



PREPARED FOR

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SUMMIT WAVES WAVE POOL ADDITION

CONSTRUCTION DOCUMENTS
APRIL 2019

FOR



PARKS & RECREATION BOARD

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95% REVIEW SET

FOR REVIEW ONLY
Not for construction or permit purposes.

Kimley > Horn

A. MARK HATCHEL
2011010334 APRIL 2019

GENERAL CONSTRUCTION NOTES

- ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT MUNICIPAL CODES.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH 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.
- 3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE UNDERGROUND OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES AND THE CITY OF LEE'S SUMMIT PRIOR TO BEGINNING CONSTRUCTION. AN INFORMAL LIST OF UTILITY COMPANIES ARE AS FOLLOWS:
- ELECTRIC KANSAS CITY POWER AND LIGHT
- PHONE: (816) 701-7800 GAS - SPIRE ENERGY
- PHONE: (314) 776-9517
- CABLE COMCAST PHONE: 1-866-641-1625
- TELEPHONE AT&T PHONE: (816) 275-2721
- WATER LEE'S SUMMIT WATER UTILITIES PHONE: (816) 969-1900
- SANITARY SEWER LEE'S SUMMIT WATER UTILITIES PHONE: (816) 969-1900
- 4. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC., MUST BE ADJUSTED TO PROPER GRADE BY THE CONTRACTOR PRIOR TO AND AFTER PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
- 5. BRACING OF UTILITY POLES MAY BE REQUIRED BY UTILITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR AND IS INCIDENTAL TO
- 6. THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY RECORDS AND PLANS AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT CONTRACTOR'S EXPENSE. THE ARCHITECT/ENGINEER SHALL BE IMMEDIATELY NOTIFIED WHEN PROPOSED GRADES CONFLICT WITH EXISTING UTILITIES.
- 7. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND DEPTH OF ALL FRANCHISE UTILITY SERVICES AND ANY REQUIRED RELOCATIONS AND/OR EXTENSIONS
- 8. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO OWNER'S PROPERTY OR ANY ADJACENT PROPERTIES, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PAVEMENT, GRASS, TREES, AND LAWN SPRINKLER AND IRRIGATION SYSTEMS AT NO COST TO THE OWNER, OR OWNER'S AGENTS.
- 9. THE CONTRACTOR SHALL REMOVE AND DISPOSE ALL SURPLUS MATERIALS, SPOILS, AND DEBRIS OFF SITE. THIS WORK IS INCIDENTAL TO THE CONTRACT.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
- 11. 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, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
- 12. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ARCHITECT/ ENGINEER.
- 13. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER, ARCHITECT AND ENGINEER. ALLIANCE GEOTECHNICAL GROUP WILL PROVIDE TESTING FOR CONSTRUCTION.
- 14. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES,
 JURISDICTIONAL AGENCIES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED
 PRIOR TO THE FINAL CONNECTION OF SERVICES.
- 15. CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUMS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS. CONTRACTOR SHALL IMMEDIATELY REPORT DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
- 16. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER AND ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
- 17. ALL HORIZONTAL DIMENSIONS GIVEN ARE TO BACK OF CURB AND TO PIPE CENTERLINES, UNLESS OTHERWISE NOTED ON PLANS.
- 18. REFER TO REMOVAL ITEMS SHEET FOR ALL TREE REMOVAL REQUIREMENTS.
- 19. CONTRACTOR ADJUSTMENTS TO SPOT GRADES TO MAINTAIN POSITIVE DRAINAGE IS ALLOWED WITH THE PRIOR APPROVAL OF THE ARCHITECT / ENGINEER.
- 20. THE CONTRACTOR SHALL SALVAGE AND PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONE RISERS, WATER VALVES, ETC. DURING ALL CONSTRUCTION PHASES UNLESS NOTED OTHERWISE.
- 21. CONTRACTOR STAGING AREA TO BE AGREED UPON BY OWNER PRIOR TO CONSTRUCTION.
- 22. ALL EXISTING CONCRETE PAVING, SIDEWALK, STRUCTURES AND CURBS NOTED FOR DEMOLITION SHALL BE REMOVED IN THEIR ENTIRETY AND DISPOSED OF BY THE CONTRACTOR, OFFSITE UNLESS OTHERWISE DIRECTED BY THE OWNER, ARCHITECT / ENGINEER.
- 23. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE AS-BUILT PLANS IDENTIFYING ALL DEVIATIONS OR VARIATIONS OF ORIGINAL PLANS.
- 24. 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. THIS OR ANY OTHER MEANS OF CONTROL SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING MEASURES TO MINIMIZE DAMAGE TO TREE LIMBS, TREE TRUNKS, AND TREE ROOTS ALONG THE ROUTE OF THE PROJECT. ALL SUCH MEASURES SHALL BE CONSIDERED AS INCIDENTAL WORK INCLUDED IN THE CONTRACT UNIT PRICE BID FOR APPLICABLE SITE WORK OR STRUCTURE INSTALLATION. WHEN CONSTRUCTION PASSES BY OR CLOSE TO TREES, THE CONTRACTOR SHALL ERECT TEMPORARY CONSTRUCTION FENCE TO LIMIT ACTIVITY OUTSIDE OF THE EASEMENT IN THE TREE AREAS. NO PARKING WILL BE ALLOWED UNDER DRIP LINE OR MINIMUM OF TEN (10) FEET OF ANY TREE TO REMAIN. CONTRACTOR SHALL INSPECT EACH WORK SITE IN ADVANCE AND ARRANGE TO HAVE ANY TREE LIMBS PRUNED THAT MIGHT BE DAMAGED BY EQUIPMENT OPERATIONS. THE OWNER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ANY TREE TRIMMING WORK. NOTHING SHALL BE STORED OVER THE TREE ROOT SYSTEM WITHIN THE DRIP LINE AREA OF ANY TREE. THE CONTRACTOR SHALL EMPLOY A QUALIFIED LANDSCAPER FOR ALL THE WORK REQUIRED FOR TREE CARE TO ENSURE UTILIZATION OF THE BEST AGRICULTURAL PRACTICES AND PROCEDURES.

GRADING NOTES

- 1. ALL PUBLIC WORKS CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOCAL DESIGN AND TECHNICAL CONSTRUCTION
- 2. CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES BEFORE CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS
- 3. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE AS-BUILT PLANS IDENTIFYING ALL DEVIATIONS OR VARIATIONS OF ORIGINAL PLANS.
- 4. ALL SPOT ELEVATIONS ARE PROPOSED PAVEMENT, OR TOP OF GRADE ELEVATIONS UNLESS OTHERWISE NOTED. TC= TOP OF CURB, EX= EXIST. GRADE, FF= FINISH FLOOR, ME = MATCH EXISTING, TD = TOP OF DRAIN, TW = TOP OF WALL, BW= BOTTOM OF WALL, TS = TOP OF STAIRS
- 5. THE CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
- 6. REFERENCE GEOTECH REPORT AND SPECIFICATIONS PREPARED BY INTERTEK PSI, DATED DECEMBER 14TH, 2018 FOR BUILDING SLAB, POOL, PAVEMENT PREPARATION, COMPACTION, AND ALL EARTHWORK OPERATIONS.
- 7. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE GEOTECHNICAL ENGINEER'S SPECIFICATIONS. ANY FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL
- 8. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE AREAS SHALL THEN BE SEEDED, IRRIGATED, AND STABILIZED AS INDICATED IN THE PLANS AND SPECIFICATIONS, AND MAINTAINED UNTIL SOIL IS STABILIZED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE CONSTRUCTION SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE STABILIZED AND MULCHED AS SHOWN ON THE LANDSCAPE, GRADING, AND EROSION CONTROL PLANS.
- 9. ALL CUT OR FILL SLOPES SHALL BE 4:1 OR FLATTER UNLESS OTHERWISE INDICATED.

"VAN-ACCESSIBLE" MOUNTED BELOW THE SYMBOL OF ACCESSIBILITY.

ACCESSIBILITY NOTES

ENGINEER PRIOR TO PLACEMENT.

- 1. ALL ACCESSIBLE SPACES AND ACCESSIBLE ROUTES SHALL COMPLY WITH THE CITY OF LEE'S SUMMIT AND MISSOURI ACCESSIBILITY STANDARDS AND CITY REQUIREMENTS.
- 2. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.
- 3. EACH ACCESSIBLE PARKING SPACE SHALL BE DESIGNATED AS RESERVED BY A VERTICALLY MOUNTED OR SUSPENDED SIGN SHOWING THE SYMBOL OF ACCESSIBILITY. VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN
- (A) CHARACTERS AND SYMBOLS ON SUCH SIGNS SHALL BE LOCATED 60" (1525 MM) MINIMUM ABOVE THE GROUND, FLOOR, OR PAVING SURFACE SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.
- (B) SIGNS LOCATED WITHIN AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE LATEST STANDARDS.
- (C) CHARACTERS AND SYMBOLS ON OVERHEAD SIGNS SHALL COMPLY WITH THE LATEST STANDARDS.
- 4. SLOPES OF CURB RAMPS SHALL COMPLY WITH 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
- 5. ALL ACCESSIBLE RAMPS, CURB RAMPS, STRIPING, AND PAVEMENT MARKING SHALL CONFORM TO ADA, LATEST EDITION.6. CURB RAMPS ALONG PUBLIC STREETS AND IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED BASED ON THE CITY STANDARD CONSTRUCTION DETAIL AND SPECIFICATIONS.
- 7. PRIVATE CURB RAMPS ON THE SITE (I.E. OUTSIDE PUBLIC STREET RIGHT-OF-WAY) SHALL CONFORM TO ADA AND SHALL HAVE A DETECTABLE WARNING SURFACE THAT IS FULL WIDTH AND FULL DEPTH OF THE CURB RAMP, NOT INCLUDING
- 8. CONTRACTOR SHALL CONSTRUCT PROPOSED PAVEMENT TO MATCH EXISTING PAVEMENT WITH A SMOOTH, FLUSH, CONNECTION
- 9. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKING FOR FIRE LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINTED AND PAVEMENT MARKINGS SHALL ADHERE TO CITY AND OWNER STANDARDS.
- 10. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE ACCESSIBLE PEDESTRIAN ROUTES (PER ADA, AND FHA) EXIST TO AND FROM EVERY DOOR AND ALONG SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ACCESSIBLE ROUTES. IN NO CASE SHALL AN ACCESSIBLE RAMP SLOPE EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPE EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPE EXCEED 5.0 PERCENT. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0 PERCENT SLOPE IN ANY DIRECTION
- 11. CONTRACTOR SHALL TAKE FIELD SLOPE MEASUREMENTS ON FINISHED SUBGRADE AND FORM BOARDS PRIOR TO PLACING PAVEMENT TO VERIFY THAT ADA SLOPE REQUIREMENTS ARE PROVIDED. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDER WILL BE ACCEPTED FOR ADA SLOPE COMPLIANCE ISSUES.

