bolts shall adhere to Section 1600 (Grade 55) of the Standard Specifications with the exception that cut threads are not permitted. Welding shall conform to the Standard Specifications for State Road and Bridge Construction and the latest edition of the American Welding Society. The leveling nuts may be either Heavy Square or Heavy Hex nuts. Anchor bolt washers conforming to the requirements of the latest edition of A.S.T.M. F436 will also be acceptable.

3.2.10.9. BASIS OF ACCEPTANCE.

3.2.10.9.1. STANDARD SHOP DRAWINGS. All traffic signal poles shall be detailed by the manufacturer on shop drawings. The drawings shall include the pole, mast arm and luminaire arm (on combination poles) dimensions, arm attachment details, handhole details, and anchor bolt details, along with the signal weight, projected areas, and mounting arrangement they are designed to accommodate. Design calculations shall be submitted along with the shop drawings. Approved shop drawings will be included in the Pre-qualified Traffic Signal Materials List.

3.2.10.9.1.1. For traffic signal poles that are not covered by the approved manufacturer's standard shop drawings, the Contractor shall submit three copies of detailed shop drawings, along with the design calculations to the Engineer for approval by the Bureau of Transportation Safety and Technology.

3.2.10.9.2. POLES AND MAST ARMS. See Section 1608 of the Standard Specifications for the basis of acceptance for material furnished under that section.

3.2.10.9.3. ANCHOR BOLTS. See Section 1615 of the Standard Specifications for the basis of acceptance of anchor bolts for traffic signal poles. If Type "B" certification is not provided according to Section 2601 of the Standard Specifications, the Engineer may require testing of an anchor bolt.

3.2.10.9.4. TRAFFIC SIGNAL MATERIALS LIST. Along with the Traffic Signal Materials List, the Contractor shall submit the necessary traffic signal pole ordering information. The Engineer will review the information for compliance with the plan dimensions for pole height, mast arm length and mounting height, and luminaire arm length and mounting height.

3.2.11. **TRAFFIC SIGNAL PEDESTALS.** Traffic signal pedestals shall consist of an aluminum shaft of the length specified in the Plans, a cast aluminum base, anchor bolts with nuts and washers, and be provided with a pole cap.

3.2.11.1. SHAFT. The shaft shall be of Type 6061-T6, 6063-T6 or 6063-T832 aluminum alloy, and shall be a single piece of drawn seamless tubing having a nominal 4½ inch outside diameter and ¼ inch wall thickness. The shaft shall be threaded at one end for attaching the shaft to the base. The shaft shall have a uniform polished finish.

3.2.11.2. BASE. The pedestal base shall be A.A.S.H.T.O. certified and be cast of Type 356.0-T6 aluminum alloy. It shall have a threaded collar with a set screw, and plastic hand hole cover.

3.2.11.3. ANCHOR BOLTS. Anchor bolts for traffic signal pedestals shall be of the dimensions detailed in the Plans and shall meet the requirements of the latest edition of A.S.T.M. A36. The threaded ends of the anchor bolts shall be zinc plated. Zinc plated nuts and washers shall be included with the anchor bolts. Anchor bolts for traffic signal pedestals will be visually accepted by the Engineer.

3.2.12. **TERMINAL BLOCK.** Terminal blocks in the poles shall be U.L. recognized barrier type or dead-front type terminal strips having terminals of sufficient size and number to connect the individual conductors run between the cabinet and the pole to the conductors run between the pole and the signal heads. They shall be rated for at least 30 amps current.

3.2.13. **JUNCTION BOXES (IN-GROUND).** The junction box shall be of sufficient size to facilitate the conduit and wiring as indicated in the plans. Junction boxes shall have the minimum nominal dimensions of 12 inches deep with a minimum physical opening of 130 square inches. In-ground junction boxes may be constructed of one of the following methods: pre-cast concrete with a cast iron cover; polymer concrete with a polymer concrete cover; fiberglass reinforced polymer body with a polymer concrete ring and cover; high density polyethylene body with polymer concrete ring and cover. The ring shall be securely attached to the body.

3.2.13.1. Enclosures, boxes and covers are required to conform to all test provisions of ANSI/SCTE 77 2002 "Specification For Underground Integrity" for tier 15 applications.

3.2.13.2. The cover shall bear the logo "TRAFFIC SIGNAL" clearly and permanently molded or etched into the cover.

3.2.14. **JUNCTION BOXES (ABOVE-GROUND).** Above ground junction boxes shall have the nominal dimensions of 12 inches by 12 inches by 6 inches. The junction box shall be made of minimum $\frac{1}{16}$ inch thick sheet metal (steel) with welded seams, knockouts and weather proof screw cover. Boxes shall be hot dipped galvanized in accordance with A.S.T.M. A-123 after fabrication.

3.2.15. **SERVICE BOXES.** The service box shall have the minimum nominal internal dimensions of 24 inches in diameter by 36 inches deep. Service boxes shall be provided with cable hooks as detailed in the Plans. The box may be constructed of one of the following methods: pre-cast concrete with a cast iron ring and cover; galvanized corrugated steel with a cast iron ring and cover; polymer concrete with a polymer concrete cover; fiberglass reinforced polymer body with a polymer concrete ring and cover. The ring shall be securely attached to the body.

3.2.15.1. Enclosures, boxes and covers are required to conform to all test provisions of ANSI/SCTE 77 2002 "Specification For Underground Integrity" for tier 15 applications.

3.2.15.2. The cover shall bear the logo "TRAFFIC SIGNAL" clearly and permanently molded or etched into the cover.

3.2.16. **LUMINAIRES**. Luminaires shall be High Pressure Sodium of 250 watts or 150 watts, as indicated in the Plans. The luminaire shall have a housing of a single piece aluminum alloy casting, with an integral slip-fitter for 2 inch bracket mounting, an aluminum reflector, an auto-regulator type ballast set at 120 volts, a medium semi-cutoff glass refractor with Type III light distribution, and a photocell receptacle.

3.2.17. **LUMINAIRE LAMPS.**

3.2.17.1. 150 WATT LAMP. The 150 watt lamp shall be High Pressure Sodium with a rated initial light output of 16,000 lumens, and a mean light output of 14,400 lumens.

3.2.17.2. 250 WATT LAMP. The 250 watt lamp shall be High Pressure Sodium with a rated initial light output of 30,000 lumens, and a mean light output of 27,000 lumens.

3.2.18. **PHOTOCELL.** The photocell shall be solid state type, 1000 watt/ 1800 volt-amps maximum, single pole, single throw, twist lock mounting, 120 volt operation. The operating levels shall be 1.5 fc ON and 0.33 fc OFF, with an allowable variation of 0.5 fc ON or OFF. The photocell shall have a minimum of a 30 second time delay OFF, and fail in the ON mode.

3.2.19. **UN-FUSED STREET LIGHT CONNECTOR KIT.** Un-fused connector kits shall be of the set-screw type sized to the conductors specified in the Plans. They shall be furnished with waterproof rubber boots.

3.2.20. **FUSED STREET LIGHT CONNECTOR KIT.** Fused connector kits shall be sized to the conductors specified in the Plans and shall be supplied with molded rubber boots for waterproofing. The connector shall be capable of withstanding multiple disconnects without damage to the watertight seals or terminals. Each connector shall include all parts and materials necessary to complete its installation, such as fuses, lubricating compound, and assembly devices.

3.2.20.1. **FUSE.** The fuse shall be a minimum of 5 amp cartridge type as recommended by the connector manufacturer.

3.2.21. **OVERHEAD STREET NAME SIGNS.** Overhead street name signs shall bear the message indicated in the Plans. The legend shall be centered on the sign face. The border shall be ¾ of an inch wide.

NO.	DATE	REVISIONS	BY	APP'D
3	6/11/12	Updated Design Load & Anchor Bolts	CPA	
2	6/11/12	Update Bureau name & Std. Spec. Location	CPA	
1	7/20/05	New Language Paragraphs 3.2.13.1 & 3.2.15.1	J.F.F.	G.J.O.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL SPECIFICATIONS

TEI20C

FHWA APPROVAL		6/11/2012	APP'D	Brian D. Gower, P.E.	
DESIGNED	C.P.A.	DETAILED	C.P.A.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

KDOT Graphics Certified 06-22-2012

KDOT Graphics Certified

Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX

3.2.21.1. BLANK. The sign blank shall be of ⅛ inch thick Type 5052-H38 aluminum alloy. All corners on the sign blank shall be rounded.

3.2.21.2. SHEETING. The sign faces shall be either direct-applied white enclosed lens high performance retroreflective legend and borders on a green enclosed lens high performance retroreflective sheeting background, or transparent green cuttable film over white enclosed lens high performance retroreflective sheeting. The use of the transparent film shall in no way limit the manufacturer's warranty on the retroreflective sheeting over which it is applied. The green sheeting or film shall conform to Federal Color Standard 595A, Color No. 14109.

3.2.21.3. LETTERING. Copy size for the legends shall be as follows: 6 inch series E-Modified upper case for SW, ST, AV; 8 inch upper case with 6 inch lower case series E-Modified for names; 8 inch series E-Modified for numerals.

3.2.21.4. ACCEPTANCE. Before final fabrication and shipment, the manufacturer or supplier shall provide, for the Engineer's approval, a layout of each sign showing the exact street name lettering to be placed on the sign. The signs shall be visually accepted by the Engineer.

3.2.22. **REGULATORY SIGNS.** The design details (color, letter height and letter series) for all regulatory signs shall be as shown in the latest edition of the Standard Highway Signs Manual. Special signs not covered by the Standard Highway Signs Manual shall be as shown in the Plans. Sign blanks shall be a minimum of 1/16 inch thick aluminum alloy. The sign face shall be of high-performance retroreflective sheeting meeting the requirements of Section 2201 of the Standard Specifications.

3.2.22.1. ACCEPTANCE. Regulatory signs included in the Traffic Signal Installation bid item will be accepted in accordance with Section 3.3. of these specifications, with additional certification certification stating that the retroreflective sheeting used to manufacture the signs was pre-qualified under Section 2201 of the Standard Specifications.

3.2.23. **BLANK OUT SIGNS.** The blank out sign legend shall be as indicated in the Plans. When energized, the sign message shall be clearly legible under any lighting conditions. It shall completely blank out when not energized. No phantom legend shall be seen under any ambient light condition. The housing shall be durable and weatherproof. The sign face shall consist of fiber-optic glass bundles arranged to define the legend. The fiber-optic modules and associated components shall be assembled directly to the sign face and shall have an inside back cover to provide protection for the module. The fiber-optic bundles shall be ground smooth and optically polished at the input and output ends for maximum light transmission. The sign shall be lit by 42 Watt lamps operating at 10.8 volts AC. The lamps shall sustain an average 8,000 hour life. Transformers shall be used to reduce the incoming 120 volts AC to 10.8 volts AC. The transformers shall contain Class A insulation and weatherproofing, and shall be rated at 48.5 volt-amps. The sign shall be capable of continuous operation over a range in temperatures from -37 degrees to +74 degrees Celsius.

3.2.24. **ENTRANCE HEAD.** The entrance head shall be of cast aluminum and shall be of the clamp-on type for use with rigid conduit of the specified in the Plans. It shall be U.L. listed.

3.2.25. **SERVICE ENCLOSURE.** The service enclosure shall be watertight, and be of sufficient size and load rating to provide the number of circuits indicated in the Plans. The enclosure shall be provided with a hasp for a padlock. Padlocks will be provided by others.

3.2.26. **CIRCUIT BREAKERS.** The circuit breakers shall be standard plug-in, single pole, molded case, of the trip rating as shown in the Plans.

3.2.27. **GROUND ROD.** The ground rod shall be ¾ inch diameter by 10 feet long copper bonded steel rod and bear the U.L. label.

3.2.28. **GROUND ROD CLAMP.** The ground rod clamp shall be a ¾ inch clamp cast of high strength copper alloy and be U.L. listed for direct burial.

3.2.29. **SERVICE WIRE.** The service wire shall be Type USE-2 stranded, annealed, copper wire meeting the requirements of A.S.T.M. B-8, and be of the size specified in the Plans.

3.2.30. **LIGHTING DISTRIBUTION WIRE.** The lighting distribution wire shall be Type USE-2 stranded, annealed, copper wire meeting the requirements of A.S.T.M. B-8, and be of the size specified in the Plans.

3.2.31. **POLE & BRACKET WIRE.** The pole and bracket wire shall be Type USE-2 stranded, annealed, copper wire meeting the requirements of A.S.T.M. B-8, and be of the size specified in the Plans.

3.2.32. **GROUND WIRE.** The ground wire shall be No. 6 AWG solid bare copper wire meeting the requirements of A.S.T.M. B-3.

3.2.33. **MULTICONDUCTOR CABLE.** The multiconductor cable shall meet the requirements of IMSA 19-1 or IMSA 20-1. Conductors shall be stranded No. 14 AWG. The number of conductors shall be as indicated in the Plans.

3.2.34. **SHIELDED DETECTOR LEAD-IN CABLE.** Shielded detector lead-in cable shall meet the requirements of IMSA 50-2. Conductors shall be No. 14 AWG.

3.2.35. **DETECTOR LOOP WIRE.** The detector loop wire shall meet the requirements of IMSA 51-5. The conductor shall be No. 14 AWG, and the tube shall be of polyethylene.

3.2.36. **LOOP SEALANT.** The loop sealant shall be a one-part polyurethane, moisture curing, elastomeric compound requiring no mixing, measuring, or application of heat prior to or during application. It shall be specifically designed for sealing and protecting detector loop wires in both asphalt and concrete pavements. It shall not chemically attack or damage the pavement, yet shall sufficiently bond with the pavement to effectively seal the saw cut and prevent the infiltration of moisture into the slot. The cured loop sealant shall exhibit resistance to the normally encountered effects of weather, vehicular abrasion, motor oils, gasoline, antifreeze solution, brake fluid, deicing chemicals and salt in such manner that the performance of the detector loop is not adversely affected. The loop sealant shall provide compressive yield strength to withstand normal vehicular traffic and prevent the intrusion of rocks, glass, and other road debris into the slot. It shall remain sufficiently flexible at all normally encountered temperatures to withstand normal movement in asphalt and concrete pavements while protecting the loop wire from fracture and shear.

3.2.37. **PRE-FORMED LOOPS.** Pre-formed loops shall be factory assembled loops having the dimensions and number of turns of wire specified in the Plans. The loops shall be constructed of a minimum No. 16 AWG Type TFFN/THWN copper wire meeting the requirements of A.S.T.M. B-8, and encased in heavy duty tubing compatible with the paving material being used on the project. The tubing shall be completely filled with asphalt sealant material after the wire is installed. The loop tail shall be of flexible tubing of the length specified in the Plans and shall also be filled with asphalt sealant material. The detector wire within the loop tail shall be twisted a minimum of 10 turns per meter.

3.2.38. **CONDUIT.**

3.2.38.1. **METALLIC CONDUIT AND FITTINGS.** Metallic conduit shall be galvanized rigid steel conduit meeting the requirements of A.N.S.I. C80.1. Metallic conduit fittings shall be zinc coated and shall meet the requirements of A.N.S.I. C80.4.

3.2.38.2. **PVC CONDUIT AND FITTINGS.** PVC conduit shall be either Schedule 40 or Schedule 80 rigid polyvinyl chloride meeting the requirements of the latest edition of N.E.M.A. Standard TC-2. PVC conduit fittings shall meet the requirements of N.E.M.A. Standard TC-3 and shall be fabricated from polyvinyl chloride having the same chemical and physical properties as the conduit with which it is to be used. The conduit and fittings shall bear the U.L. label.

3.2.38.3. **POLYETHYLENE CONDUIT.** Polyethylene conduit shall be collable, smooth wall, Schedule 40 or Schedule 80, high density polyethylene duct meeting the requirements of N.E.M.A. Standard TC-7.

3.2.38.4. **FIBERGLASS CONDUIT.** Conduit shall be fiberglass reinforced epoxy manufactured using the filament winding process. Conduit, elbows and fittings shall be manufactured from the same resin/hardner/glass systems manufactured by the same filament wound system. All conduit and fittings shall meet UL1684. All conduit shall be non-tapered. The joints shall have threaded bell and spigot ends. The conduit will be joined together using a two part epoxy adhesive creating a Tight Lock Joint. The conduit wall thickness will be .070 for ¾" - 4" and .096 for 5" and 6". All conduits shall be manufactured to IPS pipe sizes.