PAVING AND STRIPING NOTES

- 1. PAVEMENT DESIGN AND SOIL PREPARATION RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL REPORT PREPARED BY INTERTEK PSI, DATED DECEMBER 14TH, 2018 (REPORT NO. 03381842) SHALL BE ADHERED TO FOR BOTH MATERIALS AND PRACTICE OF INSTALLATION.
- 2. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "MISSOURI" MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (M.U.T.C.D.) AND CITY STANDARDS.
- 3. CONTRACTOR SHALL FURNISH ALL PAVEMENT MARKINGS FOR FIRE LANES, ROADWAY LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, ACCESS AISLES, STOP BARS AND SIGNS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AS SHOWN ON THE PLANS.
- 4. ALL JOINTS SHALL EXTEND THROUGH THE CURB.
- 5. THE MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS SHALL BE 2 FEET.
- 6. ALL JOINTS, INCLUDING EXPANSION JOINTS SHALL BE SEALED WITH JOINT SEALANT.
- 7. THE MATERIALS AND PROPERTIES OF ALL CONCRETE SHALL MEET THE APPLICABLE REQUIREMENTS IN THE A.C.I. (AMERICAN CONCRETE INSTITUTE) MANUAL OF CONCRETE PRACTICE.
- 8. CONTRACTOR SHALL APPLY A SECOND COATING OVER ALL PAVEMENT MARKINGS PRIOR TO ACCEPTANCE BY OWNER. REFER TO SECTION 02580 IN THE PROJECT MANUAL FOR COMPLETE SPECIFICATION
- 9. ANY EXISTING PAVEMENT, CURBS AND/OR SIDEWALKS DAMAGED OR REMOVED WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE TO THE SATISFACTION OF THE OWNER.
- 10. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE HANDICAPPED ROUTES (PER A.D.A.) EXIST TO AND FROM EVERY 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 OWNER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR A.D.A. COMPLIANCE ISSUES.

STORM DRAINAGE NOTES

- ALL STORM SEWER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS
 AND SPECIFICATIONS.
- 2. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM SEWER.
- 3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING STORM SEWER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY STORM
- 4. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER.

SEWER, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED

- 5. FLOW LINE, TOP-OF-CURB, RIM, THROAT, AND GRATE ELEVATIONS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE GRADING PLAN AND FIELD CONDITIONS PRIOR TO THEIR INSTALLATION.
- 6. ALL PUBLIC STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS
- STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.

 7. ALL PRIVATE STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE
- PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.

 8. ALL PVC TO RCP CONNECTIONS AND ALL STORM PIPE CONNECTIONS ENTERING STRUCTURES OR OTHER STORM PIPES
- SHALL HAVE A CONCRETE COLLAR AND BE GROUTED TO ASSURE THE CONNECTION IS WATERTIGHT.
- 9. ALL PUBLIC STORM SEWER LINES SHALL BE MINIMUM CLASS III RCP. PRIVATE STORM SEWER LINES 18-INCHES AND GREATER SHALL BE CLASS III RCP OR OTHER APPROVED MATERIAL.
- 10. WHERE COVER EXCEEDS 20-FEET OR IS LESS THAN 2-FEET, CLASS IV RCP SHALL BE USED.
- 11. IF CONTRACTOR PROPOSES TO USE HDPE OR PVC IN LIEU OF RCP FOR PRIVATE STORM SEWER, CONTRACTOR SHALL SUBMIT TECHNICAL DATA TO THE OWNER, ENGINEER AND CITY ENGINEER/INSPECTOR FOR APPROVAL PRIOR TO ORDERING THE MATERIAL. ANY PROPOSED HDPE AND PVC SHALL BE WATERTIGHT.
- 13. EMBEDMENT FOR ALL STORM SEWER LINES. PUBLIC OR PRIVATE. SHALL BE PER CITY STANDARD DETAILS.
- 14. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY
- 15. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

WATER AND WASTEWATER NOTES

- ALL WATER AND WASTEWATER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION
 DETAILS AND SPECIFICATIONS
- 2. CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING WATER AND WASTEWATER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY WATER OR WASTEWATER CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED.
- 3. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITY SERVICES ENTERING THE BUILDING.
- 4. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF ALL UTILITY CROSSINGS PRIOR TO THE INSTALLATION OF ANY PIPE
- 5. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE
- INSTALLATION OF THE WATER AND WASTEWATER IMPROVEMENTS.

 6. ALL PUBLIC WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY
- PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 7. ALL PRIVATE WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 8. EMBEDMENT FOR ALL WATER AND WASTEWATER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS.
- 9. CONTRACTOR SHALL TAKE REQUIRED SANITARY PRECAUTIONS, FOLLOWING ANY CITY, MDNR, AND AWWA STANDARDS, TO KEEP WATER PIPE AND FITTINGS CLEAN AND CAPPED AT TIMES WHEN INSTALLATION IS NOT IN PROGRESS.
- 10. ALL WATER AND WASTEWATER SERVICES SHALL TERMINATE 5-FEET OUTSIDE THE BUILDING, UNLESS NOTED OTHERWISE.
- 11. CONTRACTOR SHALL COMPLY WITH CITY REQUIREMENTS FOR WATER AND WASTEWATER SERVICE DISRUPTIONS AND THE AMOUNT OF PRIOR NOTICE THAT IS REQUIRED, AND SHALL COORDINATE DIRECTLY WITH THE APPROPRIATE CITY DEPARTMENT.
- 12. CONTRACTOR SHALL SEQUENCE WATER AND WASTEWATER CONSTRUCTION TO AVOID INTERRUPTION OF SERVICE TO
- 13. CONTRACTOR SHALL MAINTAIN WATER SERVICE AND WASTEWATER SERVICE TO ALL CUSTOMERS THROUGHOUT CONSTRUCTION (IF NECESSARY, BY USE OF TEMPORARY METHODS APPROVED BY THE CITY AND OWNER). THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- 14. THE CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WATER AND WASTEWATER LINES CROSSING THE PROJECT. THE CONTRACTOR SHALL REPAIR ALL DAMAGED LINES IMMEDIATELY. ALL REPAIRS OF EXISTING WATER MAINS, WATER SERVICES, SEWER MAINS, AND SANITARY SEWER SERVICES ARE SUBSIDIARY TO THE WORK, AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- 15. VALVE ADJUSTMENTS SHALL BE CONSTRUCTED SUCH THAT THE COVERS ARE AT FINISHED SURFACE GRADE OF THE PROPOSED PAVEMENT.
- 16. THE ENDS OF ALL EXISTING WATER MAINS THAT ARE CUT, BUT NOT REMOVED, SHALL BE PLUGGED AND ABANDONED IN PLACE. THIS WORK SHALL BE CONSIDERED AS A SUBSIDIARY COST TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- 17. ALL FIRE HYDRANTS, VALVES, TEES, BENDS, WYES, REDUCERS, FITTINGS, AND ENDS SHALL BE MECHANICALLY RESTRAINED AND/OR THRUST BLOCKED TO CITY STANDARDS.
- 18. CONTRACTOR SHALL INSTALL A FULL SEGMENT OF WATER OR WASTEWATER PIPE CENTERED AT ALL UTILITY CROSSINGS SO THAT THE JOINTS ARE GREATER THAN 9-FEET FROM THE CROSSING.
- 19. ALL CROSSINGS AND LOCATIONS WHERE WASTEWATER IS LESS THAN 9-FEET FROM WATER, WASTEWATER

CONSTRUCTION AND MATERIALS SHALL COMPLY WITH MDNR STANDARDS.

MATERIALS SHALL COMPLY WITH MDNR STANDARDS.

- 20. ALL CROSSING AND LOCATIONS WHERE WATER IS LESS THAN 9-FEET FROM WASTEWATER, WATER CONSTRUCTION AND
- 21. ALL WATER AND WASTEWATER SHALL BE TESTED IN ACCORDANCE WITH THE CITY, AWWA, AND MDNR STANDARDS AND SPECIFICATIONS. AT A MINIMUM, THIS SHALL CONSIST OF THE FOLLOWING:
- 22. ALL WATERLINES SHALL BE HYDROSTATICALLY TESTED AND CHLORINATED BEFORE BEING PLACED INTO SERVICE.

 CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH

 MDNR REGUI ATIONS
- 23. WASTEWATER LINES AND MANHOLES SHALL BE PRESSURE TESTED. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH MDNR REGULATIONS. AFTER COMPLETION OF THESE TESTS, A TELEVISION INSPECTION SHALL BE PERFORMED AND PROVIDED TO THE CITY AND OWNER ON A DVD.
- 24. CONTRACTOR SHALL INSTALL DETECTABLE WIRING OR MARKING TAPE A MINIMUM OF 12" ABOVE WATER AND WASTEWATER LINES. MARKER DECALS SHALL BE LABELED "CAUTION WATER LINE", OR "CAUTION SEWER LINE". DETECTABLE WIRING AND MARKING TAPE SHALL COMPLY WITH CITY STANDARDS, AND SHALL BE INCLUDED IN THE COST OF THE WATER AND WASTEWATER PIPE.
- 25. DUCTILE IRON PIPE SHALL BE PROTECTED FROM CORROSION BY A LOW-DENSITY POLYETHYLENE LINER WRAP THAT IS AT LEAST A SINGLE LAYER OF 8-MIL. ALL DUCTILE IRON JOINTS SHALL BE BONDED.
- 26. WATERLINES SHALL BE INSTALLED AT NO LESS THAN THE MINIMUM COVER REQUIRED BY THE CITY.
- 27. CONTRACTOR SHALL PROVIDE CLEAN-OUTS FOR PRIVATE SANITARY SEWER LINES AT ALL CHANGES IN DIRECTION AND 100-FOOT INTERVALS, OR AS REQUIRED BY THE APPLICABLE PLUMBING CODE. CLEAN-OUTS REQUIRED IN PAVEMENT OR SIDEWALKS SHALL HAVE CAST IRON COVERS FLUSH WITH FINISHED GRADE.
- 28. CONTRACTOR SHALL PROVIDE BACKWATER VALVES FOR PLUMBING FIXTURES AS REQUIRED BY THE APPLICABLE PLUMBING CODE (E.G. FLOOR ELEVATION OF FIXTURE UNIT IS BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER). CONTRACTOR SHALL REVIEW BOTH MEP AND CIVIL PLANS TO CONFIRM WHERE THESE ARE REQUIRED.
- 29. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT
- PRIOR WRITTEN APPROVAL OF THE CITY.

 30. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

EROSION CONTROL NOTES

SPECIFICATIONS FOR THE PROJECT.

- 1. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL AND WATER QUALITY REQUIREMENTS, LAWS, AND ORDINANCES THAT APPLY TO THE CONSTRUCTION SITE LAND DISTURBANCE.
- 2. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR
- 3. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND
- 4. CONTRACTOR IS SOLELY RESPONSIBLE FOR INSTALLATION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL EROSION CONTROL DEVICES, BEST MANAGEMENT PRACTICES (BMPS), AND FOR UPDATING THE EROSION CONTROL PLAN DURING CONSTRUCTION AS FIELD CONDITIONS CHANGE.
- 5. CONTRACTOR SHALL DOCUMENT THE DATES OF INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL FOR
- 6. AS STORM SEWER INLETS ARE INSTALLED ON-SITE, TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AT EACH INLET PER APPROVED DETAILS.
- 7. THE EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE AREA IT PROTECTS HAS BEEN PERMANENTLY
- 8. CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL DEVICES NEEDED DUE TO PROJECT PHASING.

EACH BMP EMPLOYED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE.