3.2.39. **EXPANSION FITTINGS.** Expansion fittings shall be as detailed in the Plans.

3.3. **BASIS OF ACCEPTANCE.** Acceptance of materials furnished under these specifications will be based upon the following:

3.3.1. PRE-QUALIFICATION. The Bureau of Transportation Safety and Technology maintains a list of Pre-Qualified Traffic Signal Materials. Any product called for in the Bill of Materials in the Plans that is being furnished for the project must be on that list, or must be approved as noted in Section 3.3.2.1 of these specifications. A manufacturer or supplier intending to supply traffic signal materials under these specifications shall submit an original copy of any catalog cuts, shop drawings, drawings, and/or data sheets on the material, and certification from the manufacturer or fabricator certifying that the material meets the applicable specifications. This information shall be submitted to the Bureau of Transportation Safety and Technology, 700 SW Harrison, 6th Floor, Topeka, KS 66603.

3.3.2. TRAFFIC SIGNAL MATERIALS LIST. Items on the list shall include all items for which quantities are indicated in the Bill of Materials in the Plans. The list shall include the make, model and other descriptive data as may be required by the Engineer to identify the product. The Contractor shall sign the list certifying that the materials on the list, if approved, will be furnished for the project. The Engineer wil compare the items on the Traffic Signal Materials List to the Pre-Qualified Traffic Signal Materials List. If all of the items match, the Engineer will sign the list attesting that the materials are approved for use on the project. A copy of the list shall then be forwarded to each of the following: Chief of Materials and Research, Chief of Transportation Safety and Technology, and the Maintaining Agency's contact person indicated in the Plans.

3.3.2.1. In the event the Contractor wishes to furnish any item that is not on the pre-qualified list, the Contractor shall furnish the Engineer with the information for pre-qualification per Section 3.3.1 of these specifications. This information will be forwarded to the Bureau of Transportation Safety and Technology for review and approval, and the possible addition to the pre-qualified list.

3.3.3. VISUAL INSPECTION. Items will be visually inspected by the Engineer at the job site for condition and conformance with the requirements of these specifications.

3.3.4. ADDITIONAL REQUIREMENTS. There are additional requirements noted for specific items under Section 3.2. of these specifications.

NO.	DATE	REVISIONS	BY	APP'D
2	6/11/12	Update Bureau name & Std. Spec. location	CPA	
1	3/26/03	Current Version		

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL SPECIFICATIONS

TEI20D

FHWA APPROVAL			6/11/2012	APP'D	Brian D. Gower, P.E.		
DESIGNED	C.P.A.	DETAILED	C.P.A.	QUANTITIES		TRACED	
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.		TRACE CK.	

KDOT Graphics Certified 06-22-2012

Sh. No. XXX

KDOT Graphics Certified

Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

EQUIPMENT SPECIFICATIONS

2070 CONTROLLER

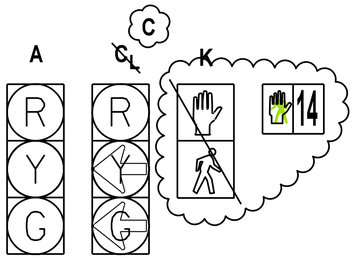
A. CONTROLLER UNIT: THE 2070L CONTROLLER SUPPLIED SHALL MEET THE REQUIREMENTS OUTLINED IN CALTRANS TEES 2002 (LATEST REVISION), AND THE FOLLOWING REQUIREMENTS:

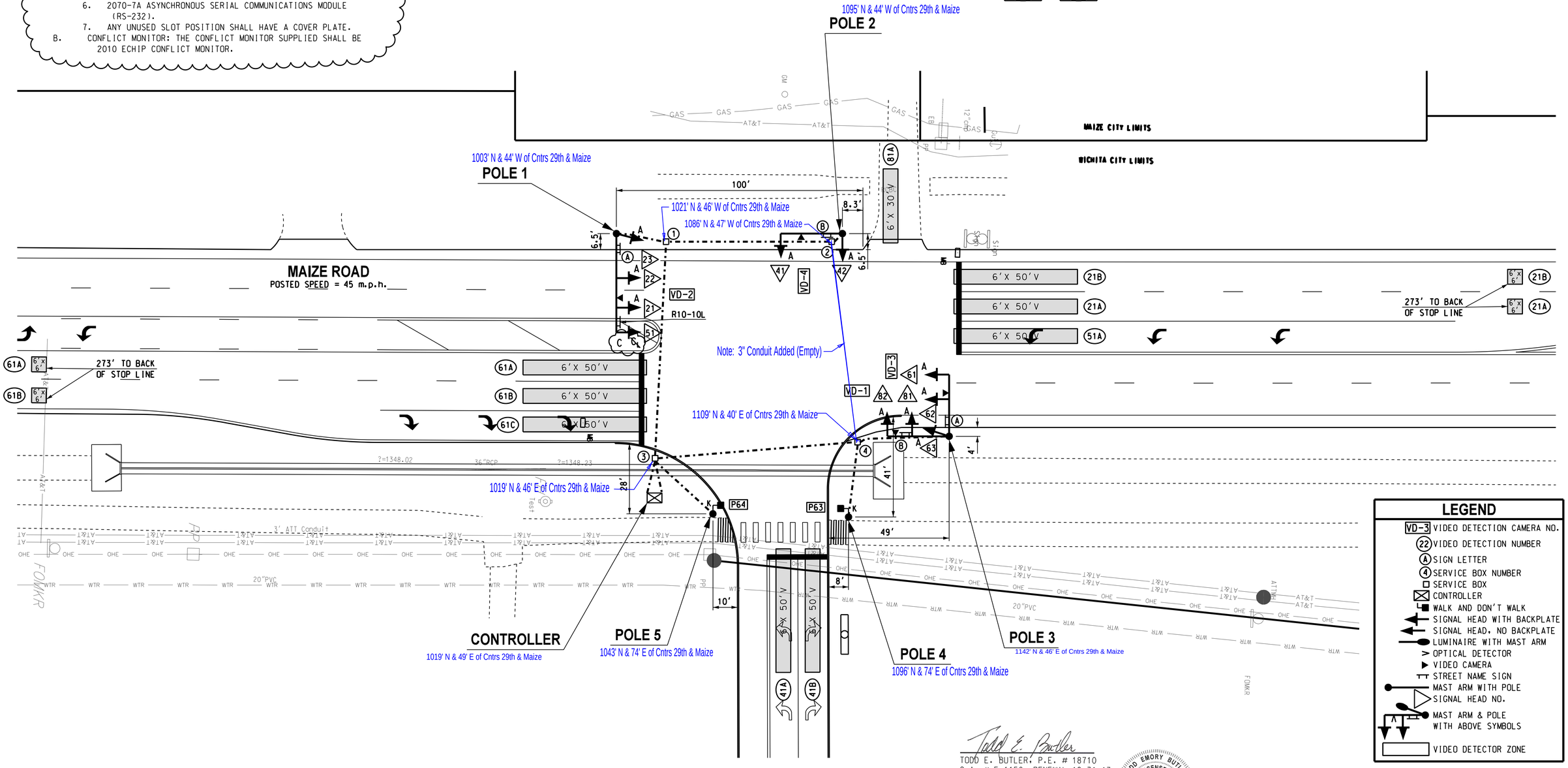
1. 2070L CONTROLLER SHALL HAVE A 19" EIA ROCK MOONTABLE CHASSIS (MATED TO THE 170 CABINET).
2. 2070-1B CPU MODULE WITH RJ-45 ETHERNET PORT.
3. 2070-2A C1 FIELD I/O MODULE FOR CAPABILITY WITH CALTRANS STYLE C1 CONNECTOR:
4. 2070-3B 8X40 FRONT PANEL WITH LCD DISPLAY.
5. 2070-4A 10 AMP POWER SUPPLY.
6. 2070-7A ASYNCHRONOUS SERIAL COMMUNICATIONS MODULE (RS-232).
7. ANY UNUSED SLOT POSITION SHALL HAVE A COVER PLATE.

B. CONFLICT MONITOR: THE CONFLICT MONITOR SUPPLIED SHALL BE 2010 ECHIP CONFLICT MONITOR.

REVISIONS		
NO.	DESCRIPTION	DATE

0 20' 40'





LEGEND

- VD-3 VIDEO DETECTION CAMERA NO.
- 22 VIDEO DETECTION NUMBER
- A SIGN LETTER
- 4 SERVICE BOX NUMBER
- SERVICE BOX
- CONTROLLER
- WALK AND DON'T WALK
- SIGNAL HEAD WITH BACKPLATE
- SIGNAL HEAD, NO BACKPLATE
- LUMINAIRE WITH MAST ARM
- OPTICAL DETECTOR
- VIDEO CAMERA
- STREET NAME SIGN
- MAST ARM WITH POLE
- SIGNAL HEAD NO.
- MAST ARM & POLE WITH ABOVE SYMBOLS
- VIDEO DETECTOR ZONE

Todd E. Butler

TODD E. BUTLER, P.E. # 18710
C.A. # E-1150, RENEWAL 12-31-13

8-16-13
DATE

Traffic Engineering Consultants, Inc.
6000 S. Western, Suite 300 - Oklahoma City, OK 73139,
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TODD EMORY BUTLER LICENSED 18710 KANSAS PROFESSIONAL ENGINEER

Design	MSH	08-15-13
Drawn	CCC	08-15-13

TEC A CLEAR DIRECTION

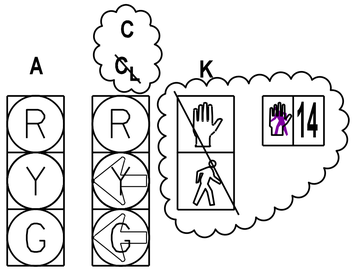
SIGNAL PLAN
MAIZE RD. & SAMS DR.

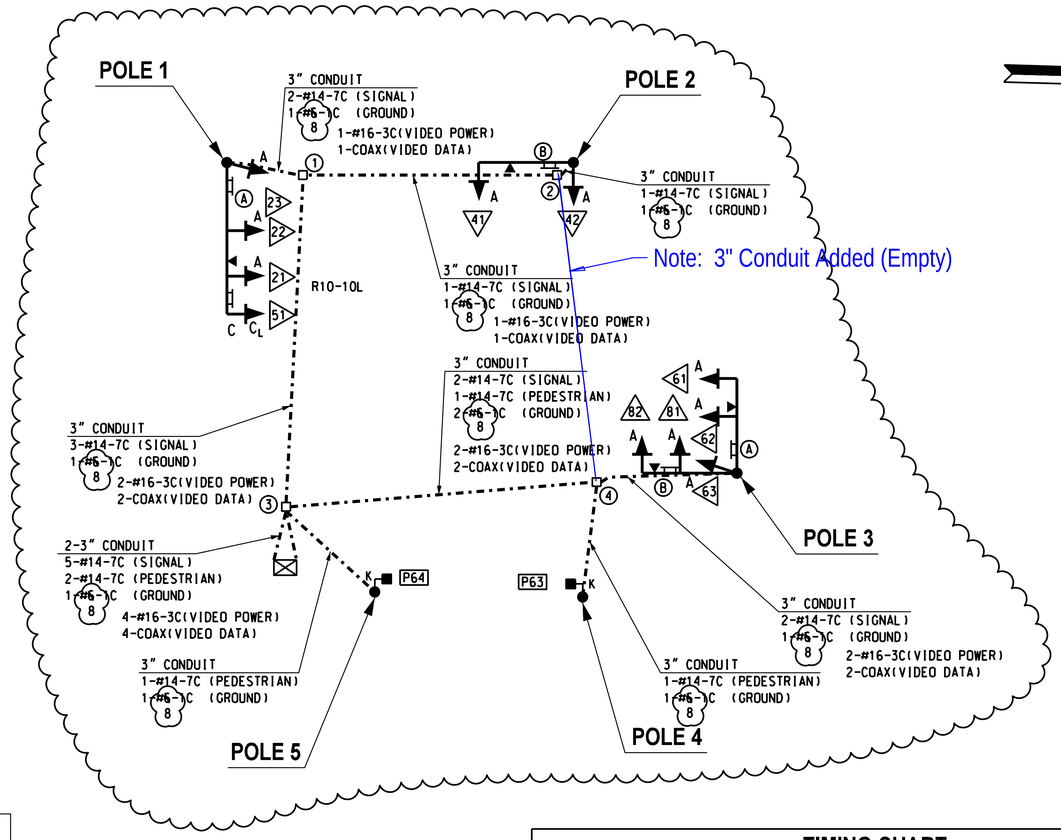
Project No. 220 PPP Sheet No. P-18

SEDGWICK COUNTY

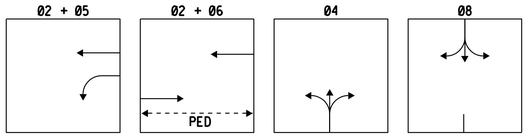
08-15-13 G:\DP\Projects\1-22\TA Sam's Club Signal on Maize - Wichita, KS\CAD\SIG.dgn

REVISIONS		
NO.	DESCRIPTION	DATE

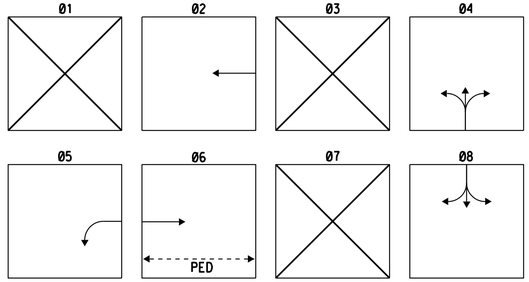




PHASE SEQUENCE

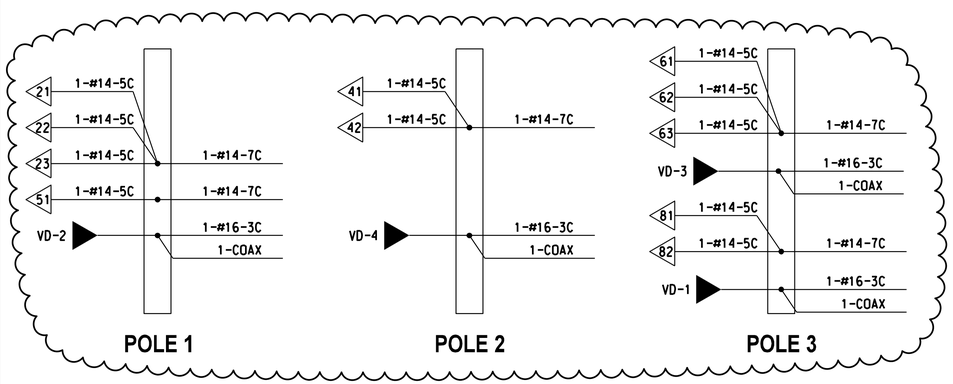


PHASE ASSIGNMENTS



TIMING CHART
(SECONDS)

	01	02	03	04	05	06	07	08	P2	P4	P6	P8
ACTUATION DELAY												
INITIAL GREEN	5	10		10		10		5				
MAX. GREEN	15	45		35		45		15				
PASSAGE TIME		2.0		2.0		2.0		1.0				
YELLOW	2.0	4.0		3.5		4.0		2.5				
ALL RED		2.0		1.0		2.0		1.0				
REST-IN PHASE												
WALK											8	
FLASH DON'T WALK											15	



LEGEND

- VD-3 VIDEO DETECTION CAMERA NO.
- (22) VIDEO DETECTION NUMBER
- (A) SIGN LETTER
- (4) SERVICE BOX NUMBER
- SERVICE BOX
- CONTROLLER
- WALK AND DON'T WALK
- SIGNAL HEAD WITH BACKPLATE
- SIGNAL HEAD, NO BACKPLATE
- LUMINAIRE WITH MAST ARM
- OPTICAL DETECTOR
- VIDEO CAMERA
- STREET NAME SIGN
- MAST ARM WITH POLE
- SIGNAL HEAD NO.
- MAST ARM & POLE WITH ABOVE SYMBOLS
- VIDEO DETECTOR ZONE

TODD E. BUTLER, P.E. # 18710
C.A. # E-1150, RENEWAL 12-31-13

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TODD EMORY BUTLER LICENSED 18710 KANSAS PROFESSIONAL ENGINEER

Design	MSH	08-15-13
Drawn	CCC	08-15-13

TEC A CLEAR DIRECTION

TRAFFIC SIGNAL WIRING DIAGRAM
MAIZE RD. & SAMS DR.