- 9. CONTRACTOR SHALL OBSERVE THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND MAKE FIELD ADJUSTMENTS AND MODIFICATIONS AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE. IF THE EROSION CONTROL DEVICES DO NOT EFFECTIVELY CONTROL EROSION AND PREVENT SEDIMENTATION FROM WASHING OFF THE SITE, THEN THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
- 10. OFF-SITE SOIL BORROW, SPOIL, AND STORAGE AREAS (IF APPLICABLE) ARE CONSIDERED AS PART OF THE PROJECT SITE AND MUST ALSO COMPLY WITH THE EROSION CONTROL REQUIREMENTS FOR THIS PROJECT. THIS INCLUDES THE INSTALLATION OF BMP'S TO CONTROL EROSION AND SEDIMENTATION AND THE ESTABLISHMENT OF PERMANENT GROUND COVER ON DISTURBED AREAS PRIOR TO FINAL APPROVAL OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP AND EROSION CONTROL PLAN TO INCLUDE BMPS FOR ANY OFF-SITE THAT ARE NOT ANTICIPATED OR SHOWN ON THE EROSION CONTROL PLAN.
- 11. ALL STAGING, STOCKPILES, SPOIL, AND STORAGE SHALL BE LOCATED SUCH THAT THEY WILL NOT ADVERSELY AFFECT STORM WATER QUALITY. PROTECTIVE MEASURES SHALL BE PROVIDED IF NEEDED TO ACCOMPLISH THIS REQUIREMENT, SUCH AS COVERING OR ENCIRCLING THE AREA WITH AN APPROPRIATE BARRIER.
- 12. CONTRACTORS SHALL INSPECT ALL EROSION CONTROL DEVICES, BMPS, DISTURBED AREAS, AND VEHICLE ENTRY AND EXIT AREAS WEEKLY AND WITHIN 24 HOURS OF ALL RAINFALL EVENTS OF 0.5 INCHES OR GREATER, AND KEEP A RECORD OF THIS INSPECTION IN THE SWPPP BOOKLET IF APPLICABLE, TO VERIFY THAT THE DEVICES AND EROSION CONTROL PLAN ARE FUNCTIONING PROPERLY.
- 13. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS IN ACCORDANCE WITH CITY SPECIFICATIONS. CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION TRAFFIC USES THE STABILIZED ENTRANCE AT ALL TIMES FOR ALL INGRESS/EGRESS.
- SEDIMENT AND DIRT ONTO OFF-SITE ROADWAYS. ALL SEDIMENT AND DIRT FROM THE SITE THAT IS DEPOSITED ONTO AN OFF-SITE ROADWAY SHALL BE REMOVED IMMEDIATELY.

 15. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS FROM THE AFFECTED OFF-SITE ROADWAYS

14. SITE ENTRY AND EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING AND FLOWING OF

ONCE PER DAY FOR THE OFF-SITE ROADWAYS.

16. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO EXITING THE SITE, IT SHALL BE DONE IN AN

THAT ARE A RESULT OF THE CONSTRUCTION, AS REQUESTED BY OWNER AND CITY. AT A MINIMUM, THIS SHOULD OCCUR

17. ALL FINES IMPOSED FOR SEDIMENT OR DIRT DISCHARGED FROM THE SITE SHALL BE PAID BY THE RESPONSIBLE

AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP BMP.

- 18. WHEN SEDIMENT OR DIRT HAS CLOGGED THE CONSTRUCTION ENTRANCE VOID SPACES BETWEEN STONES OR DIRT IS BEING TRACKED ONTO A ROADWAY, THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED. RUNOFF FROM THE WASH-DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL SEDIMENTATION. PERIODIC RE-GRADING OR NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE CONSTRUCTION ENTRANCE.
- 19. TEMPORARY SEEDING OR OTHER APPROVED STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE OF ANY AREA, UNLESS ADDITIONAL CONSTRUCTION IN THE AREA IS EXPECTED WITHIN 21 DAYS OF THE LAST DISTURBANCE.
- 20. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION, ALWAYS CLEANING UP DIRT, LOOSE MATERIAL, AND TRASH AS CONSTRUCTION PROGRESSES.
- 21. UPON COMPLETION OF FINE GRADING, ALL SURFACES OF DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED. STABILIZATION IS ACHIEVED WHEN THE AREA IS EITHER COVERED BY PERMANENT IMPERVIOUS STRUCTURES, SUCH AS BUILDINGS, SIDEWALK, PAVEMENT, OR A UNIFORM PERENNIAL VEGETATIVE COVER.
- 22. AT THE CONCLUSION OF THE PROJECT, ALL INLETS, DRAIN PIPE, CHANNELS, DRAINAGEWAYS AND BORROW DITCHES AFFECTED BY THE CONSTRUCTION SHALL BE DREDGED, AND THE SEDIMENT GENERATED BY THE PROJECT SHALL BE REMOVED AND DISPOSED IN ACCORDANCE WITH APPLICABLE REGULATIONS

STORM WATER DISCHARGE AUTHORIZATION NOTES

- STORM WATER DISCHARGE ACTIONIZATION IN
- CONTRACTOR SHALL COMPLY WITH ALL MDNR AND EPA STORM WATER POLLUTION PREVENTION REQUIREMENTS.
 CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE, INCLUDING POSTING SITE NOTICE, INSPECTIONS, DOCUMENTATION, AND SUBMISSION OF ANY INFORMATION REQUIRED BY THE MDNR AND EPA (F.G. NOI)
- 3. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN THE REQUIRED CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP.
- 4. A COPY OF THE SWPPP, INCLUDING NOI, SITE NOTICE, CONTRACTOR CERTIFICATIONS, AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY BY THE CONTRACTOR AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION.
- 5. A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO MDNR BY ANY PRIMARY OPERATOR WITHIN 30 DAYS AFTER ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY STRUCTURES, A TRANSFER OF OPERATIONAL CONTROL HAS OCCURRED, OR THE OPERATOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER A DIFFERENT PERMIT. A COPY OF THE NOT SHALL BE PROVIDED TO THE OPERATOR OF ANY MS4 RECEIVING DISCHARGE FROM THE SITE.

Suite 700, Dallas, Texas 75240
60-5600 FAX: 214-420-5680
3IMLEY-HORN.COM
STRATION NUMBER 001512

13455 Noel Road, Suite 700, I PHONE: 214-420-5600 FA WWW.KIMLEY-HO MISSOURI REGISTRATION

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LA. MARK HATCHEL

No. 2011010334 Date APRIL 2019

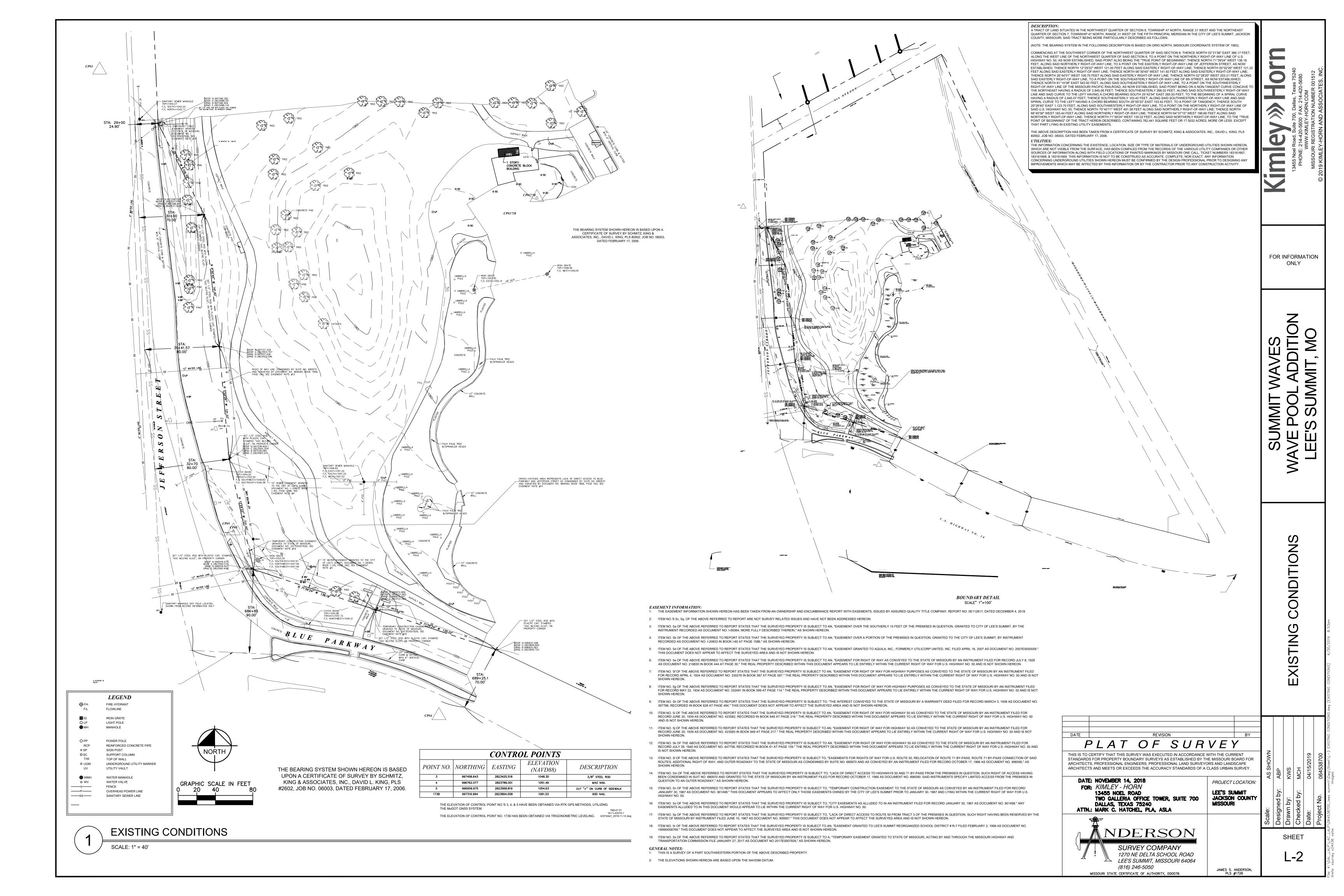
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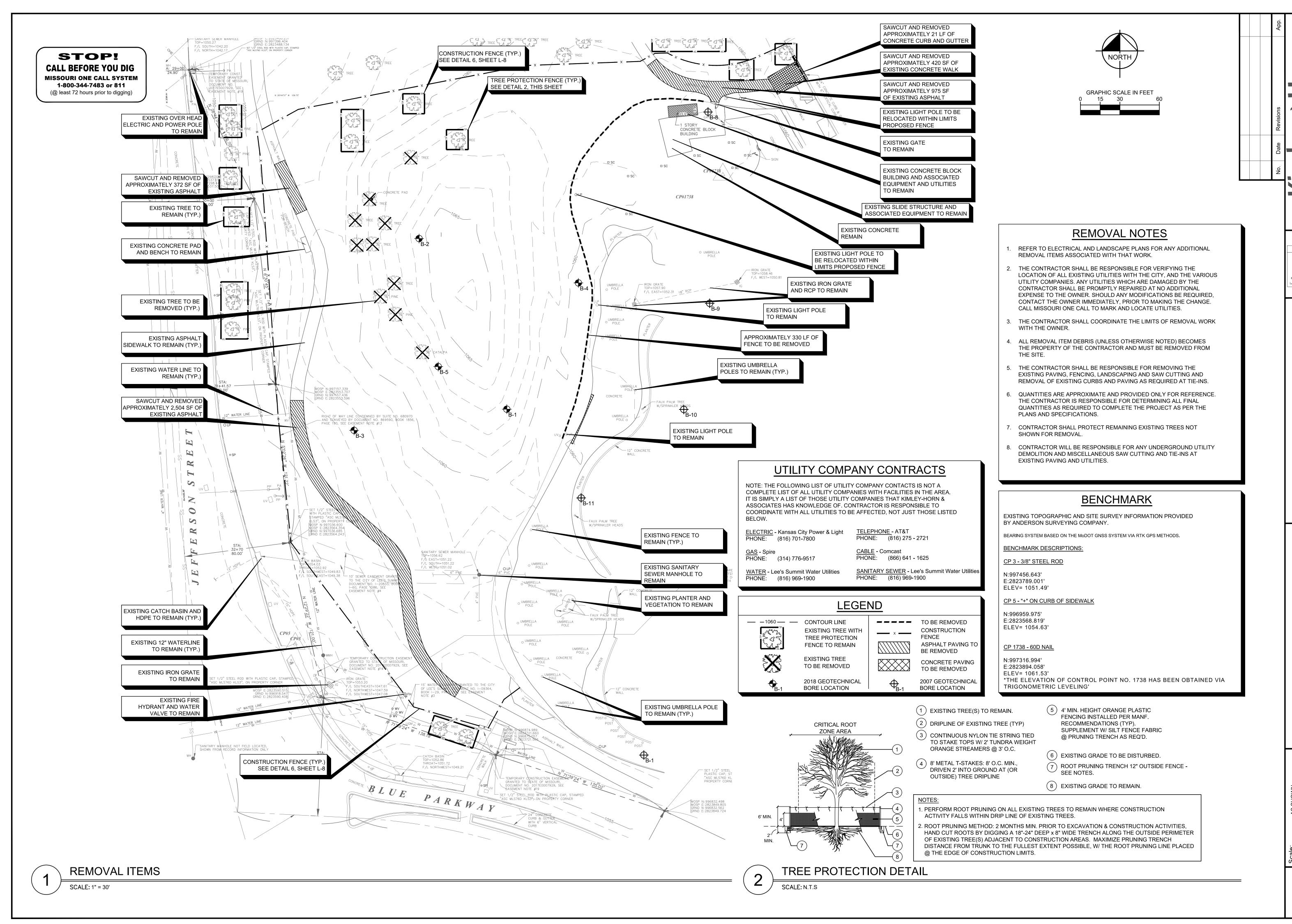
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ENERAL NOTE