Project No. 220 PPP Sheet No. P-19

SEDGWICK COUNTY

08-15-13 G:\DOT\Projects\T-2207A Sam's Club Signal on Maize - Wichita, KS\CAD\DETWIRE.dgn

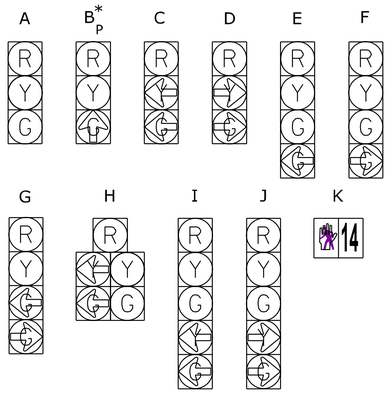
REVISIONS		
NO.	DESCRIPTION	DATE

TRAFFIC SIGNAL POLES

POLE HEIGHT	SIGNAL ARM LENGTH	SIGNAL ARM MOUNTING HEIGHT	NO. OF SIGNALS ON ARM	SIGNAL SPACING	LUMINAIRE ARM LENGTH	LUMINAIRE MOUNTING HEIGHT	QUANT.
1	40'	19'	3	18,30,40	N/A	N/A	1
2	25'	19'	1	25	N/A	N/A	1
3	25'/25'	19'	2/2	15,25/15,25	N/A	N/A	1
4	N/A		N/A	N/A	N/A	N/A	1
5	N/A		N/A	N/A	N/A	N/A	1

SIGNAL SUMMARY

SIGNAL FACE ARRANGEMENT	NO. SECTIONS (PER FACE)	SIGNAL MOUNTING TYPE	QUANTITY
A	3	MAST ARM W/BACKPLATE	7
C	3	MAST ARM W/BACKPLATE	1
		MAST ARM W/BACKPLATE	
A	3	SIDE-OF-POLE	3
K	2	SIDE-OF-POLE	2
		SIDE-OF-POLE	



* SUBSCRIPT "P" INDICATES PROGRAMMED SIGNALS.
NOTE: ALL LENSES ARE L.E.D. UNLESS OTHERWISE NOTED.

OVERHEAD STREET NAME SIGNS

SIGN	LEGEND	LENGTH	QUANTITY
A	Sam's Dr	4'-0"	2
B	Maize	3'-0"	2

BILL OF MATERIALS

ITEM	UNIT	QUANT.
PAD MOUNTED COTROLLER & CABINET	EACH	1
TRAFFIC SIGNAL HEAD W/MOUNTING HARDWARE	EACH	13
TRAFFIC SIGNAL POLE STEEL (40')	EACH	1
TRAFFIC SIGNAL POLE STEEL (25')	EACH	1
TRAFFIC SIGNAL POLE STEEL (25'/25')	EACH	1
TRAFFIC SIGNAL PEDESTAL (15')	EACH	2
CONCRETE CONTROLLER PAD	EACH	1
CONCRETE FOOTING - PEDESTAL	EACH	2
CONCRETE FOOTING - POLE	EACH	3
CONDUIT ELBOW 90DEG. 2"	EACH	AS REQ'D
CONDUIT ELBOW 90DEG. 3"	EACH	AS REQ'D
BACK PLATE 5" 3 SECTION	EACH	11
BACK PLATE 5" 5 SECTION	EACH	-
TERMINAL BLOCK	EACH	-
SERVICE BOX	EACH	4
JUNCTION BOX (PRE-FAB)	EACH	-
GROUND ROD & CLAMP	EACH	6
PED. INDICATIONS LED (16"x18" COMBINATION w/COUNTDOWN)	EACH	2
LED TRAFFIC SIGNAL LENS (12")	EACH	33
ENTRANCE HEAD	EACH	1
CIRCUIT BREAKER & BOX 50 AMP.	EACH	1
SURGE ARRESTOR - A.C.SERVICE	EACH	1
SURGE ARRESTOR - DETECTOR	EACH	-
PEDESTRIAN PUSHBUTTON W/SIGN	EACH	2
6 PR. COMMUNICATION CABLE	LIN.FT.	-
DETECTOR LOOP WIRE NO. 14 AWG 1/c	LIN.FT.	-
LEAD-IN WIRE NO.6 AWG 1/c	LIN.FT.	AS REQ'D
MULTI-CONDUCTOR CABLE NO.14 AWG 7/c	LIN.FT.	1238
MULTI-CONDUCTOR CABLE NO.14 AWG 5/c	LIN.FT.	410
MULTI-CONDUCTOR CABLE NO.14 AWG 3/c	LIN.FT.	-
MULTI-CONDUTOR CABLE NO.14 AWG 2/c	LIN.FT.	50
SHEILDED DETECTOR LEAD-IN NO.14 AWG 2/c	LIN.FT.	-
CONDUIT 1"(RGC)	LIN.FT.	AS REQ'D
CONDUIT 11/2"(RGC)	LIN.FT.	-
CONDUIT 2"(PVC)	LIN.FT.	-
CONDUIT 2"(RGC)	LIN.FT.	-
CONDUIT 3"(RGC)	LIN.FT.	567
#8 AWG GROUND (GREEN)	LIN.FT.	567
STREET NAME SIGN	EACH	4
MANDATORY MOVEMENT LANE CONTROL (R10-10L)SIGN	EACH	1
MANDATORY MOVEMENT LANE CONTROL (R3-5R)SIGN	EACH	-
VIDEO DETECTION CAMERA, MOUNTING HARDWARE AND SUNSHIELD	EACH	4
VIDEO DETECTION UNIT	EACH	4
VIDEO POWER CABLE #16 A.W.G. 3/C	LIN.FT.	1105
VIDEO CABLE 75 OHM COAXIAL (BELDON #8281 OR APPROVED EQUAL)	LIN.FT.	1105
TV MONITOR	EACH	1
MAST ARM CAMERA RISER BRACKETS	EACH	4

RECAPITULATION OF TRAFFIC SIGNAL QUANTITIES

ITEM	UNIT	QUANTITY
TRAFFIC SIGNAL INSTALLATION MAIZE & SAM'S DR.	LUMP SUM	1

NOTE:

1. ALL QUANTITY ESTIMATES SHOWN IN THIS PLAN SET ARE THE ENGINEER'S ESTIMATE AND ARE PROVIDED FOR GENERAL INFORMATION ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CALCULATING HIS/HER OWN QUANTITIES.
2. THE TRAFFIC SIGNAL SYSTEM SHALL BE COMPLETE AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE SATISFACTORY OPERATION OF ELECTRICAL APPARATUS AND FOR THE COMPLETE OPERATION OF THE TRAFFIC SIGNAL SYSTEM WHETHER SPECIFICALLY MENTIONED OR NOT.
3. CONTRACTOR RESPONSIBLE FOR CONSTRUCTING THE TRAFFIC SIGNAL SYSTEM DEPICTED IN THESE PLANS PER THE CITY OF WICHITA'S LATEST STANDARDS AND SPECIFICATIONS.

POLE AND EQUIPMENT FINISH:

SURFACE PREPARATION

THE EXTERIOR STEEL SURFACE SHALL BE BLASTED CLEAN IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE STEEL STRUCTURES PAINTING COUNCIL SURFACE PREPARATION SPECIFICATION NO. 6, (SSPCSP6O) UTILIZING A DRY ABRASIVE, CLOSED CYCLE, RECIRCULATING SYSTEM WITH CENTRIFUGAL WHEELS AND ABRASIVE. THE ABRASIVE USED SHALL BE STEEL SHOT CONFORMING TO THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) RECOMMENDED PRACTICE NO. J827 WITH PARTICLE SIZE MEETING SAE SHOT NO. S280.

ZINC COATING

THE POLE ASSEMBLY SHALL BE HOT-DIP GALVANIZED TO THE REQUIREMENTS OF EITHER ASTM A123 (FABRICATED ITEMS) OR ASTM A153 (HARDWARE ITEMS) BY IMMERSION IN A MOLTEN BATH OF PRIME WESTERN GRADE ZINC MAINTAINED BETWEEN 810 F AND 850 F. MAXIMUM ALUMINUM CONTENT OF THE BATH SHALL NOT EXCEED 0.01%.

TOP COAT

ALL VISUALLY EXPOSED EXTERIOR SURFACES SHALL BE COATED WITH A URETHANE OR TRIGLYCIDYL ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM DRY FILM THICKNESS (DFT) OF 0.05MM (2.0 MILS). PRIOR TO APPLICATION OF THE TOPCOAT, THE SURFACE SHALL BE MECHANICALLY ETCHED AND PRE-HEATED TO 450 F FOR A MINIMUM OF ONE HOUR. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED AT A MINIMUM TEMPERATURE OF 400 F AND THE COLOR SHALL BE BLACK.

Todd E. Butler

TODD E. BUTLER, P.E. # 18710
C.A. # E-1150, RENEWAL 12-31-13

8-16-13
DATE

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TODD EMORY BUTLER LICENSED 18710 KANSAS PROFESSIONAL ENGINEER

Design	MSH	08-15-13
Drawn	GDB	08-15-13

TEC A CLEAR DIRECTION

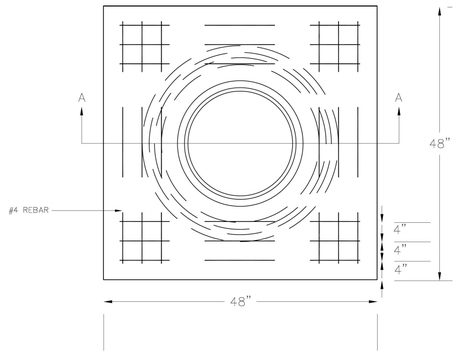
TRAFFIC SIGNAL WIRING & QUANTITIES

Project No. _____ Sheet No. P-20

SEDGEWICK COUNTY

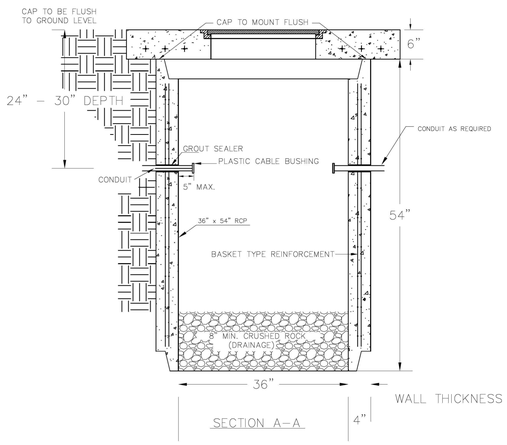
08-15-13 G:\0IProjects\17-2217A Sam's Club Signal on Maize - Wichita, KS\CAD\STANDARDS\traffic signal wiring & quantities.dgn

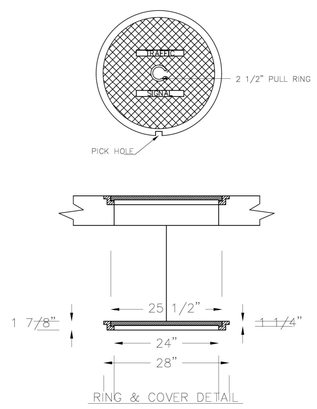
SERVICE BOX CONSTRUCTION/INSTALLATION DETAILS



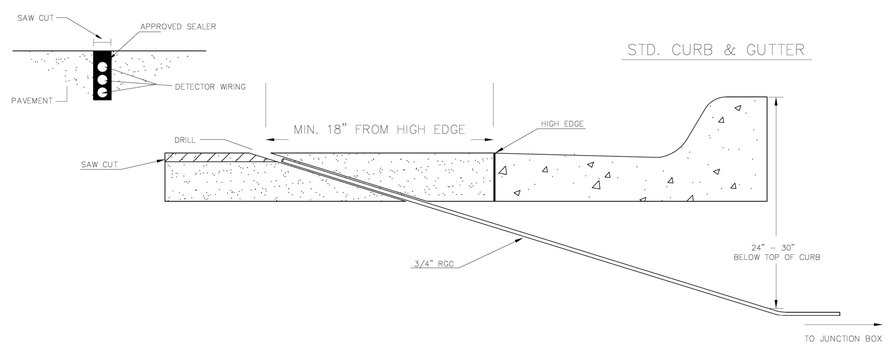
PRE-CAST CONCRETE
SERVICE BOX

(36" I.D. X 54" RCP)
with 6" CAP

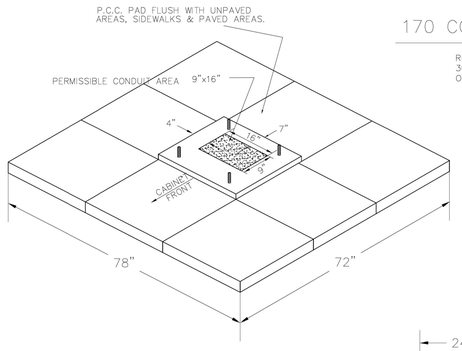




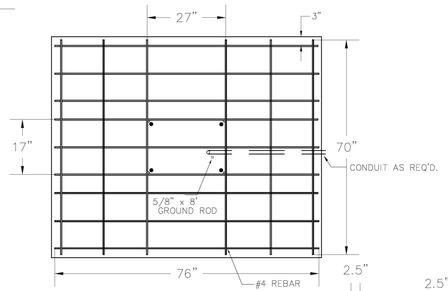
CONDUIT/DETECTOR WIRE INSTALLATION DETAILS

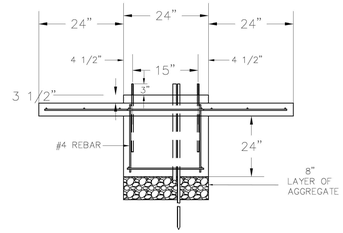


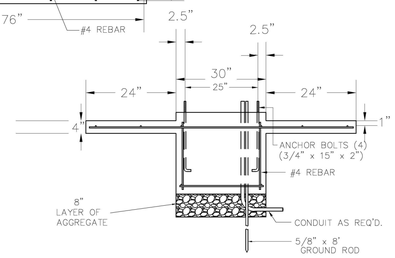
170 CONTROLLER PAD DETAILS



REBAR SHALL BE ASTM A615M GRADE
300 MEETING THE REQUIREMENTS
OF SUBSECTION SPECIFICATIONS.

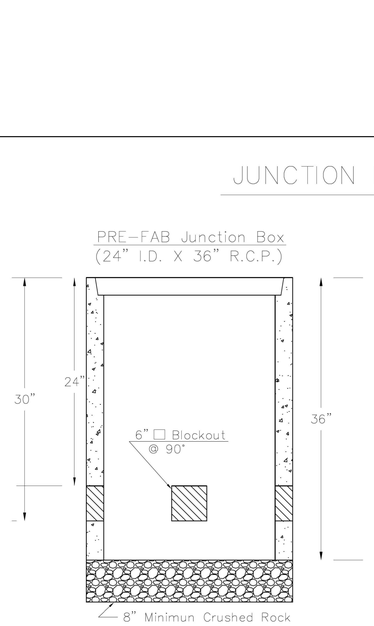




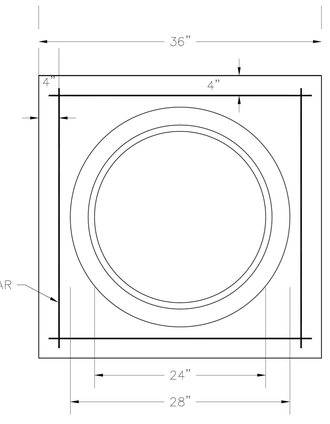


JUNCTION BOX DETAILS

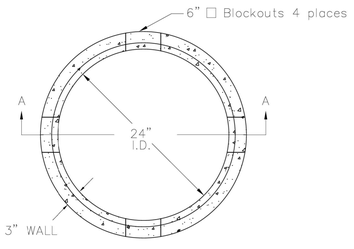
PRE-FAB Junction Box
(24" I.D. X 36" R.C.P.)