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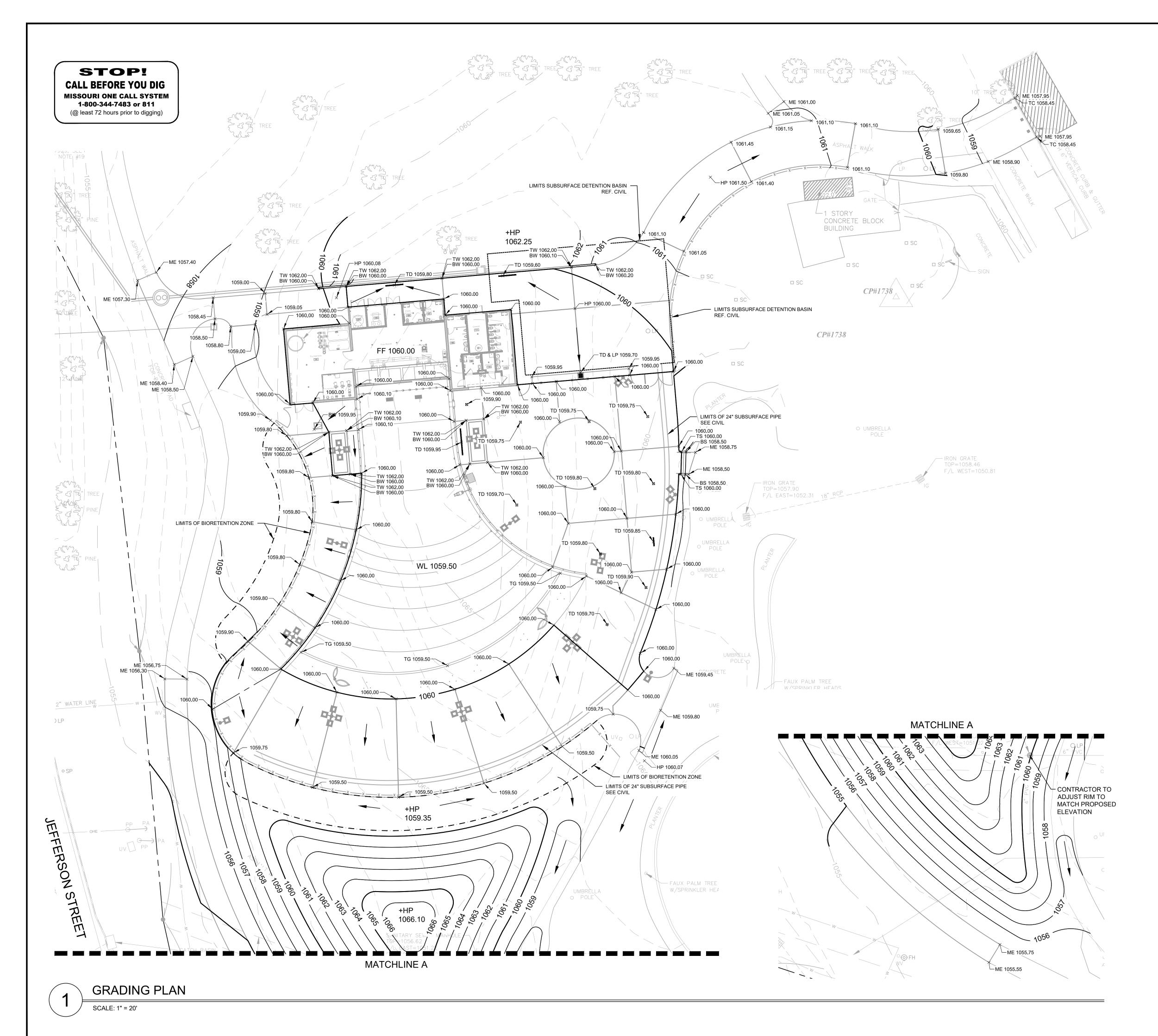
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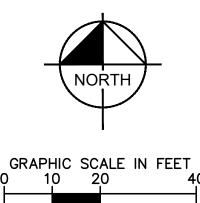
REMOVAL ITEMS

7 by: KWS

Ked by: MCH
04/15/2019
ct No. 064538700
ct No. 064538700

Check Date: Date:





LEGEND

 1060	PROPOSED CONTOUR
<u> </u>	EXISTING CONTOUR
FF	FINISHED FLOOR
TD	TOP OF DRAIN
TC	TOP OF CURB
BC	BOTTOM OF CURB
TR	TOP OF RAMP
BR	BOTTOM OF RAMP
ME	MATCH EXISTING
WL	WATER LEVEL
TS	TOP OF STAIR
BS	BOTTOM OF STAIR
x 1060.00	PROPOSED ELEVATION
HP	HIGH POINT
LP	LOW POINT

GRADING NOTES

- REFER TO ARCHITECTURAL PLANS FOR EXACT GRADE REQUIREMENTS OF PAVEMENT AT DOORS TO MEET BUILDINGS AND ADA REQUIREMENTS AND FLOOR DRAIN/SLAB GRADING.
- THE CONTRACTOR SHALL EMPLOY A LICENSED PUBLIC SURVEYOR TO SET ALL GRADES, SPOT ELEVATIONS, FLOWLINES, POOL COPING AND FLOOR LEVELS, ETC.
- SHOULD ANY MODIFICATIONS BE REQUIRED TO THE PROPOSED SPOT GRADES DUE TO CONDITIONS ENCOUNTERED IN THE FIELD, CONTACT THE ENGINEER IMMEDIATELY PRIOR TO MAKING ANY
- ALL CURBS ARE 6" HIGH TYPICAL. CROSS SLOPES ON WALKS AND PARKWAY AT HANDICAP ACCESSIBLE POINTS SHALL NOT EXCEED 2% MAX. HANDICAP ACCESSIBLE ROUTES SHALL NOT EXCEED 5%
- NO DEPRESSIONS, "BIRD BATHS", ETC. SHALL BE PERMITTED IN THE PAVING. SHOULD ANY MODIFICATIONS BE REQUIRED TO THE PROPOSED GRADES TO ACHIEVE POSITIVE DRAINAGE, CONTACT THE ENGINEER IMMEDIATELY.
- 6. ALL MANHOLES, CLEANOUTS, VALVE BOXES, ETC., SHALL BE ADJUSTED TO MATCH PROPOSED GRADES.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF EXISTING UTILITIES WITH THE OWNER. SHOULD ANY UTILITIES BE DAMAGED, THE CONTRACTOR SHALL PROMPTLY REPAIR ANY SUCH DAMAGE AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE VARIOUS UTILITY COMPANIES.

NOTES

- 1. REFER TO JOINTING PLAN & DETAIL KEY FOR ADDITIONAL SITE PLAN ANNOTATIONS.
- 2. ADA COMPLIANCE: ALL NEW PAVING MUST COMPLY WITH ADA. NON-CONFORMING PAVEMENT WILL BE REMOVED AND REPLACED BY CONTRACTOR AT THEIR OWN EXPENSE.

TOTAL STATION LAYOUT

KIMLEY-HORN WILL PROVIDE AN AUTOCAD FILE OF THIS PLAN TO THE CONTRACTOR'S SURVEYOR TO USE FOR LAYOUT, VIA TOTAL STATION.

BENCHMARK

EXISTING TOPOGRAPHIC INFORMATION PROVIDED BY ANDERSON SURVEYING COMPANY.

BEARING SYSTEM BASED ON THE MoDOT GNSS SYSTEM VIA RTK GPS METHODS.

BENCHMARK DESCRIPTIONS:

<u>CP 3 - 3/8" STEEL ROD</u>

N:997456.643' E:2823789.001'

ELEV= 1051.49'

CP 5 - "+" ON CURB OF SIDEWALK

N:996959.975'

E:2823568.819' ELEV= 1054.63'

CP 1738 - 60D NAIL

N:997316.994' E:2823894.058' ELEV= 1061.53'