SECTION A-A



JUNCTION BOX CAP
36" x 36" x 6"
TOP OF CAP TO BE FLUSH WITH
GROUND LEVEL.



**SEE SERVICE BOX INSTALLATION
FOR RING & COVER DETAILS.

NOTES:

SERVICE & JUNCTION BOX:

1. CONDUIT CONNECTION TO BE FLUSH TO WITHIN 5" OF INSIDE FACE OF SIDE WALL, CONDUIT TO DRAIN INTO SERVICE BOX.
2. CONDUIT CONNECTIONS TO SERVICE BOX SHALL BE TERMINATED WITH PLASTIC CABLE BUSHING.
3. CONDUIT SHALL BE SEALED WITH APPROVED SEALER AT INSIDE WALL FACE.
4. ALL SERVICE & JUNCTION BOXES TO HAVE 8" OF CRUSHED ROCK.

TRENCHING:

1. DEPTH TO BE 30" MINIMUM WITH ROCK & STUBBLE FREE BACKFILL TO SERVE AS BEDDING MATERIAL. MAINTAIN MINIMUM CONDUIT DEPTH IN TRENCH.
2. BACKFILL TO BE COMPACTED IN 6" LOOSE LIFTS BY HAND OR MECHANICAL TAMPING TO A 95% STANDARD DENSITY.

CONDUIT:

1. SLOPE CONDUIT TO DRAIN AS DIRECTED BY THE ENGINEER.
2. 3" RIGID STEEL CONDUIT BTWN. SERVICE BOXES.
   2" " " " BTWN. SERVICE BOX AND POLE.
   1 1/4" " " BTWN. SERVICE & JUNCTION BOXES.
   3/4" " " BTWN. JUNCTION BOXES.
   3/4" " " BTWN. JUNCTION BOX & DETECTOR LOOP SAW CUT

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

SERVICE/JUNCTION BOX, CONTOLLER PAD CONSTRUCTION/INSTALLATION

TRAFFIC ENGINEER
PAUL GUNZELMAN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		08/2012

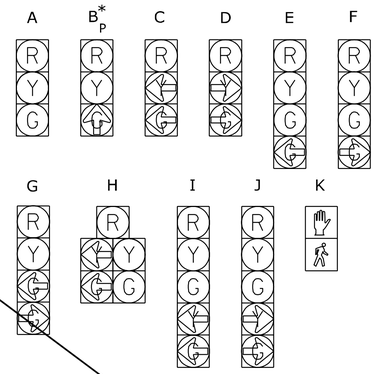
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
P-21

TR-109

CHART A SIGNAL SUMMARY

SIGNAL FACE ARRANGEMENT	NO. SECTIONS (PER FACE)	SIGNAL MOUNTING TYPE	QUANTITY
		MAST ARM W/BACKPLATE	
		MAST ARM W/BACKPLATE	
		MAST ARM W/BACKPLATE	
		SIDE-OF-POLE	
		SIDE-OF-POLE	
		SIDE-OF-POLE	



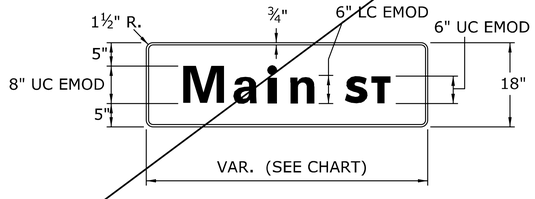
* SUBSCRIPT "P" INDICATES PROGRAMMED SIGNALS.
NOTE: ALL LENSES ARE L.E.D. UNLESS OTHERWISE NOTED.

CHART B TRAFFIC SIGNAL POLES

POLE HEIGHT	SIGNAL ARM LENGTH	SIGNAL ARM MOUNTING HEIGHT	NO. OF SIGNALS ON ARM	SIGNAL SPACING	LUMINAIRE ARM LENGTH	LUMINAIRE MOUNTING HEIGHT	QUANT.

CHART C OVERHEAD STREET NAME SIGNS

SIGN	LEGEND	LENGTH	QUANTITY



NOTE :
THE TRAFFIC SIGNAL SYSTEM SHALL BE COMPLETE AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE SATISFACTORY OPERATION OF ELECTRICAL APPARATUS AND FOR COMPLETE OPERATION OF THE TRAFFIC SIGNAL SYSTEM WHETHER SPECIFICALLY MENTIONED OR NOT.

BILL OF MATERIALS

ITEM	QUANT.	UNIT	SPEC. NO.	NOTE
CONTROLLER UNIT		EACH	3.2.2.2	
MALFUNCTION MANAGEMENT UNIT		EACH	3.2.2.3	
SURGE PROTECTOR		EACH	3.2.2.4.3	
LOAD SWITCH		EACH	3.2.2.5.1	
FLASHER		EACH	3.2.2.5.2	
FLASH TRANSFER RELAY		EACH	3.2.2.5.3	
DETECTOR, 2-CHANNEL		EACH	3.2.2.5.4	
DETECTOR, 4-CHANNEL		EACH	3.2.2.5.4	
POLE MOUNTED CABINET		EACH	3.2.2.6	
PAD MOUNTED CABINET		EACH	3.2.2.6	
BUS INTERFACE LIST		EACH	3.2.2.7	
TRAFFIC SIGNAL HEAD	CHART A	EACH	3.2.4	
SIGNAL HEAD MOUNTING BRACKET	CHART A	EACH	3.2.6	
BACK PLATE	CHART A	EACH	3.2.7	
VEHICLE TRAFFIC SIGNAL LAMP		EACH	3.2.5	
PEDESTRIAN TRAFFIC SIGNAL LAMP		EACH	3.2.5	
L.E.D. LENS		EACH	3.2.4.4	
PEDESTRIAN PUSHBUTTON & SIGN		EACH	3.2.8, 3.2.9	
TRAFFIC SIGNAL POLE	CHART B	EACH	3.2.10	
TRAFFIC SIGNAL PEDESTAL ALUMINUM		EACH	3.2.11	
TERMINAL BLOCK		EACH	3.2.12	
JUNCTION BOX		EACH	3.2.13, 3.2.14	
SERVICE BOX		EACH	3.2.15	
LUMINAIRE		EACH	3.2.16	
LUMINAIRE LAMP WATT		EACH	3.2.17	
PHOTOCELL		EACH	3.2.18	
UNFUSED STREET LIGHT CONNECTOR KIT		EACH	3.2.19	
FUSED STREET LIGHT CONNECTOR KIT		EACH	3.2.20	
OVERHEAD STREET NAME SIGN	CHART C	EACH	3.2.21	
R10-10 SIGN (24" X 30")		EACH	3.2.22	
R10-12 SIGN (24" X 30")		EACH	3.2.22	
BLANK OUT SIGN		EACH	3.2.23	
ENTRANCE HEAD		EACH	3.2.24	
SERVICE ENCLOSURE, AMP.		EACH	3.2.25	
CIRCUIT BREAKER, TRAFFIC SIGNAL, AMP.		EACH	3.2.26	
CIRCUIT BREAKER, LUMINAIRE, AMP.		EACH	3.2.26	
GROUND ROD & CLAMP		EACH	3.2.27, 3.2.28	
SERVICE WIRE NO. 6 AWG 1/C		LIN FT	3.2.29	
LIGHTING DISTRIBUTION WIRE NO. 8 AWG 1/C		LIN FT	3.2.30	
POLE & BRACKET WIRE NO. 10 AWG 1/C		LIN FT	3.2.31	
GROUND WIRE NO. 6 AWG 1/C		LIN FT	3.2.32	
MULTI-CONDUCTOR CABLE NO. 14 AWG 5/C		LIN FT	3.2.33	
MULTI-CONDUCTOR CABLE NO. 14 AWG /C		LIN FT	3.2.33	
MULTI-CONDUCTOR CABLE NO. 14 AWG /C		LIN FT	3.2.33	
SHIELDED DETECTOR LEAD-IN CABLE NO. 14 AWG 2/C		LIN FT	3.2.34	
DETECTOR LOOP WIRE NO. 14 AWG 1/C		LIN FT	3.2.35	
LOOP SEALANT	AS REQ'D		3.2.36	
PRE-FORMED LOOP		EACH	3.2.37	
CONDUIT, 1" & FITTINGS		LIN FT	3.2.38	
CONDUIT, 1½" & FITTINGS		LIN FT	3.2.38	
CONDUIT, 2" & FITTINGS		LIN FT	3.2.38	
CONDUIT, 3" & FITTINGS		LIN FT	3.2.38	
CONDUIT, 4" & FITTINGS		LIN FT	3.2.38	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX

BID ITEM

ITEM	UNIT	QUANTITY
TRAFFIC SIGNAL INSTALLATION	L.S.	L.S.

-QUANTITIES FOR INFORMATION ONLY-

NO.	DATE	REVISIONS	BY	APP'D
1	3/26/03	Current Version		

KANSAS DEPARTMENT OF TRANSPORTATION

NEMA SYSTEM
TRAFFIC SIGNAL QUANTITIES SHEET

TE130A

FHWA APPROVAL		4/29/2003	APP'D	Linda G. Voss	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	G.J.O.	DETAIL CK.	G.J.O.	QUAN. CK.	TRACE CK.

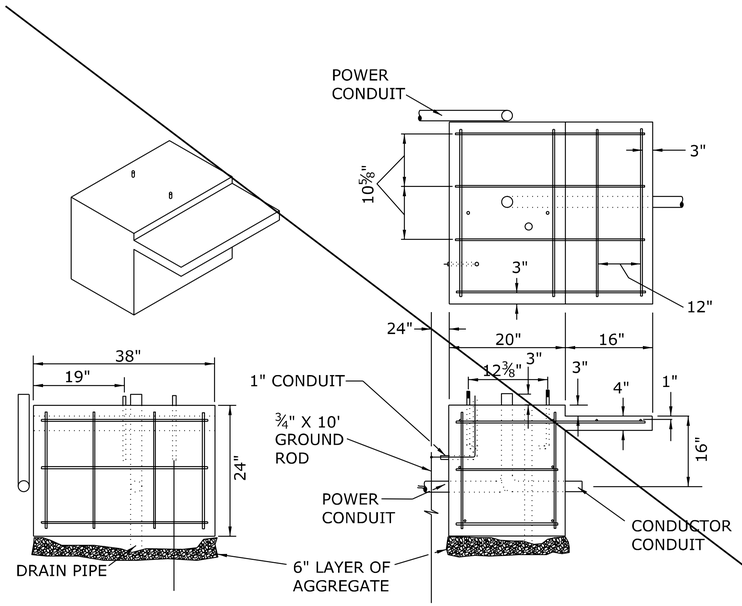
KDOT Graphics Certified 01-18-2011

Sh. No. XXX

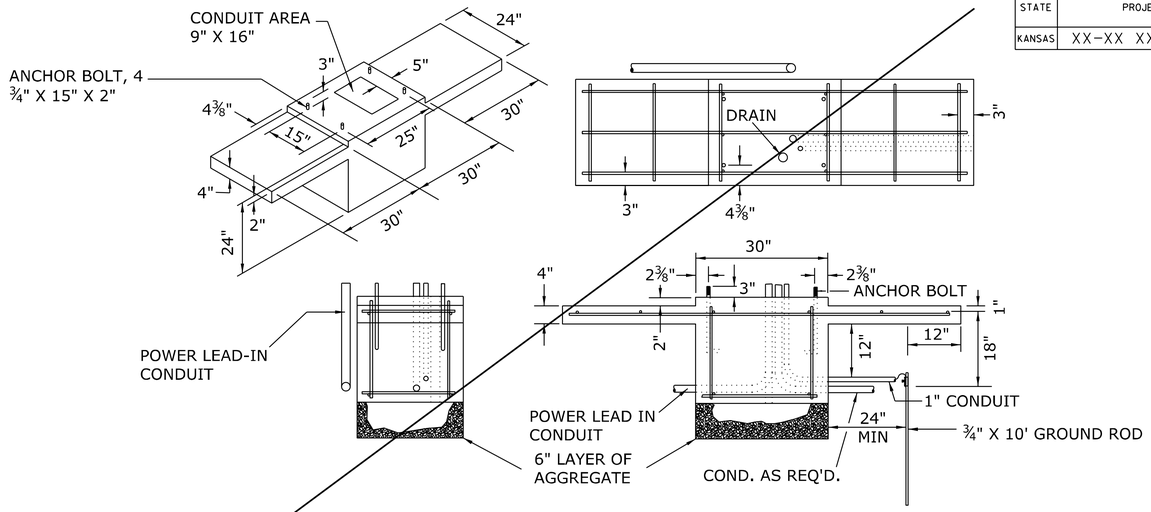
KDOT Graphics Certified

Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX

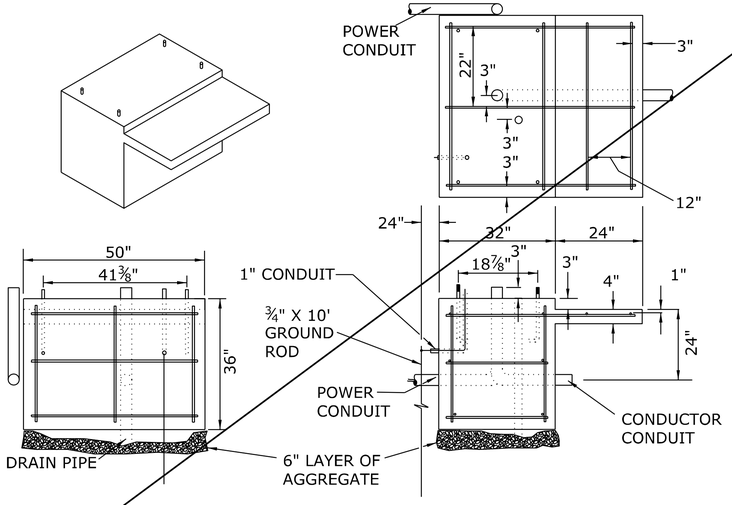


NEMA TYPE I (SIZE 5) CABINET FOUNDATION DETAILS *

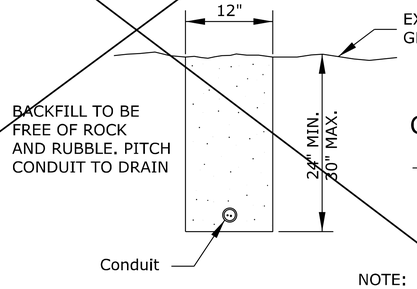


332B CABINET FOUNDATION DETAILS *

* NOTE: ALL REINFORCING BARS USED IN THE CONSTRUCTION OF CABINET FOUNDATIONS SHALL BE #4.

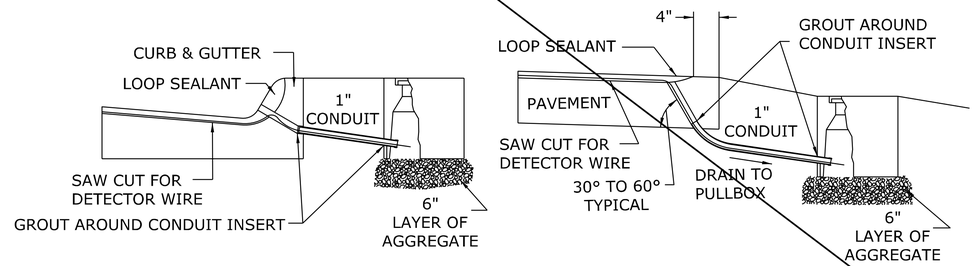


NEMA TYPE II (SIZE 6) CABINET FOUNDATION DETAILS *



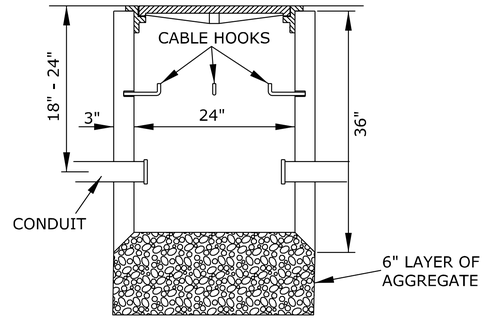
CONDUIT INSTALLATION TRENCH DETAIL

NOTE: HOLES SHALL BE DRILLED BEFORE THE SAW CUT



JUNCTION BOX INSTALLATION DETAILS WITH & WITHOUT CURB & GUTTER

NOTE: NO. 6 AWG BARE SOLID COPPER WIRE OF TYPE, ASTM B-3, SHALL BE USED AS A CONTINUOUS GROUND WIRE THROUGHTOUT THE SIGNAL SYSTEM.