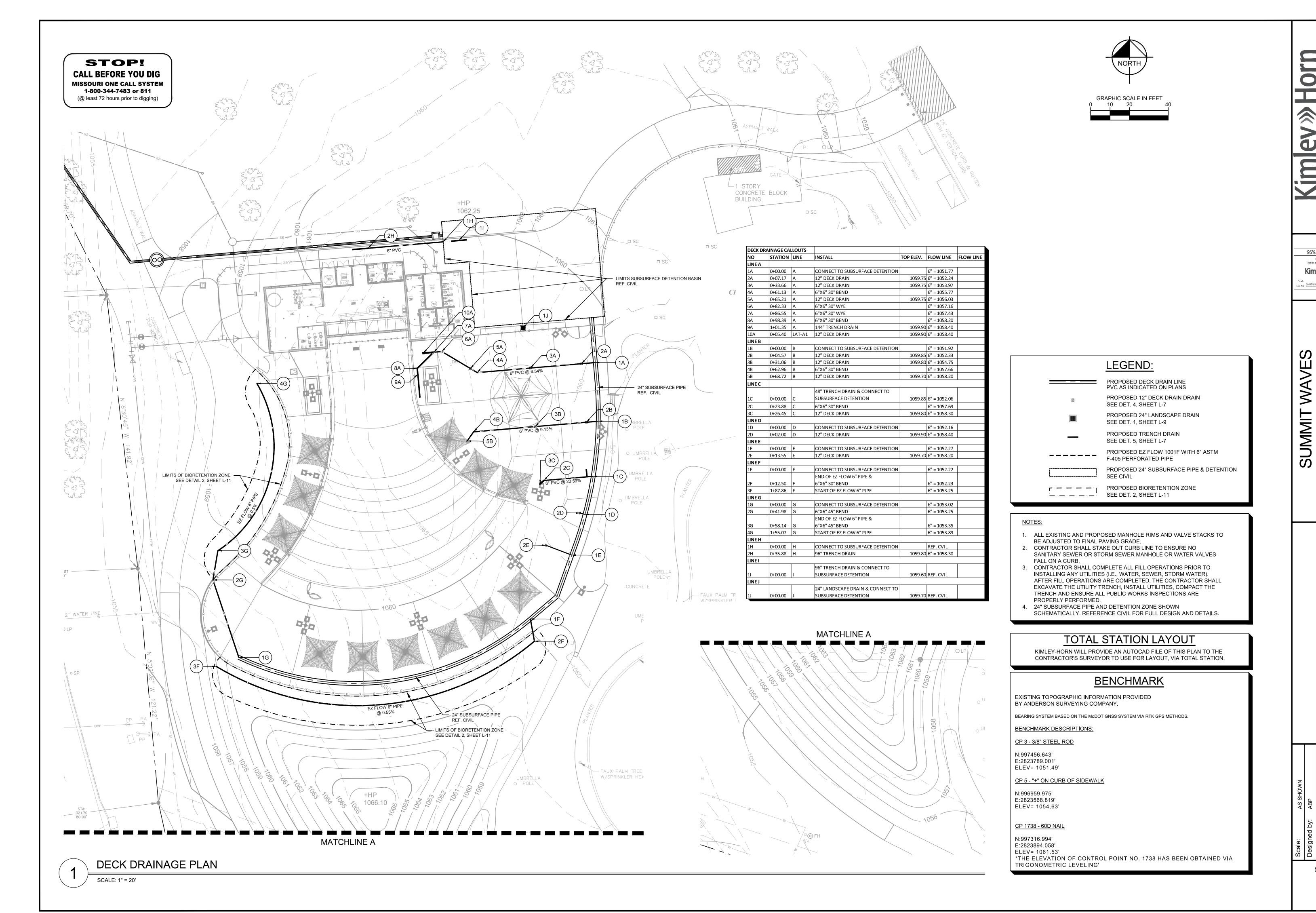
*THE ELEVATION OF CONTROL POINT NO. 1738 HAS BEEN OBTAINED VIA TRIGONOMETRIC LEVELING'

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SUMMIT AVE POOI LEE'S SUN

GRADING



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P.L.A.

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L.A. No.

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Date APRIL 2019

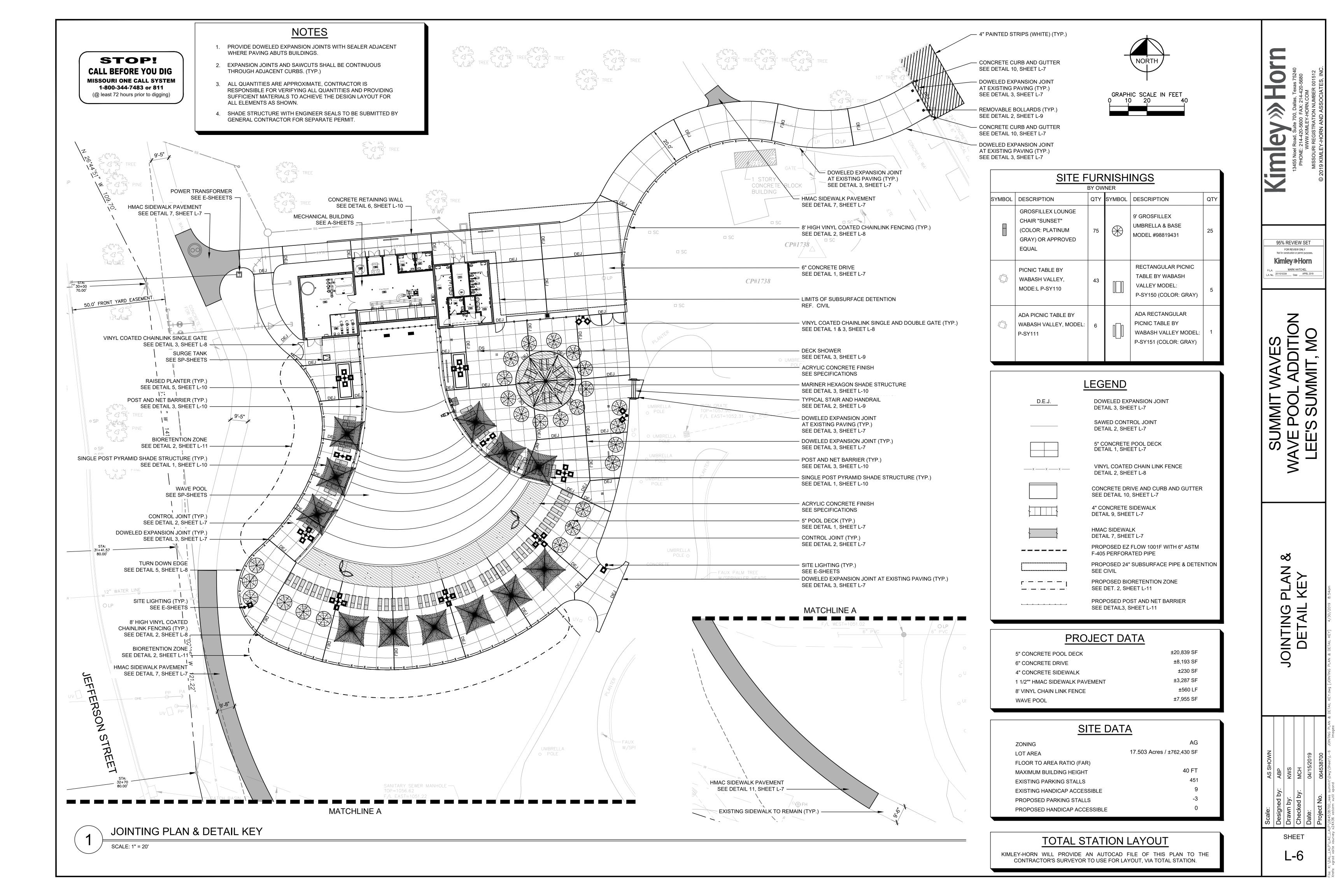
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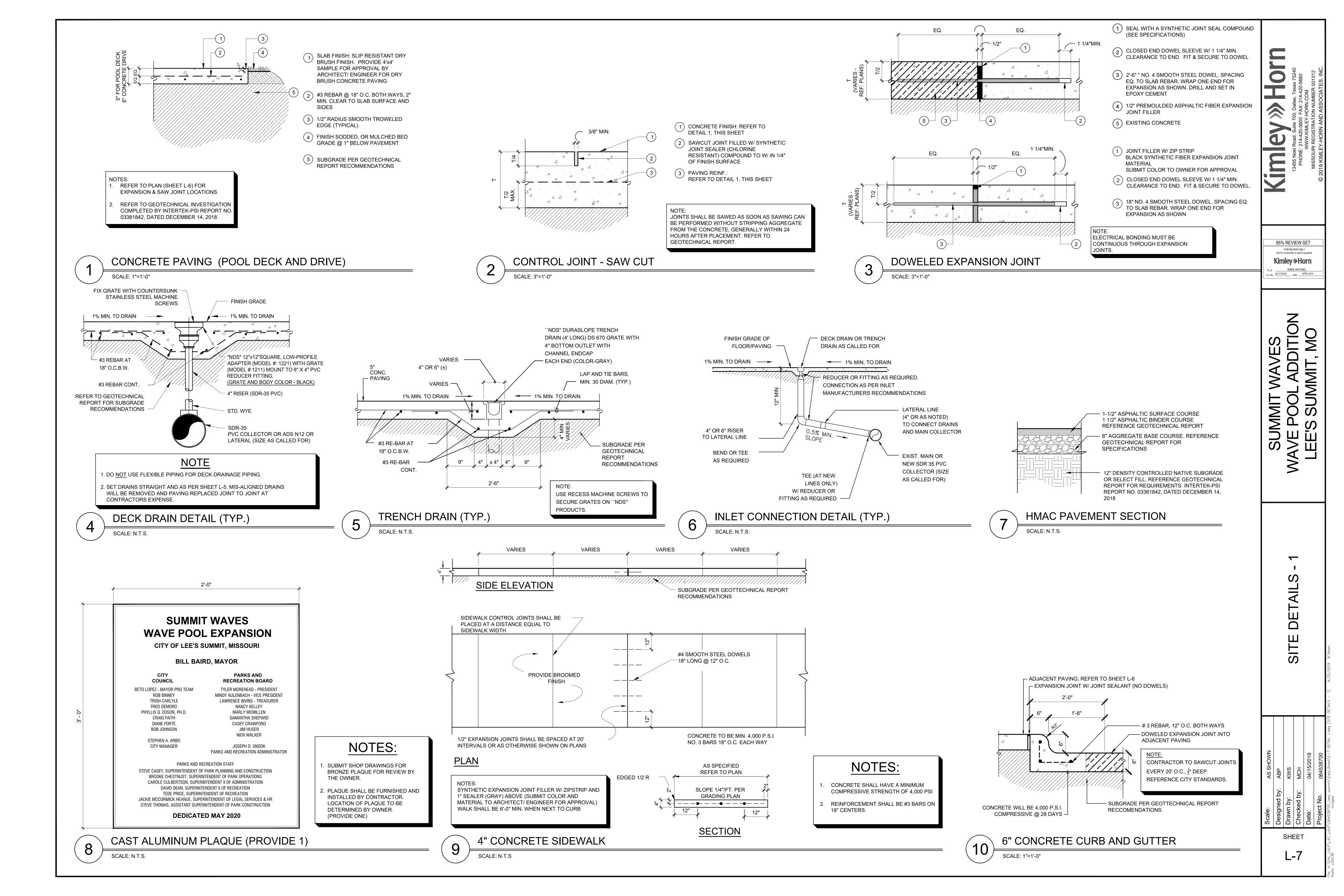
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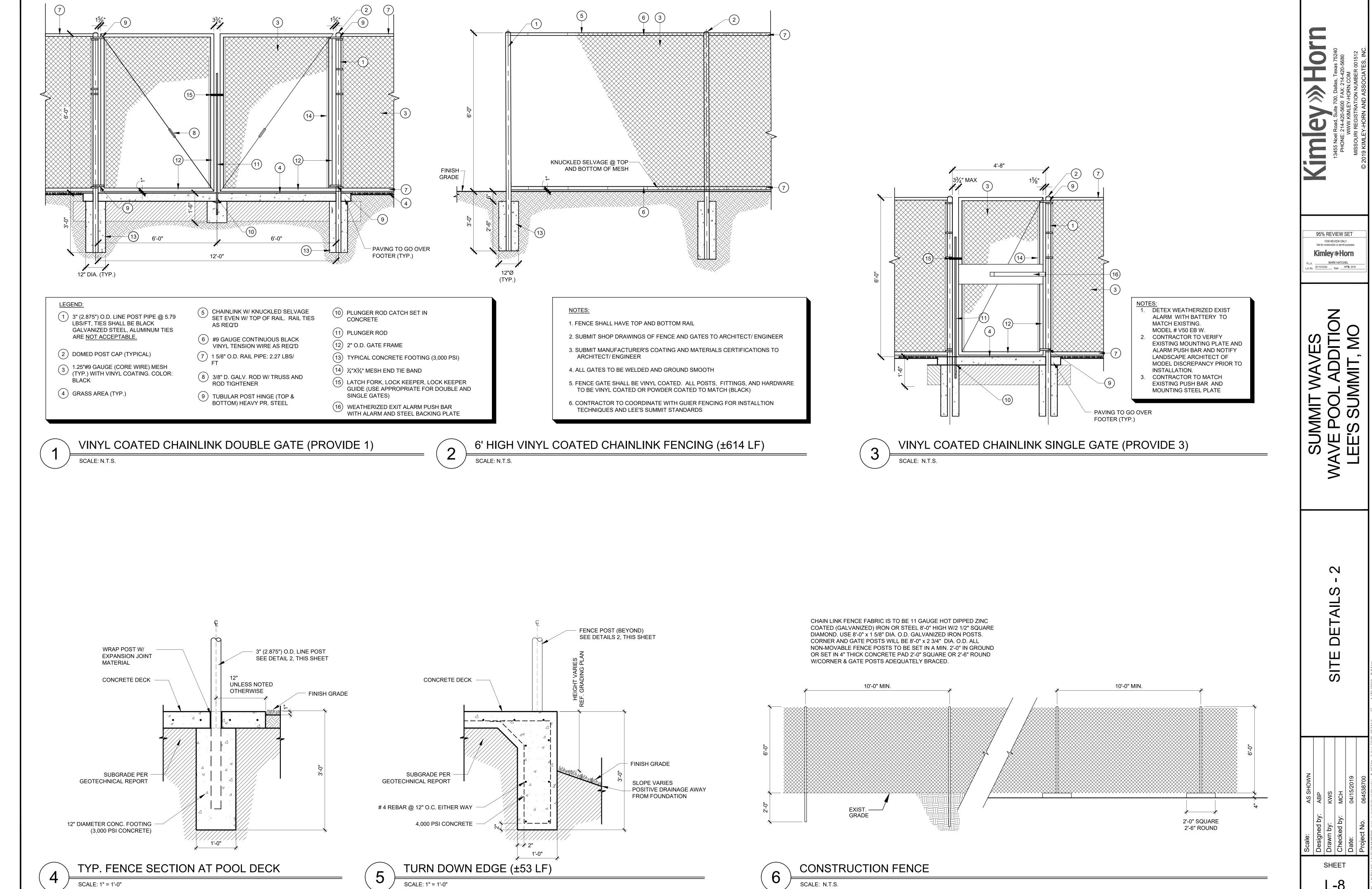
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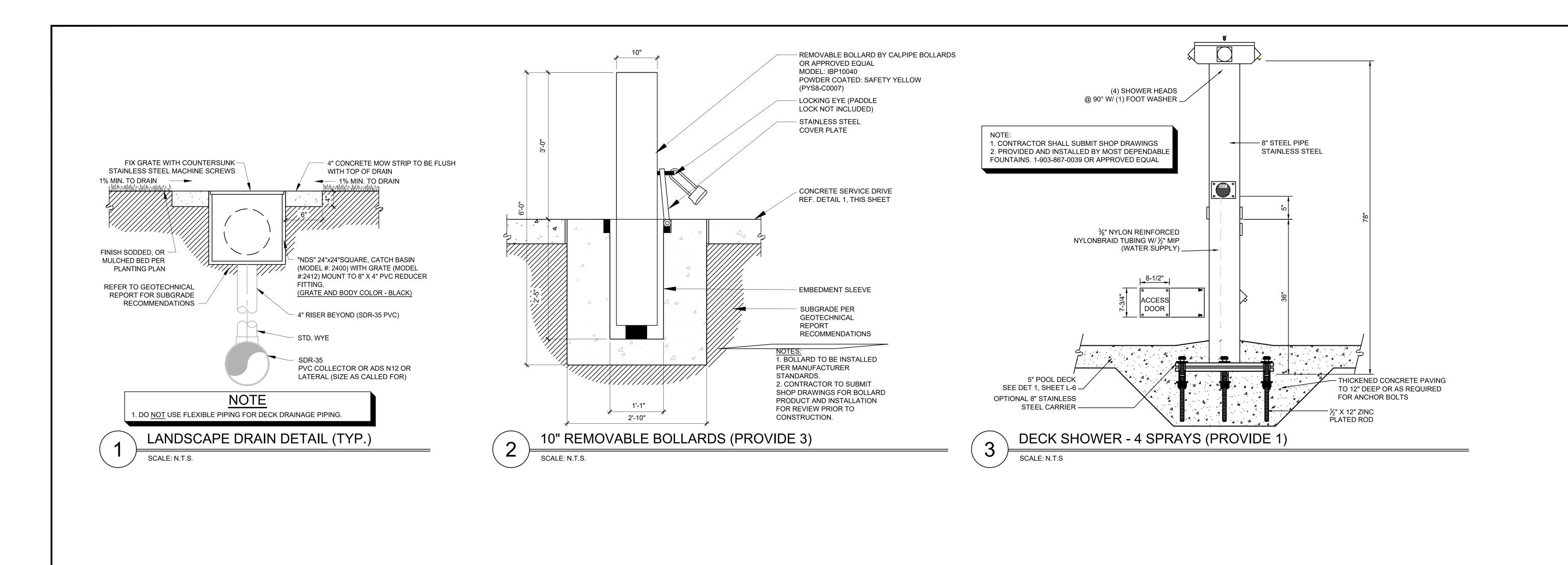
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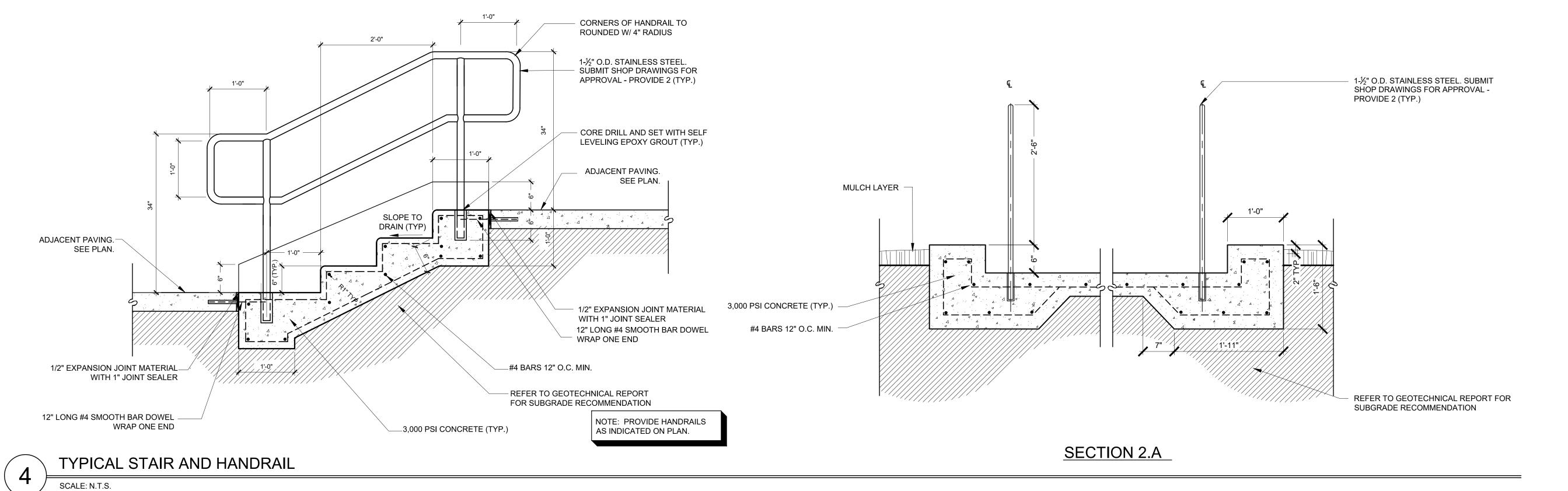
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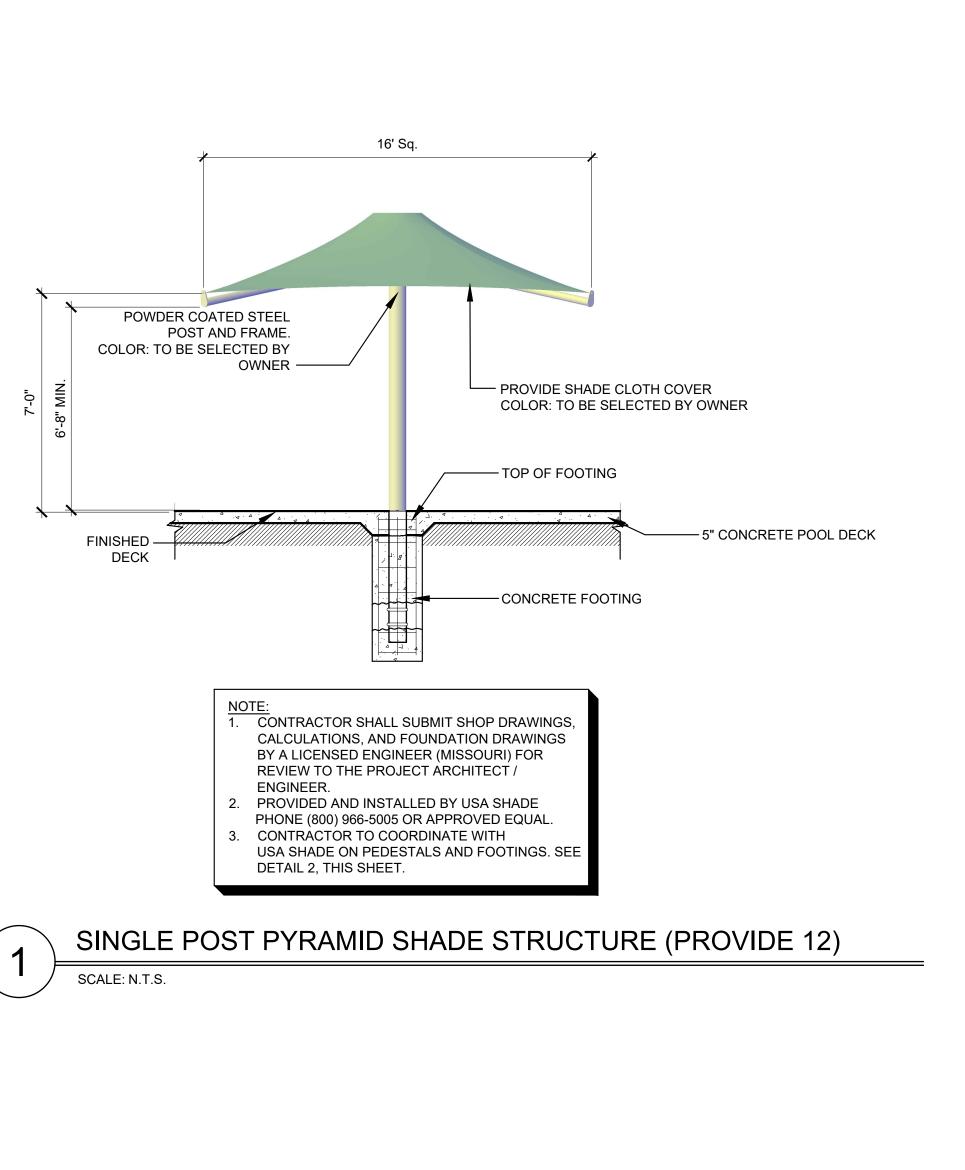
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- DIRECT EMBED POST INSTALLATION - CONCRETE POOL DECK (SEE DETAIL 1, SHEET L-7) SLOPE CONCRETE AWAY FROM POLE — AT 1/4" PER FOOT (MAX) (EXCESSIVE SLOPE WILL NOT BE ACCEPTABLE) 1. LEVELNESS OF POST IS CRUCIAL TO THE TWILIGHT STRUCTURE ERECTION. ALL POLES SHALL BE GALVANIZED AND PAINTEI CONTRACTOR SHALL SUBMIT SHOP DRAWINGS CALCULATIONS, AND FOUNDATION DRAWINGS BY A LICENSED ENGINEER (MISSOURI) FOR REVIEW TO THE PROJECT ARCHITECT / ENGINEER.