SERVICE BOX INSTALLATION DETAIL

NO.	DATE	REVISIONS	BY	APP'D
3	6/11/12	Changed 8" to 6" aggregate pad	CPA	
2	4/20/05	Revised Re-Bar Size and Porch Thickness		
1	3/26/03	Current Version		

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL INSTALLATION DETAIL SHEET

TE110

FHWA APPROVAL				6/11/2012	APP'D	Brian D. Gower, P.E.	
DESIGNED	C.P.A.	DETAILED		C.P.A.	QUANTITIES		TRACED
DESIGN CK.	B.D.G.	DETAIL CK.		B.D.G.	QUAN. CK.		TRACE CK.

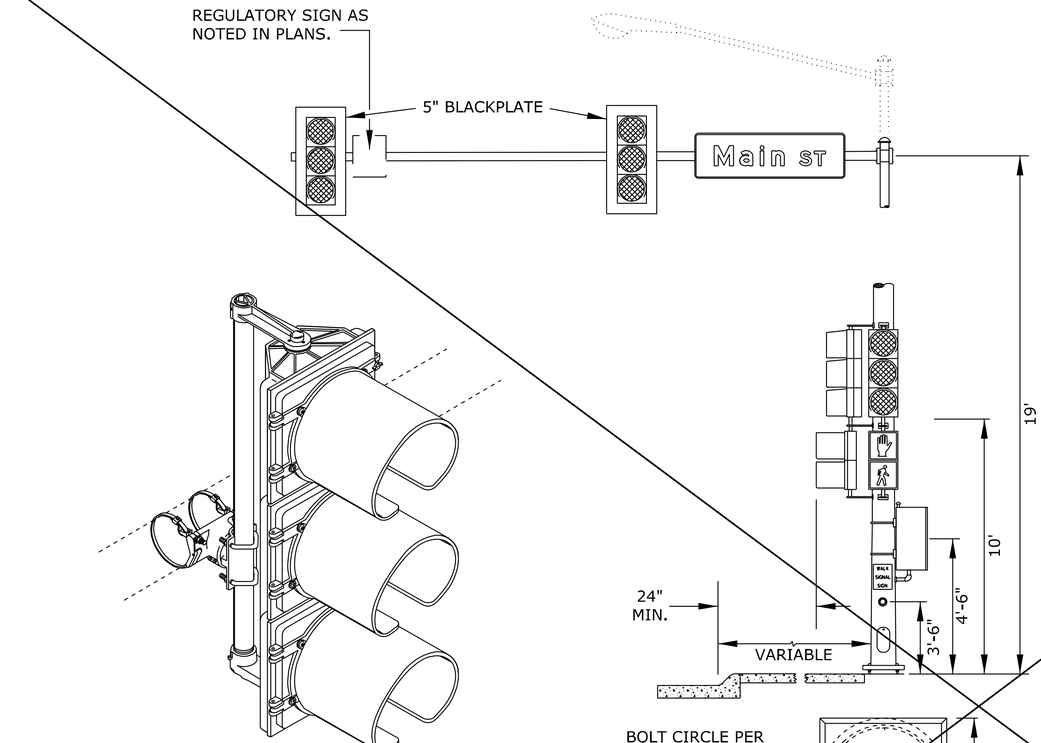
KDOT Graphics Certified 06-22-2012

Sh. No. XXX

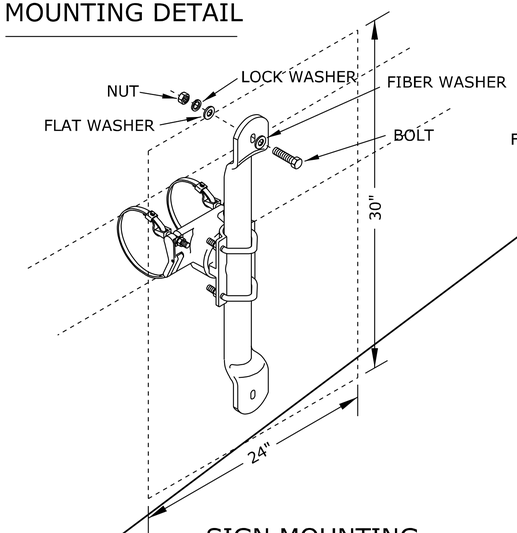
KDOT Graphics Certified

Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

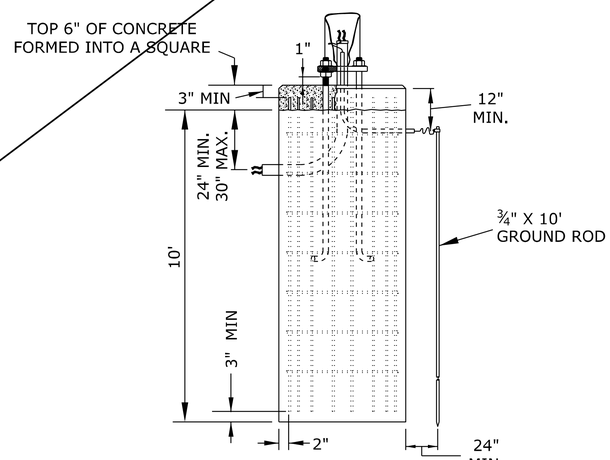
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX



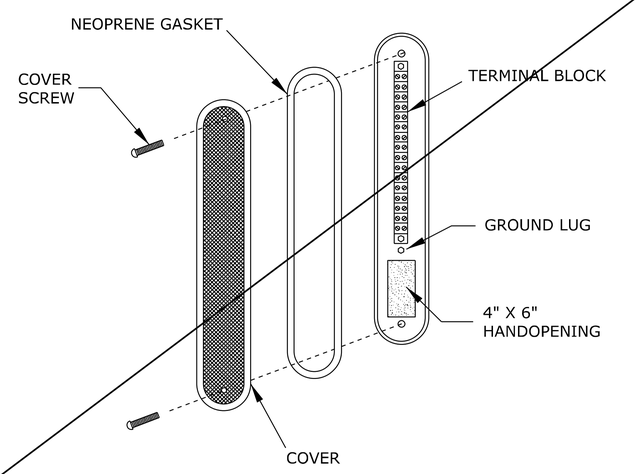
RIGID SIGNAL MOUNTING DETAIL



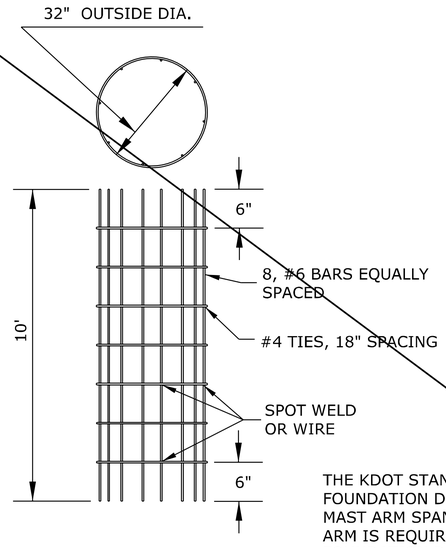
SIGN MOUNTING BRACKET DETAIL SIGNS OVER 18" TALL (R10 SERIES)



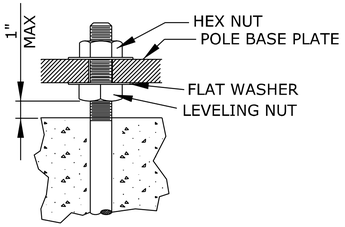
MAST ARM POLE & BASE DETAIL

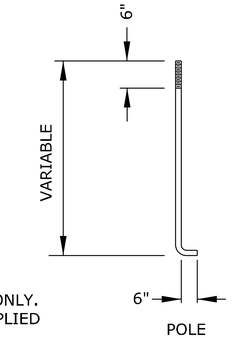


WIRING TERMINAL HAND HOLE



MAST ARM POLE REBAR CAGE DETAIL





DIMENSIONS SHOWN ARE TYPICAL ONLY. ACTUAL DIMENSIONS SHALL BE SUPPLIED BY THE MANUFACTURER.

MAST ARM POLE ANCHOR BOLT DETAIL

THE KDOT STANDARD TRAFFIC SIGNAL POLE FOUNDATION DESIGN IS ACCEPTABLE FOR A MAXIMUM MAST ARM SPAN OF 54 FEET. IF A LONGER MAST ARM IS REQUIRED TO BE USED, SIGNAL POLE FOUNDATION DESIGN CALCULATIONS MUST BE SUBMITTED TO KDOT FOR REVIEW.

NO.	DATE	REVISIONS	BY	APP'D
1	4/22/04	Signal Pole Foundation Note	JFF	BDG

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL INSTALLATION DETAIL SHEET

TEIIIA

FHWA APPROVAL		4/29/2003	APP'D	Linda G. Voss	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	G.J.O.	DETAIL CK.	G.J.O.	QUAN. CK.	TRACE CK.

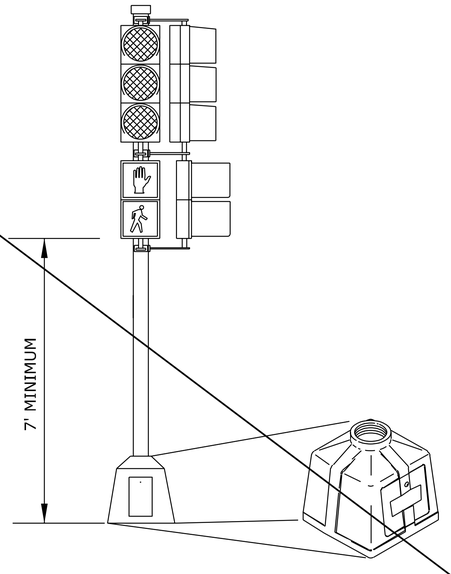
KDOT Graphics Certified 01-18-2011

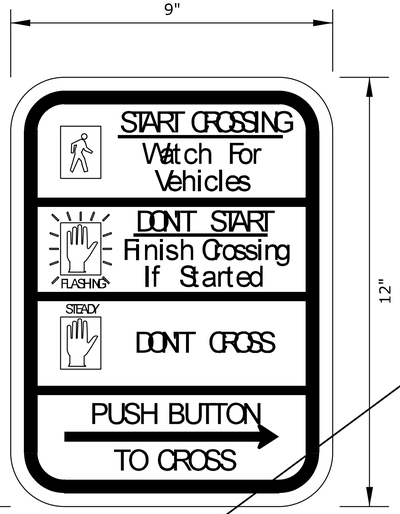
Sh. No. XXX

KDOT Graphics Certified

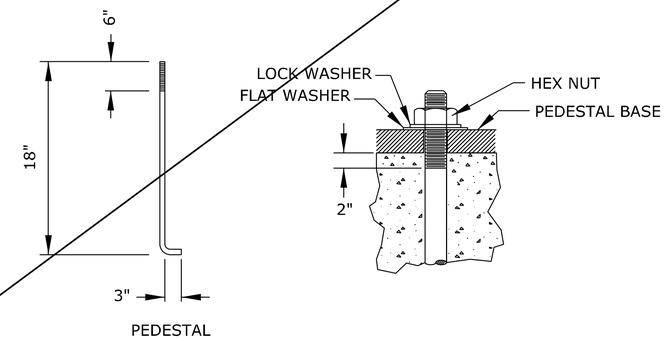
Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX





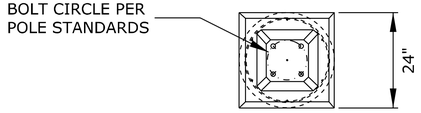
PEDESTRIAN SIGN R10-3b

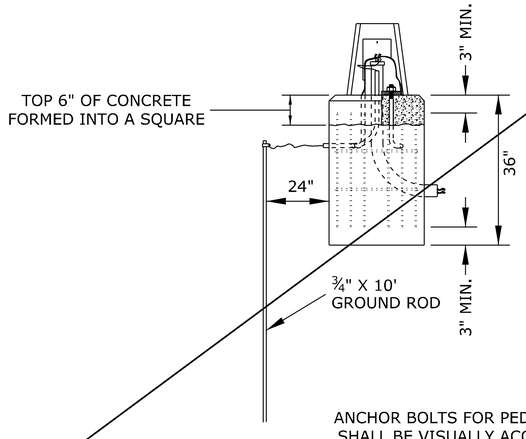


PEDESTAL

DIMENSIONS SHOWN ARE TYPICAL ONLY. ACTUAL DIMENSIONS SHALL BE SUPPLIED BY THE MANUFACTURER.

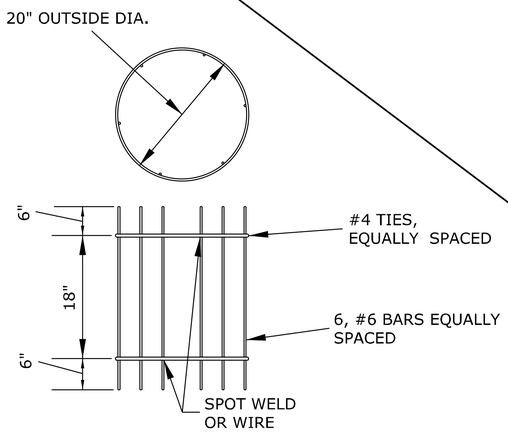
PEDESTAL ANCHOR BOLT DETAIL



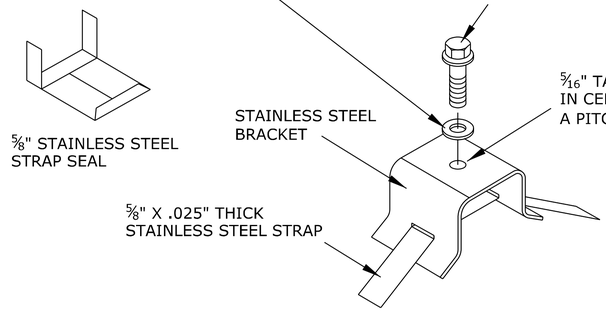


ANCHOR BOLTS FOR PEDESTALS SHALL BE VISUALLY ACCEPTED.