> SINGLE POST PYRAMID EMBED DETAIL SCALE: N.T.S.

-CROSSPIECE RAFTER - COLUMN - PROVIDE SHADE CLOTH COVER. COLOR TO BE SELECTED BY ARCHITECT/ENGINEER FABRIC-GALVANIZE AND POWDER COAT STEEL STRUCTURE (TYP.) COLOR TO BE SELECTED BY ARCHITECT/ENGINEER. 8' POST ==*========== - CROSSPIECE -RAFTER NOTE:
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, CALCULATIONS, AND FOUNDATION DRAWINGS BY A LICENSED ENGINEER (MISSOURI) FOR REVIEW TO THE PROJECT ARCHITECT / ENGINEER. PROVIDED AND INSTALLED BY USA SHADE PHONE (800) 966-5005 OR APPROVED EQUAL. CONTRACTOR TO COORDINATE WITH

MARINER HEXAGON SHADE STRUCTURE (PROVIDE 1)

SCALE: 1" = 10'

STEEL COLUMN -GALVANIZED AND POWDER COATED CONCRETE POOL DECK SLOPE CONCRETE AWAY FROM (SEE DETAIL 1, SHEET L-7) POLE AT 1/4" PER FOOT 4 (FOUR) STEEL ANCHORS BASE PLATE Ø 3/4" x 3'-0" — BASE PLATE TYP. 8 3/4" PROJECTION LOCK NUT 1'-0" <u>PLAN</u> CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND FOUNDATION DRAWINGS BY A LICENSED ENGINEER (MISSOURI) FOR REVIEW TO THE PROJECT ARCHITECT / 3,000 PSI-CONCRETE (TYP.) ENGINEER. **SECTION**

MARINER HEXAGON SHADE STRUCTURE FOOTING (TYP.)

SCALE: N.T.S.

2" TYP. 1/2" CHAMFER (TYP.) ADJACENT GRADE 2- #5 CONT. GRAVEL WRAPPED W/ SOIL #4 TIES @ 16" O.C. FILTER FABRIC FOR 2-#4 EACH FACE DRAINAGE CONCRETE FINISH SMOOTH RUBBED CONCRETE FREE OF BLEMISHES AND VOIDS WEEP HOLE TO BE FLUSH WITH FACE OF WALL GRAVEL WRAPPED CONCRETE PAVING W/SOIL FILTER FABRIC , SEE DETAIL 1, SHEET L-6 FOR DRAINAGE. CONNECT TO DECK EXPANSION JOINT WITH DRAINAGE SYSTEM JOINT FILLER (TYP.) #4 HORIZ. @ 16" O.C. PROVIDE VERTICAL SUBGRADE PER RUSTICATION JOINTS EVER GEOTECHNICAL REPORT 10' O.C. EQUAL SPACING. TO BE 1' DEEP BY 1/2" WIDE CONCRETE RAISED PLANTER (PROVIDE ±110 LF)

SCALE: 1" = 1'-0"

- 1/2" CHAMFER (TYP.) ADJACENT GRADE - 2- #5 CONT. GRAVEL WRAPPED W/ SOIL FILTER FABRIC FOR DRAINAGE - #4 TIES @ 16" O.C. - 2-#4 EACH FACE CONCRETE FINISH SMOOTH RUBBED CONCRETE FREE OF BLEMISHES AND VOIDS WEEP HOLE TO BE FLUSH WITH FACE OF WALL GRAVEL WRAPPED $^-$ 6" CONCRETE PAVING TO BE W/SOIL FILTER FABRIC , SLOPED TOWARDS DRAIN INLET FOR DRAINAGE. SEE DETAIL 1, SHEET L-6 **CONNECT TO DECK** EXPANSION JOINT WITH DRAINAGE SYSTEM JOINT FILLER (TYP.) #4 HORIZ. @ 16" O.C. PROVIDE VERTICAL SUBGRADE PER RUSTICATION JOINTS EVER GEOTECHNICAL REPORT 10' O.C. EQUAL SPACING. TO BE 1' DEEP BY 1/2" WIDE CONCRETE RETAINING WALL (PROVIDE ±125 LF)

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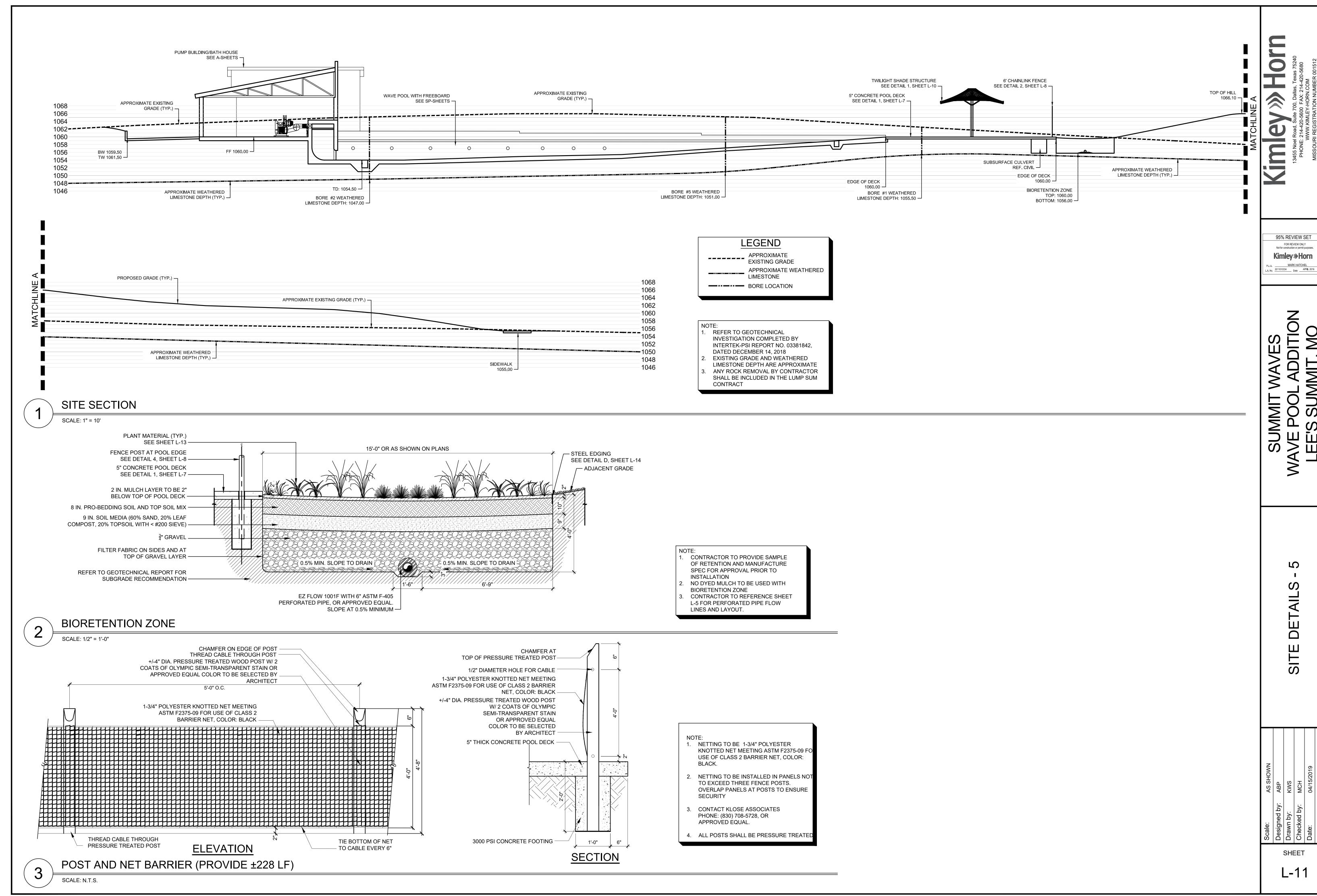
USA SHADE ON PEDESTALS AND FOOTINGS. SEE

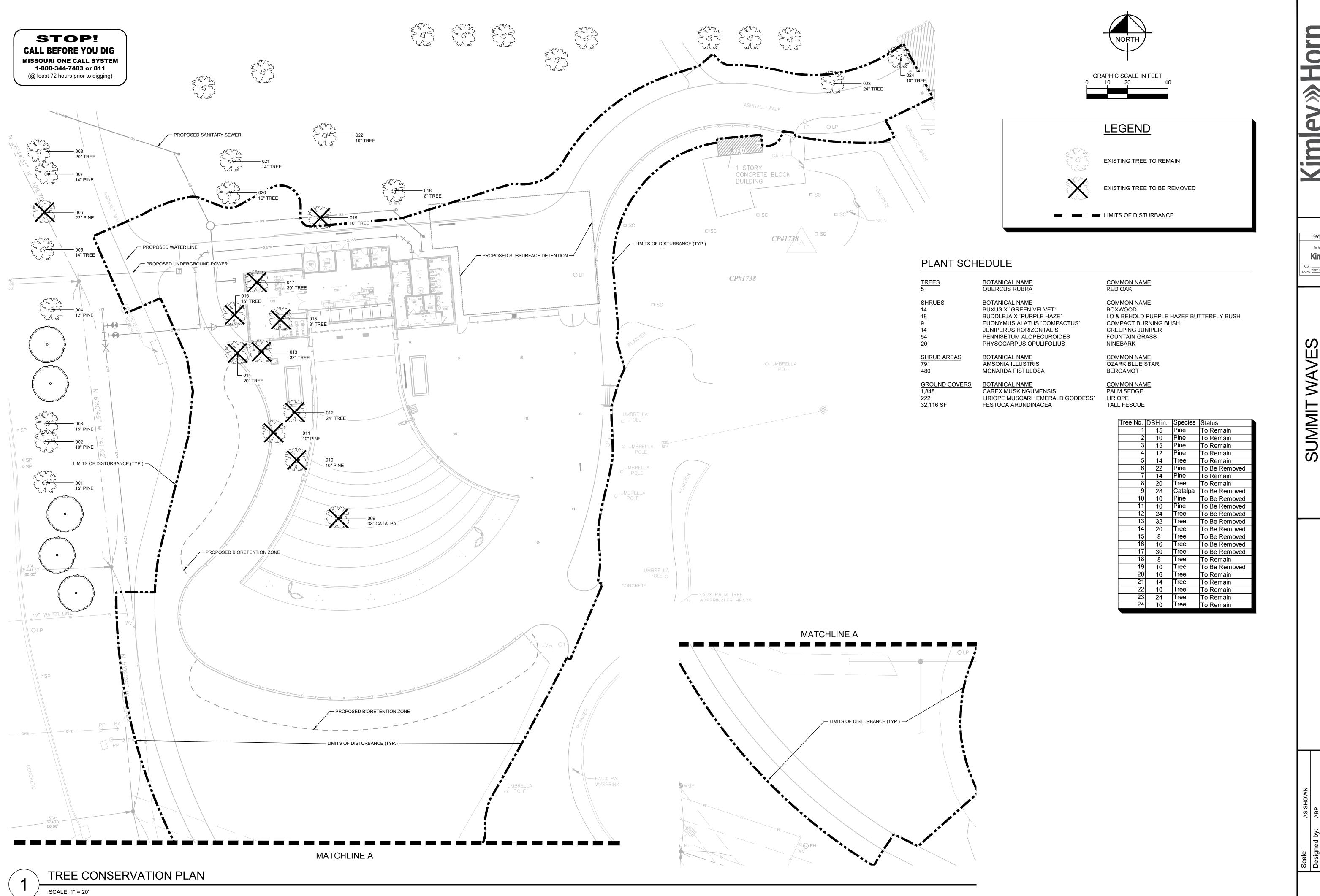
DETAIL 4, THIS SHEET.