PEDESTAL AND BASE DETAIL



PEDESTAL REBAR CAGE DETAIL



SIGN MOUNTING BRACKET DETAIL SIGNS UNDER 18" TALL (PEDESTRIAN/STREET NAME)

NO.	DATE	REVISIONS	BY	APP'D
2	8/02/06	Sing Mounting Bracket Revision	JFF	GJO
1	3/26/03	Current Version		

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL INSTALLATION DETAIL SHEET

TEIIIB

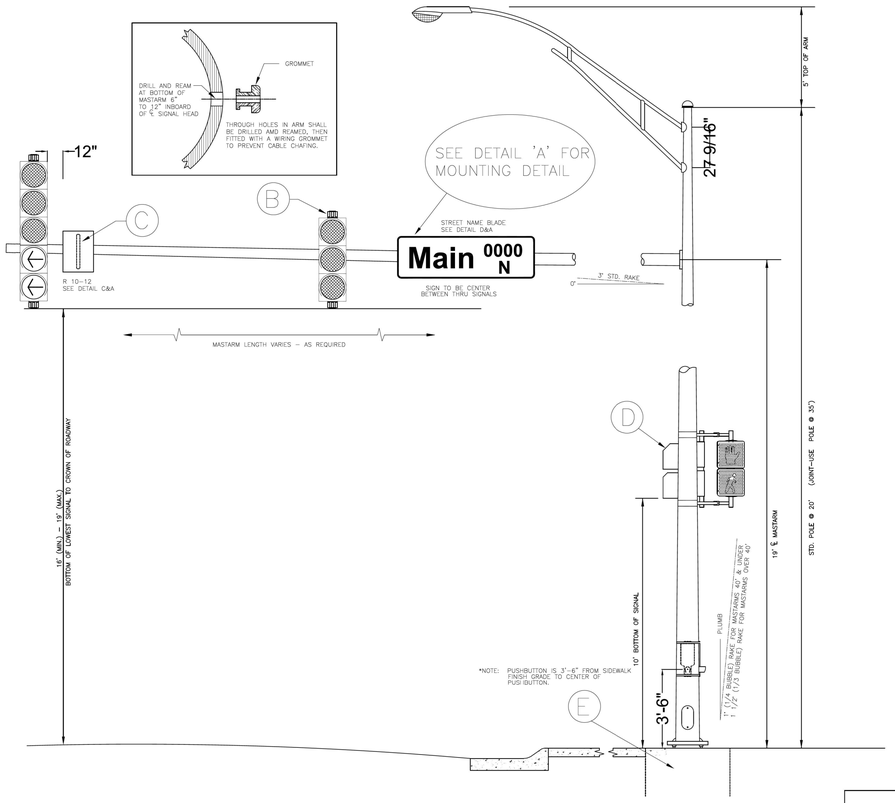
FHWA APPROVAL		4/29/2003	APP'D	Linda G. Voss	
DESIGNED	J.F.F.	DETAILED	J.F.F	QUANTITIES	TRACED
DESIGN CK.	G.J.O.	DETAIL CK.	G.J.O.	QUAN. CK.	TRACE CK.

KDOT Graphics Certified 01-18-2011

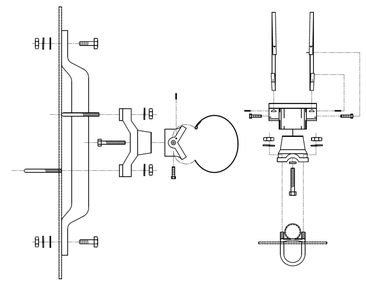
Sh. No. XXX

Drawn By : $$USERNAME$$ Plotted : $$YTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

KDOT Graphics Certified

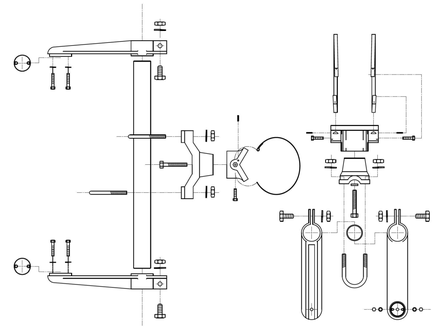


BANDED SIGN MOUNTING BRACKET DETAIL



A

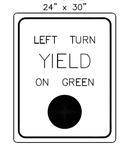
TYPE I SIGNAL MOUNTING BRACKET ASSEMBLY DETAIL



B

STANDARD SIGNING

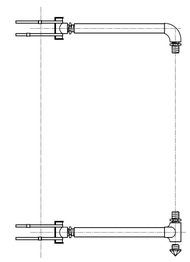
R 10-12
24" x 30"



SEE DETAIL "A" FOR MOUNTING HARDWARE

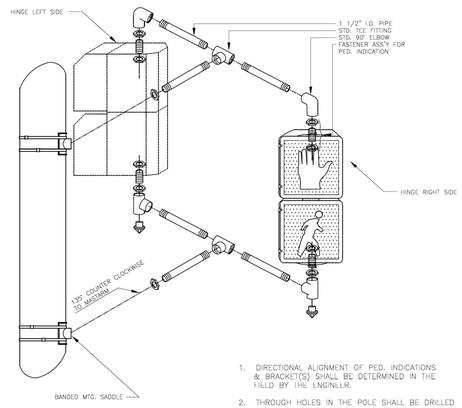
C

TYPE III SIDE-OF-POLE MOUNTING BRACKET ASSEMBLY



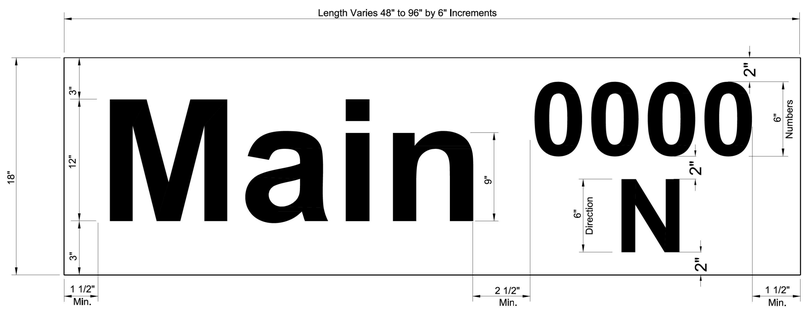
F

TYPE II SIGNAL MOUNTING BRACKET ASSEMBLY (SIDE-OF-POLE)

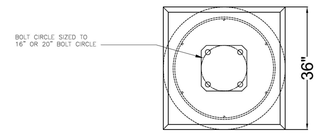


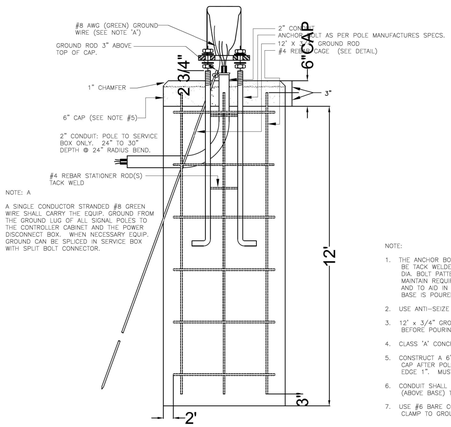
1. DIRECTIONAL ALIGNMENT OF PED. INDICATIONS & BRACKET(S) SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. THROUGH HOLES IN THE POLE SHALL BE DRILLED AND WELL REAMED TO PREVENT CABLE CHAFING.
3. HINGE PEDESTRIAN SIGNAL DOORS AWAY FROM POLE.
4. CLAM SHELL BRACKETS ARE NOT ACCEPTABLE.

D



DETAIL D
METRO

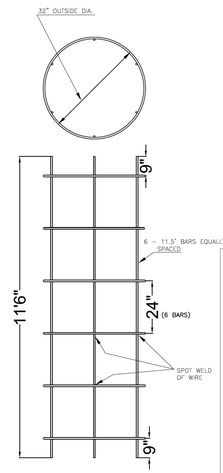




NOTE: A
A SINGLE CONDUCTOR STRANDED #8 GREEN WIRE SHALL CARRY THE EQUIP. GROUND FROM THE GROUND LUG OF ALL SIGNAL POLES TO THE CONTROLLER CABINET AND THE POWER DISCONNECT BOX. WHEN NECCESSARY EQUIP. GROUND CAN BE SPLICED IN SERVICE BOX WITH SPLIT BOLT CONNECTOR.

NOTE:
1. THE ANCHOR BOLTS FOR THE SIGNAL POLE SHALL BE TACK WELDED TOGETHER IN A 16" OR 20" DIA. BOLT PATTERN (ON CENTERS AS SHOWN) TO MAINTAIN REQUIRED BOLT CONFIGURATION PATTERN AND TO AID IN VERTICAL POSITIONING WHILE CONCRETE BASE IS POURED.
2. USE ANTI-SEIZE COMPOUND ON ALL THREADS.
3. 12' x 3/4" GROUND ROD TO BE POSITIONED BEFORE POURING BASE.
4. CLASS "A" CONCRETE SHALL BE USED TO CONSTRUCT BASE.
5. CONSTRUCT A 6" THICK x 36" SQUARE CONCRETE CAP AFTER POLE HAS BEEN ERECTED & PLUMBED. CHAMFER EDGE 1". MUST BE APPROVED BY ENG. BEFORE POURED.
6. CONDUIT SHALL HAVE PLASTIC (OR METAL) BUSHING (ABOVE BASE) TO PREVENT CABLE CHAFING.
7. USE #6 BARE COPPER GROUND CONDUCTOR FROM CLAMP TO GROUND BOLT IN ACCESS HOLE.

REBAR CAGE



E

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STEEL SIGNAL POLE ASSEMBLY DETAILS

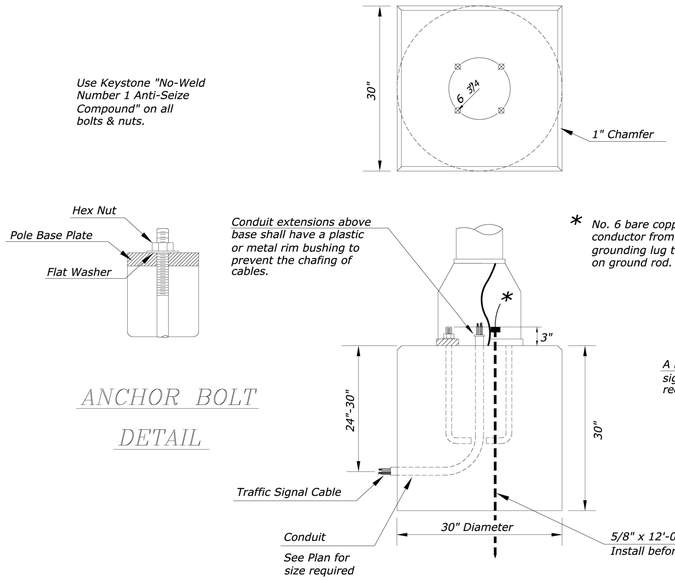
TRAFFIC ENGINEER
PAUL GUNZELMAN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		10/2012

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

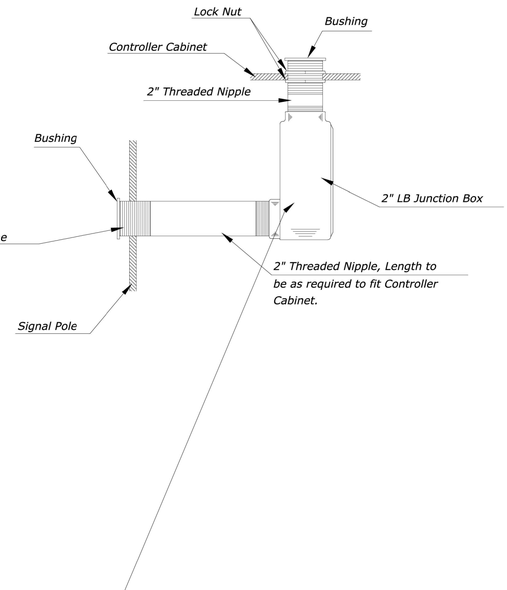
SHEET
P-22

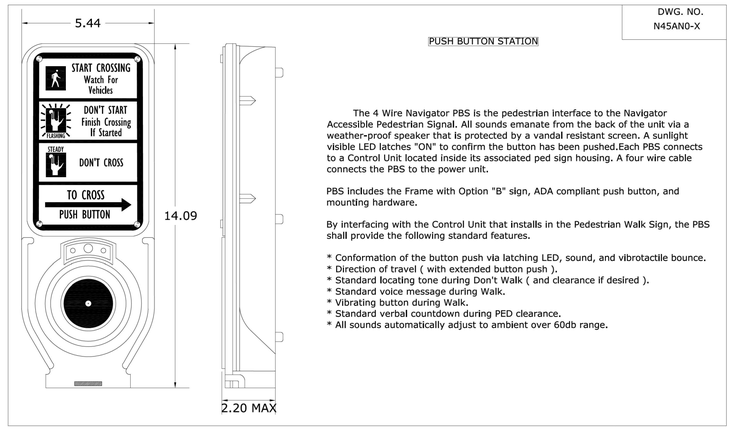
TR-101



ANCHOR BOLT DETAIL

CONCRETE BASE DETAIL





DWG. NO.
N45AN0-X

PUSH BUTTON STATION

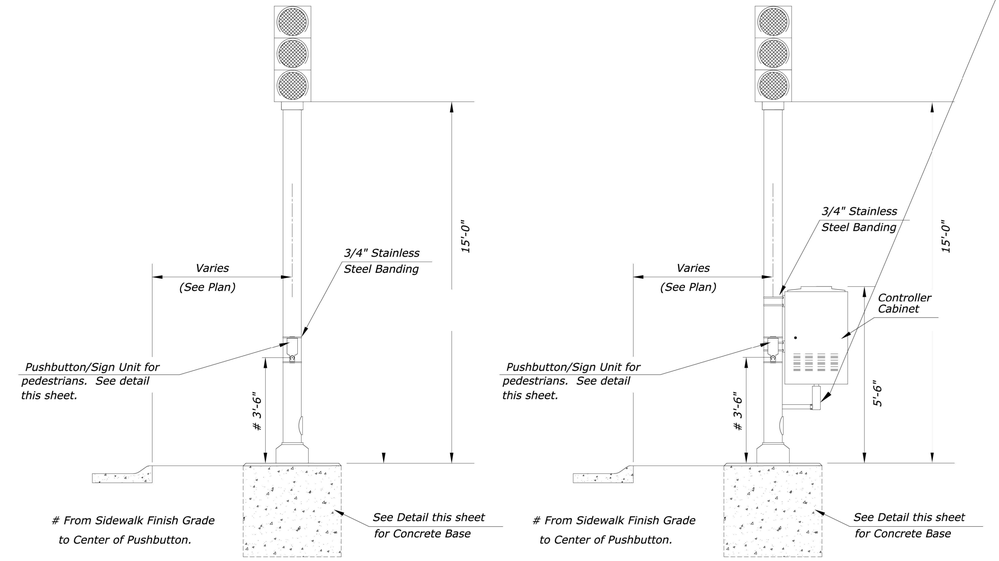
The 4 Wire Navigator PBS is the pedestrian interface to the Navigator Accessible Pedestrian Signal. All sounds emanate from the back of the unit via a weather-proof speaker that is protected by a vandal resistant screen. A sunlight visible LED latches "ON" to confirm the button has been pushed.Each PBS connects to a Control Unit located inside its associated ped sign housing. A four wire cable connects the PBS to the power unit.

PBS includes the Frame with Option "B" sign, ADA compliant push button, and mounting hardware.

By interfacing with the Control Unit that installs in the Pedestrian Walk Sign, the PBS shall provide the following standard features.

* Conformation of the button push via latching LED, sound, and vibrotactile bounce.
* Direction of travel (with extended button push).
* Standard locating tone during Don't Walk (and clearance if desired).
* Standard voice message during Walk.
* Vibrating button during Walk.
* Standard verbal countdown during PED clearance.
* All sounds automatically adjust to ambient over 60db range.

PEDESTRIAN PUSHBUTTON/SIGN UNIT DETAIL



TRAFFIC SIGNAL PEDESTAL

TRAFFIC SIGNAL PEDESTAL WITH CONTROLLER CABINET

DWG. NO.
N45AN0-X

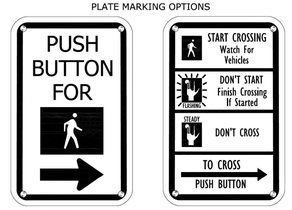
PUSH BUTTON STATION

Message and Sound options include:
* Locating tone
* Verbal Street Name (Example: Crossing Main at Central)
* All features field selectable using a Configurator.

Construction :
* Die-cast aluminum, powder coated Black in color.
* Street Name in Braille in the directional arrow of the sign.
* Option "B" signing option.

Push button :
* ADA compliant
* Raised tactile arrow on the button
* Solid State switch rated at a Minimum of 20 million actuations

PLATE MARKING OPTIONS



STANDARD OPTION A

OPTION B

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

SIGNAL PEDESTAL & BASE WITH ADA PUSH BUTTON

TRAFFIC ENGINEER
PAUL D. GUNZELMAN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		10/2012

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
P-23

TR-112

REVISIONS		
NO.	DESCRIPTION	DATE

0 30′ 60′

MATCH EXISTING STRIPING
4" DOUBLE YELLOW
12" YELLOW DIAGONAL LINE AT 30° 45′ C/C
6" BROKEN WHITE LANE LINE
4" BROKEN YELLOW LINE
6" WHITE EDGE LINE
12" YELLOW DIAGONAL LINE AT 30° 45′ C/C
4" DOUBLE YELLOW
MAIZE RD.
R 2.5′
R 14.5′
25′ 32′ 32′ 50′
16′ 8′ 122′ 100′
R 7′
5′ 12′ 12′ 13′ 12′ 12′
24" WHITE STOP LINE
50 L.F. 6" WHITE
39′
105 L.F. 6" WHITE
12′
32′ 32′ 25′
80 L.F. 6" WHITE
11′
46′
6" WHITE EDGE LINE
32′ 32′ 24.9′
8′ TYP. 24′ TYP.
6" BROKEN WHITE LANE LINE
6" WHITE EDGE LINE
49′
24" WHITE STOP LINE
TYPE II CROSSWALK
12′ 12′ 12′
25′ 32′ 32′ 32′ 25′
182 L.F. 6" WHITE LANE LINE
4" DOUBLE YELLOW
MATCH LINE "A"
57′
TYPE II CROSSWALK
24" WHITE STOP LINE
SAM'S DR.
25′ 32′ 32′ 25′
4" DOUBLE YELLOW
135 L.F. 6" WHITE LANE LINE
12′ 12′ 12′
65 L.F. 6" WHITE LANE LINE
32′ 25′

MATCH LINE "A"
24" WHITE STOP LINE
6" WHITE EDGE LINE
6" BROKEN WHITE LANE LINE
110′ BAY TAPER
310.7′ APPROACH TAPER
5′ 12′ 12′ 13′ 12′ 13′
MAIZE RD.
14′
50 L.F. 6" WHITE
200 L.F. 6" WHITE
25′ 50′ 50′
MATCH EXISTING STRIPING
8′ TYP. 24′ TYP.
6" WHITE EDGE LINE
4" DOUBLE YELLOW
12" YELLOW DIAGONAL LINE AT 30° 45′ C/C

Todd E. Butler
TODD E. BUTLER, P.E. # 18710
C.A. # E-1150, RENEWAL 12-31-13
7-12-13
DATE

Traffic Engineering Consultants, Inc.
6000 S. Western, Suite 300 - Oklahoma City, OK 73139,
Ph: 405-720-7721, Fax: 405-720-9848, Web: www.tecok.com

TODD EMORY BUTLER LICENSED 18710 KANSAS PROFESSIONAL ENGINEER

Design	MSH	08-15-13
Drawn	CCC	08-15-13

TEC A CLEAR DIRECTION

STRIPING PLAN
MAIZE RD.

Project No. 220 PPP Sheet No. P-24

SEDGWICK COUNTY

08-15-13 G:\0Projects\T-220\A Sams Club Signalon Maize - Wichita, KS\CAD\STRIPE.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX

SUMMARY OF PAVEMENT MARKINGS

LOCATION	4" Solid WHITE Edge Line	6" Solid WHITE Edge Line	6" Broken WHITE Lane Line	6" Broken WHITE Lane Line (PCP)	6" Dotted WHITE Extension Line	6" Broken WHITE Lane Drop Line	6" Solid WHITE Lane Line	8" Broken WHITE Lane Drop Line	8" Solid WHITE Gore Line	8" Dotted WHITE Extension Line	12" Solid WHITE Diagonal Line	12" Solid WHITE Chevron Line	12" Solid WHITE Type I Crosswalk Line	24" Solid WHITE Type II Crosswalk Line	24" Solid WHITE Stop Line	4" Solid YELLOW Edge Line	4" Solid YELLOW Double Line	4" Solid YELLOW Line	4" Broken YELLOW Line	6" Solid YELLOW Edge Line	12" Solid YELLOW Diagonal Line
TOTALS																					

RECAPITULATION OF QUANTITIES

ITEMS	TOTAL	UNITS
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(12")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(4")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(6")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(8")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(12")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(4")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(6")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(24")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12")		FT
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(US-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(K-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(I-SHIELD)( )		EACH
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING REMOVAL		FT

SUMMARY OF WORD & SYMBOL MARKINGS

LOCATION							STOP	ONLY	X-ING	SCHOOL												
TOTALS																						

NOTE:
WORDS & SYMBOLS SHALL CONFORM TO THE LATEST EDITION OF "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

PRIOR TO COMMENCEMENT OF PAVEMENT MARKING WORK THE ENGINEER WILL ESTABLISH THE LIMITS FOR "NO PASSING" ZONES. THESE LIMITS SHALL BE USED FOR THE LOCATION OF "NO PASSING" LINES AND FOR THE COMPUTATION OF ACTUAL MARKING QUANTITIES FOR THIS LINE TYPE.

NOTE: FOR SPECIFIC PAVEMENT MARKING DETAILS AND DIMENSIONS SEE PLAN SHEETS

NOTE: ALL TOTALS REFLECT ACTUAL QUANTITY OF PAVEMENT MARKING MATERIALS REQUIRED.

NO.	DATE	REVISIONS	BY	APP'D
2	5/25/12	Added Line Types, Symbols, and Shields	B.A.H.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY AND RECAPITULATION OF PAVEMENT MARKING QUANTITIES

TE311

FHWA APPROVAL 5/25/2012		APP'D Brian D. Gower	
DESIGNED J.F.F.	DETAILED J.F.F.	QUANTITIES	TRACED
DESIGN CK. B.D.G.	DETAIL CK. B.D.G.	QUAN. CK.	TRACE CK.

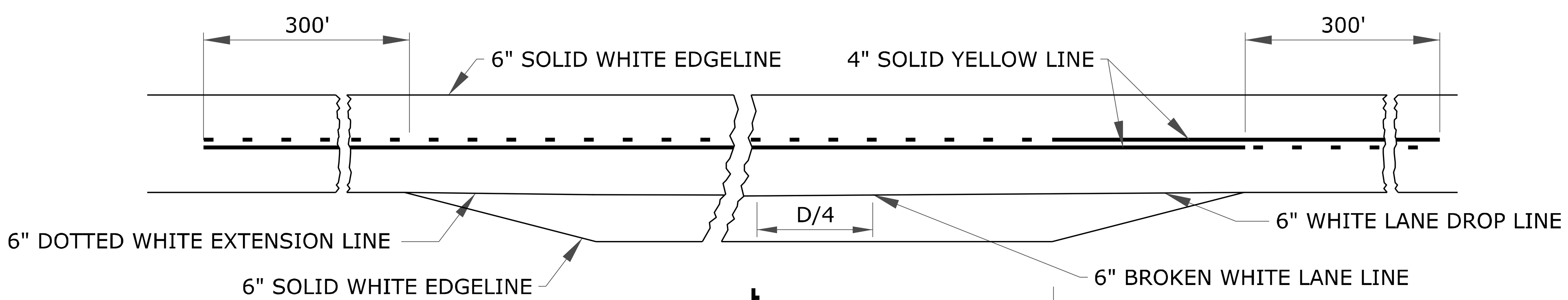
KDOT Graphics Certified 06-20-2012

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	XX-XX XX-XXXX-XX	XXXX	XXX	XXX

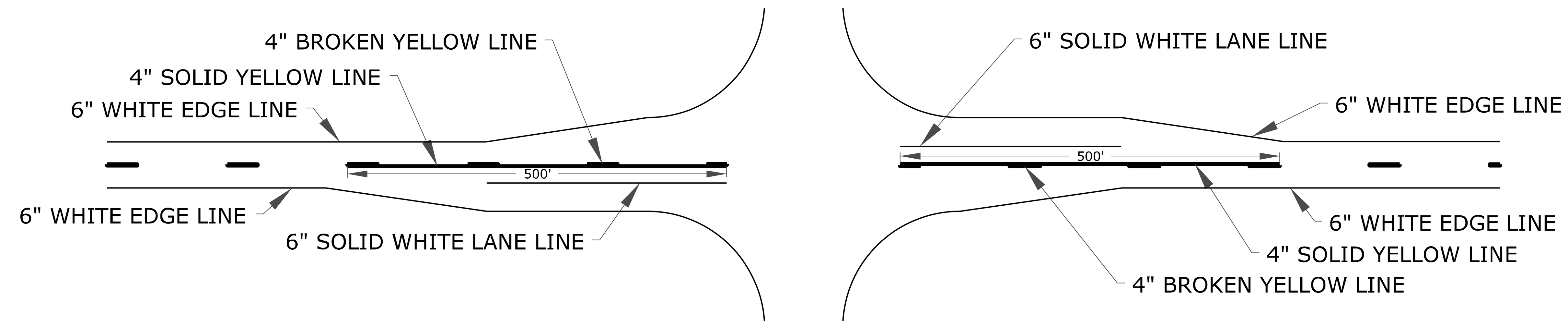
NOTE:
ALL PAVEMENT MARKINGS SHALL BE BROKEN AT CROSS ROADS.

FOR HIGHWAY JUNCTIONS THE NO PASSING ZONE WILL EXTEND 1000' FROM INTERSECTION.

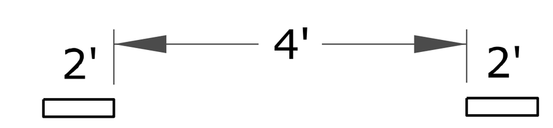


NOTE:
DOTTED EXTENSION LINE TAPER LENGTH
POSTED SPEED * 12
FOR POSTED SPEEDS ABOVE 40 MPH

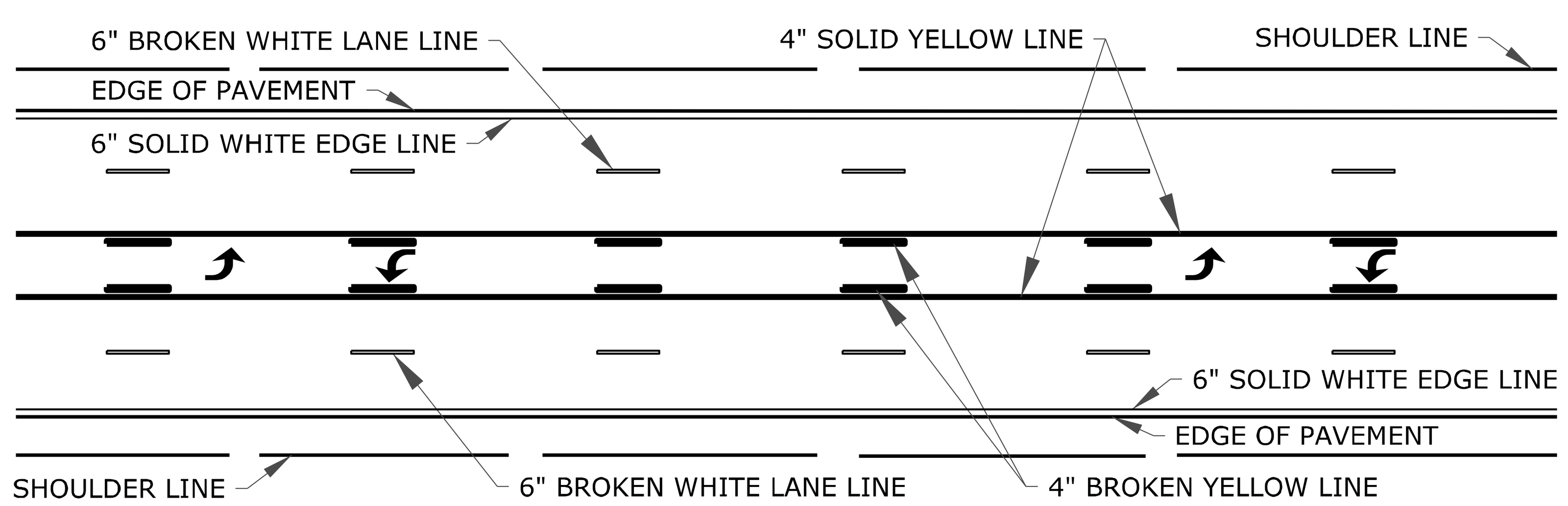
TYPICAL MARKING FOR AUXILIARY PASSING LANE



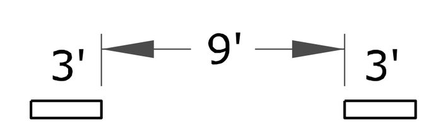
TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



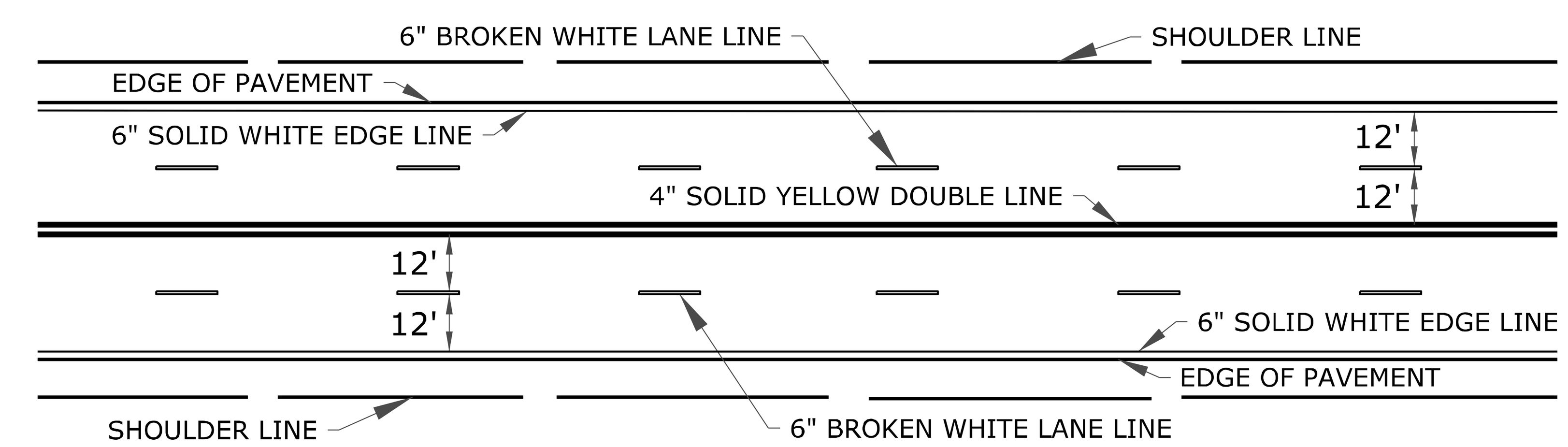
TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



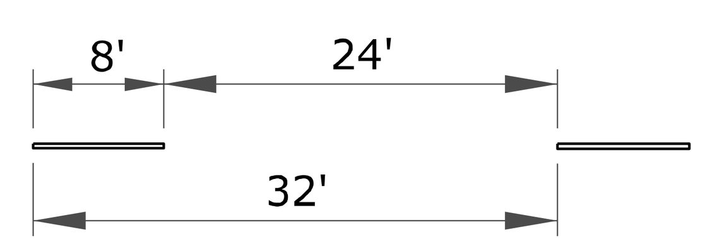
TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY



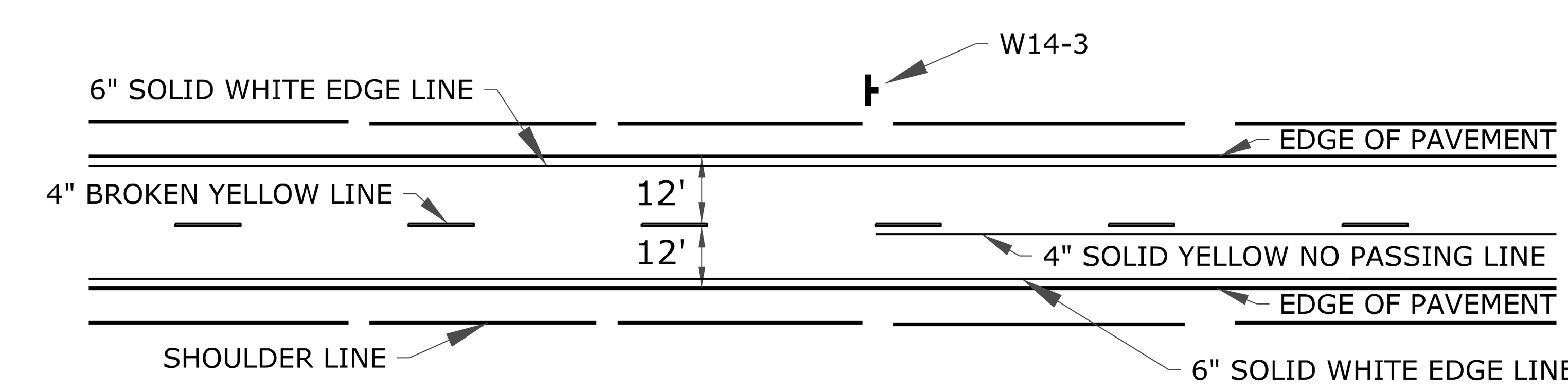
TYPICAL SPACING FOR LANE DROP. UNLESS OTHERWISE NOTED ON PLANS.



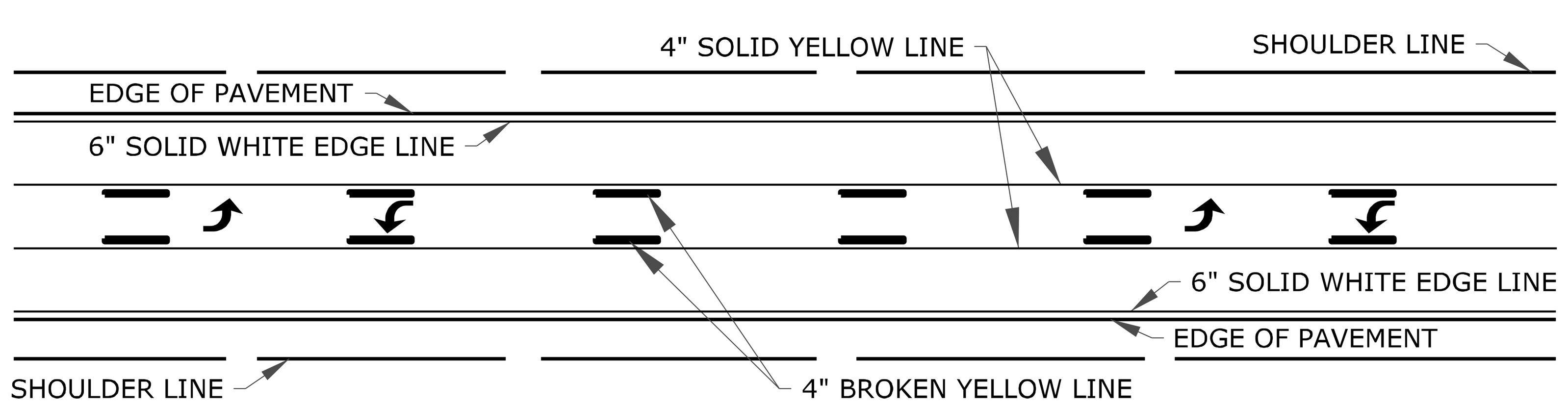
TYPICAL MARKINGS FOR FOUR LANE ROADWAY



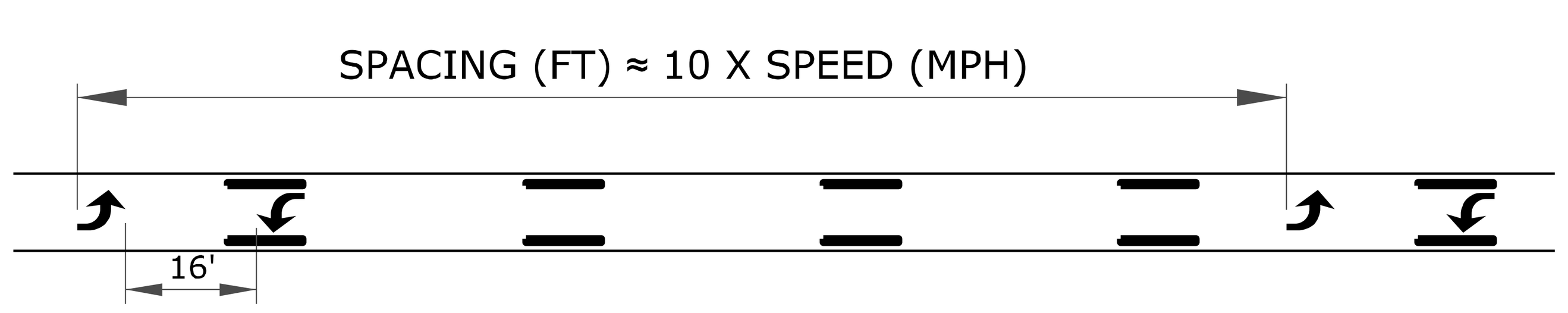
TYPICAL SPACING FOR BROKEN LINES UNLESS OTHERWISE NOTED ON PLANS



TYPICAL TWO LANE MARKINGS

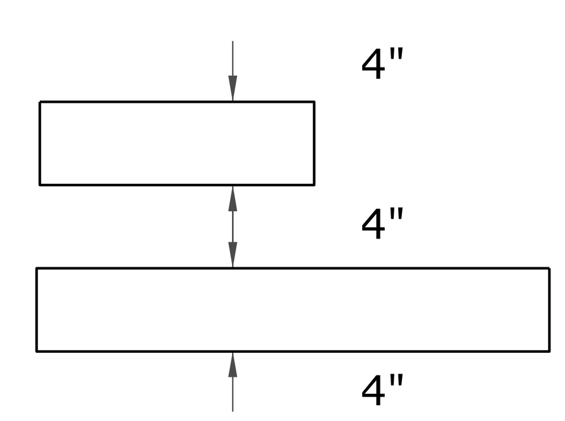


TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY



TWO-WAY LEFT TURN ARROW SPACING DETAIL

NOTE:
IF ARROWS ARE USED SPACE THE ARROWS AS SHOWN IN THE SPACING DETAIL.



TYPICAL SPACING FOR NO PASSING LINES UNLESS OTHERWISE NOTED ON PLANS

NOTE:
LONGITUDINAL PAVEMENT MARKING LINES SHALL BE OFFSET A MINIMUM OF 2" FROM LONGITUDINAL PAVEMENT JOINTS.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

NO.	DATE	REVISIONS	BY	APP'D
3	5/25/12	Added Dotted Extension and Lane Drop Lines	B.A.H.	B.D.G.
2	9/20/05	Removed Aux. Passing Lane Dotted Ext. Line	J.F.F.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL PAVEMENT MARKING DETAILS FOR UNDIVIDED ROADWAYS

TE308

FHWA APPROVAL	5/25/2012	APP'D	Brian D. Gower
DESIGNED J.F.F.	DETAILED J.F.F.	QUANTITIES	TRACED
DESIGN CK. B.D.G.	DETAIL CK. B.D.G.	QUAN. CK.	TRACE CK.

KDOT Graphics Certified 06-20-2012

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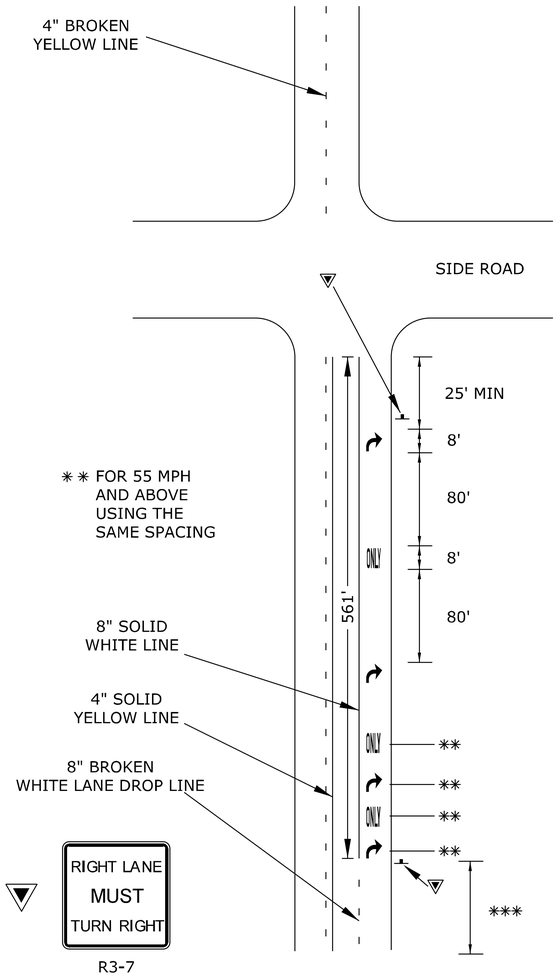
Drawn By : $$USERNAME$$ Plotted : $$SYTIME$$
File : $$DGNSPEC$$ $$KDOTGRP$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	220 PPP	2013	P-27	

TYPICAL SIGNING AND MARKING FOR RIGHT LANE MUST TURN RIGHT



RAILROAD CROSSING MARKING

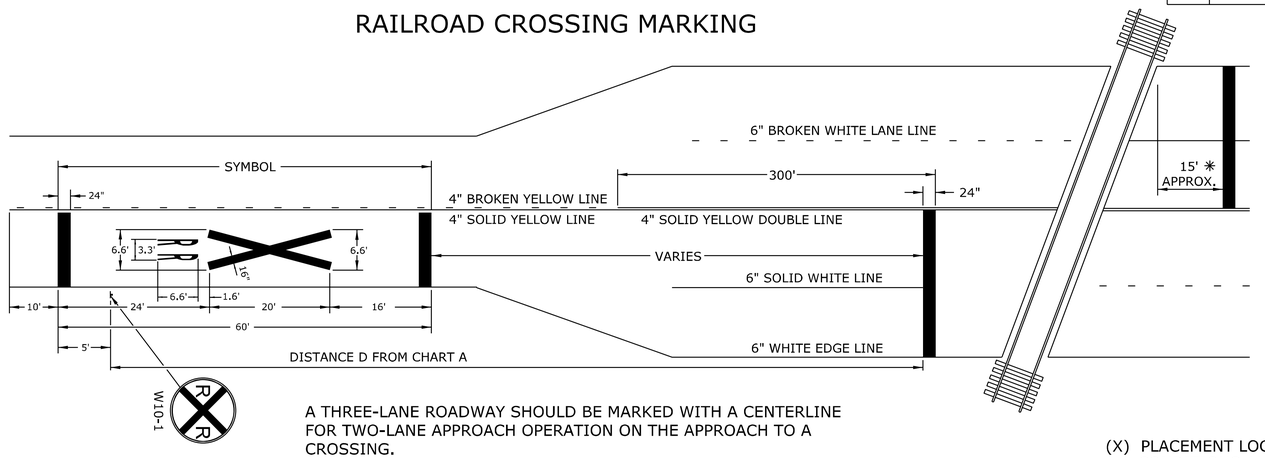


CHART "A"

SPEED MPH	DISTANCE D (feet)
75	850
70	750
65	650
60	550
55	450
50	375
45	300
40	225
35	150
30	(X)
25	(X)
20	(X)

ALL DISTANCES ARE MINIMUM.

A THREE-LANE ROADWAY SHOULD BE MARKED WITH A CENTERLINE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.
ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS FOR R X R SYMBOLS DETAILS.

*STOP LINE 8' FROM NEAR EDGE OF GATE OR CANTILEVER, IF PRESENT.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

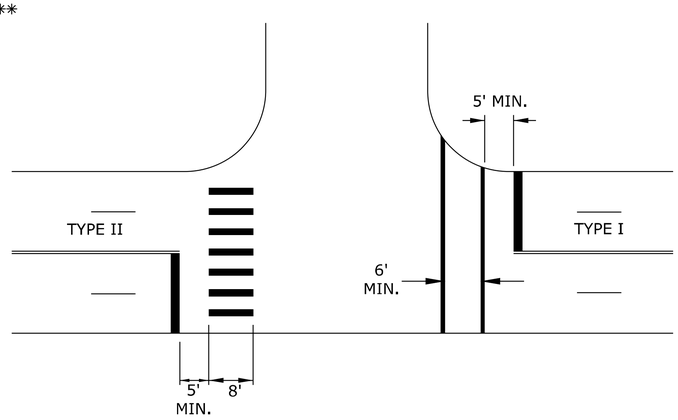
(X) PLACEMENT LOCATION IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING TO PROVIDE ADEQUATE ADVANCE WARNING TO THE DRIVER

TYPICAL CROSSWALKS

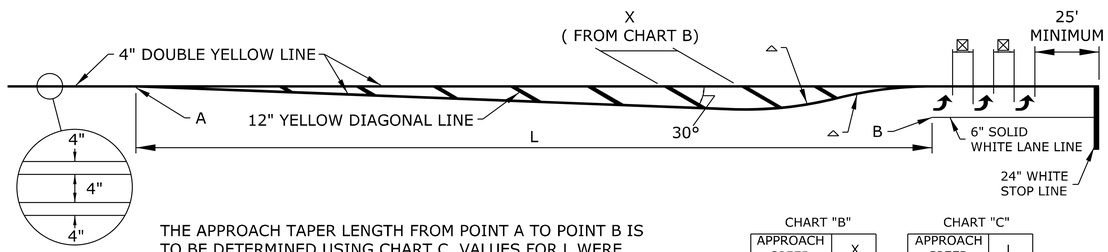
TYPE I: CROSSWALK LINES SHALL BE 12" SOLID WHITE LINES. THEY SHALL BE SPACED A MINIMUM OF 6' APART FROM INSIDE EDGE TO INSIDE EDGE.

TYPE II: THESE LINES SHOULD BE SOLID WHITE 24" WIDE PLACED PARALLEL TO THE DIRECTION OF TRAFFIC FLOW. THE LINE PLACEMENT IS DETERMINED BY LANE LINE,CENTER LINE, AND WHEEL PATH IN SUCH A MANNER AS TO MINIMIZE TRAFFIC WEAR. THE CROSSWALK WIDTH SHOULD BE NOT LESS THAN 8'. THE TRANSVERSE CROSSWALK LINES MAY BE ADDED.

WHEN REQUIRED, STOP LINES SHALL BE INSTALLED A MINIMUM OF 5' FROM CROSSWALKS.



TYPICAL APPROACH TAPER DETAIL



THE APPROACH TAPER LENGTH FROM POINT A TO POINT B IS TO BE DETERMINED USING CHART C. VALUES FOR L WERE CALCULATED USING THE EQUATIONS BELOW AND INCREASED TO THE NEXT HIGHER 5 MPH INCREMENT.

- SPEEDS < 45 MPH $L = \frac{W*S^2}{60}$
- SPEEDS = 45 MPH $L = W*S$

IF ARROWS ARE USED AND UNLESS OTHERWISE SPECIFIED THE SPACE BETWEEN LINES SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTERS FOR LOW SPEED ROADS BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS, UNDER ANY CONDITIONS.

FOR SPEEDS LESS THAN OR EQUAL TO 40 MPH, R=150'.
FOR SPEEDS GREATER THAN OR EQUAL TO 45 MPH, R=300'.

CHART "B"

APPROACH SPEED	X
20 MPH	20'
25 MPH	25'
30 MPH	30'
35 MPH	35'
40 MPH	40'
45 MPH	45'
50 MPH	50'
55 MPH	55'
60 MPH	60'
65 MPH	65'
70 MPH	70'

CHART "C"

APPROACH SPEED	L
20 MPH	80'
25 MPH	125'
30 MPH	180'
35 MPH	245'
40 MPH	320'
45 MPH	540'
50 MPH	600'
55 MPH	660'
60 MPH	720'
65 MPH	780'
70 MPH	840'

NO.	DATE	REVISIONS	BY	APP'D
3	5/25/12	Updated Chart B and Lane Drop Lines	B.A.H.	B.D.G.
2	10/20/06	RR Xing Symbol Changed from 18" to 16"	T.L.H.	B.D.G.
1	9/20/05	Added 4" Solid Yellow Double Line to RRxing	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL MISCELLANEOUS PAVEMENT MARKING DETAIL SHEET

TE309

FHWA APPROVAL		7/26/2005	APP'D	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

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