SHEET

L-10

SCALE: 1" = 1'-0"





EXAMPLEY-HORN.COM

Road, Suite 700, Dallas, Texas 75240
214-420-5600 FAX: 214-420-5680

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P.L.A.
LA. No.

MARK HATCHEL

2011010334
Date

APRIL 2019

WAVES
ADDITION
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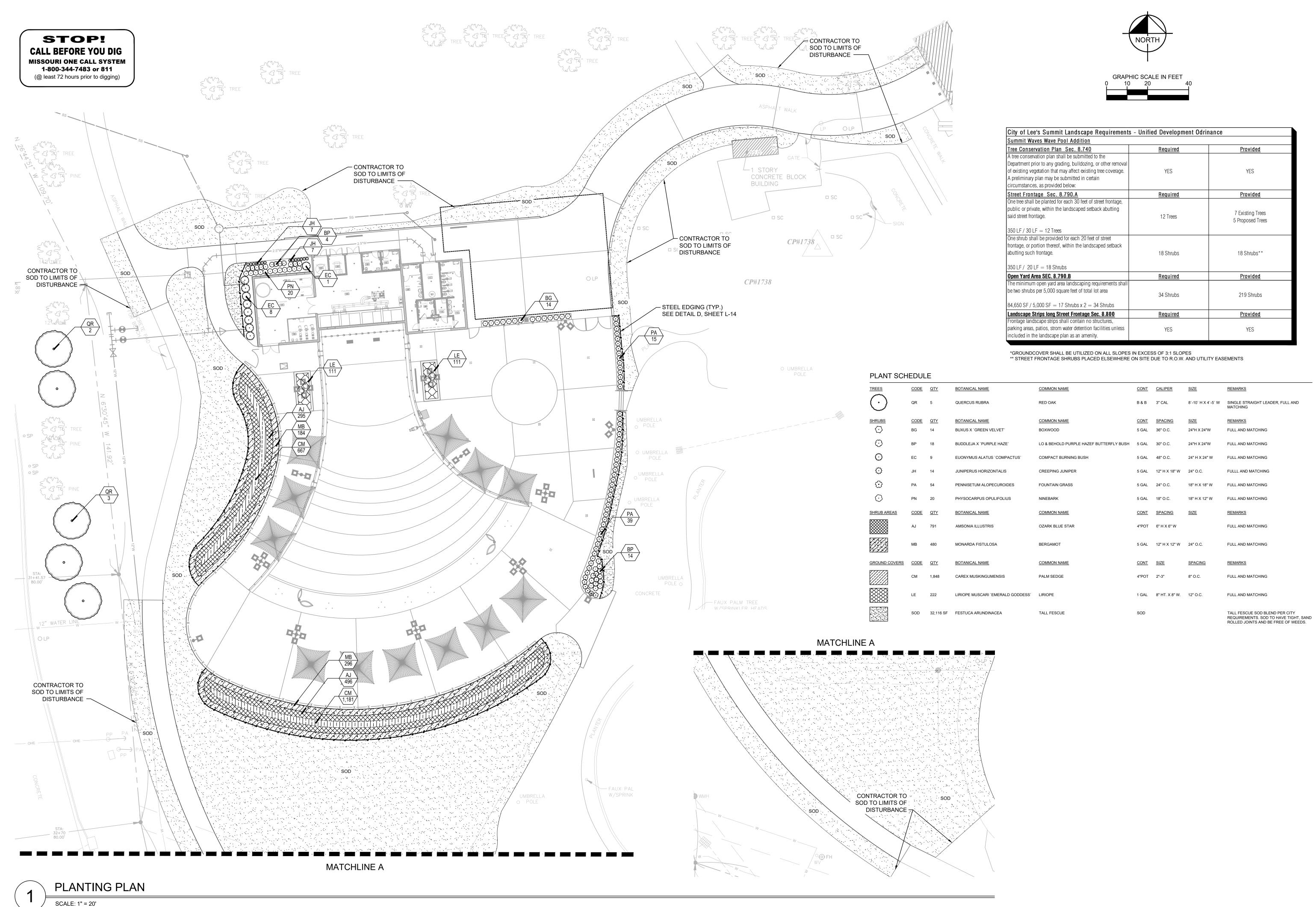
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Checked by: MCH

Date: 04/15/207

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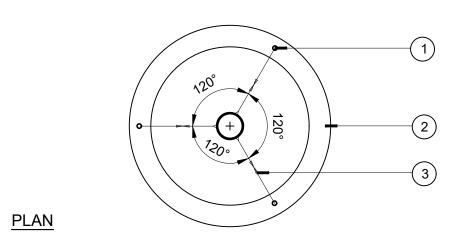
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PLANTING PLAN

ed by: MCH
04/15/2019
: No. 064538700

OLIGES SUMMIT\Dwg\Sheet\L-13 PLANTING PLAN.dwg [PLAN

SHEET



1) 2"X2"X8' STEEL FENCE 'T' POST, 3 PER TREE, EQUALLY SPACED, MATERIAL PER NOTES AND/OR SPECIFICATIONS.

2 4" EARTH SAUCER

GALVANIZED GUY WIRE; ADD TURNBUCKLES AS NECESSARY TO STABILIZE TREE.

(4) RUBBER CHAFING GUARDS

5 WARNING FLAGS

6 2" MULCH PER SPECIFICATIONS

7 ROOT BALL: REMOVE FROM CONTAINER. REMOVE ALL PLASTIC LINERS, AND OTHER SYNTHETIC MATERIALS FROM THE ENTIRE ROOTBALL.

8 PLANTING PIT EXCAVATED 12" LARGER (MIN.) THAN WIDTH OF ROOTBALL. PIT DEPTH AS NEEDED TO SET ROOTBALL COLLAR AT PROPOSED FINISHED GRADE. PLACE ROOTBALL ON SOLID SOIL AND NOT LOOSE BACKFILL.

9) PIT BACKFILL SOIL PER SPECIFICATIONS

(10) UNDISTURBED EARTH





2 3" HIGH EARTH SAUCER

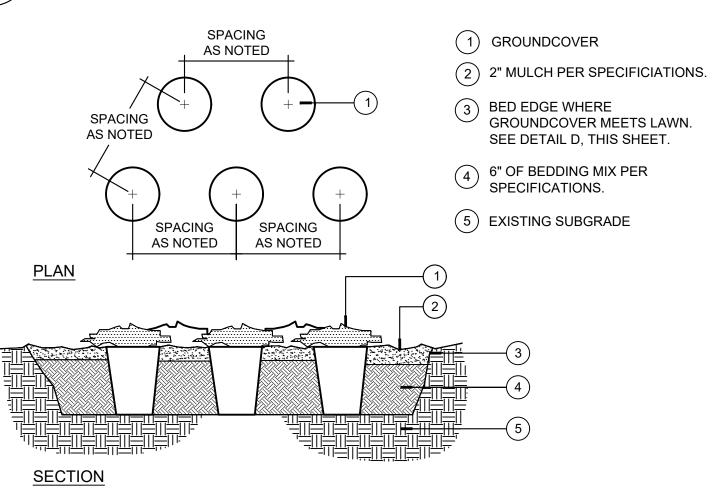
3 PLANTING PIT: EXCAVATE 6" LARGER (MIN.) THAN WIDTH OF ROOTBALL, W/ PIT DEPTH AS NEEDED TO SET ROOTBALL @ PROPOSED FINISHED GRADE. PLACE ROOTBALL ON SOLID SOIL AND NOT LOOSE BACKFILL. SCARIFY SIDES OF PIT. PROVIDE CONTINUOUS PIT FOR MASSED BED PLANTINGS.

4 ROOT BALL: REMOVE FROM CONTAINER. GENTLY SCARIFY GIRDLED ROOTS AS NEEDED. REMOVE ALL TAGS & TWINE.

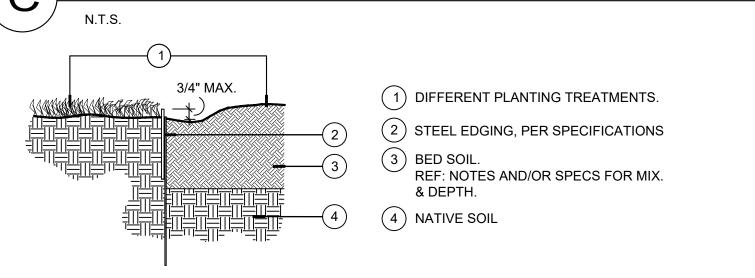
5) PIT BACKFILL W/ PREPARED SOIL BED MIX PER SPECIFICATIONS. PROVIDE CONTINUOUS SOIL BED MIX IN MASS PLANTINGS.

6 UNDISTURBED EARTH

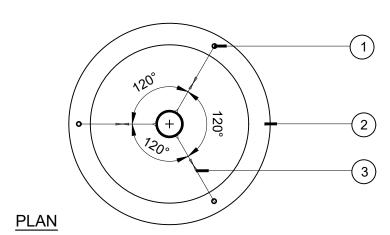
B SHRUB PLANTING

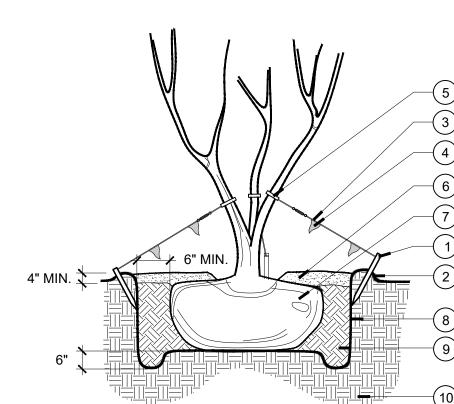


GROUNDCOVER PLANTING



STEEL EDGING (+/- 505 LF)





1) 2"X2"X24" WOOD STAKE, 3 PER TREE, MATERIAL PER NOTES AND/OR SPECIFICATIONS

2 4" EARTH SAUCER

3 GALVANIZED GUY WIRE; ADD TURNBUCKLES AS NECESSARY TO STABILIZE TREE.

(4) WARNING FLAGS

5 RUBBER CHAFING GUARDS

(6) 4" MULCH PER SPECIFICATIONS

7 ROOT BALL: REMOVE BURLAP, BURLAP TIES, AND WIRE BASKET FROM TOP 1/3 OF ROOTBALL. REMOVE ALL NYLON STRINGS, PLASTIC LINERS, AND OTHER SYNTHETIC MATERIALS FROM THE ENTIRE ROOTBALL.

8 PLANTING PIT EXCAVATED 12" LARGER (MIN.) THAN WIDTH OF ROOTBALL. PIT DEPTH AS NEEDED TO SET ROOTBALL COLLAR AT PROPOSED FINISHED GRADE. PLACE ROOTBALL ON SOLID SOIL AND NOT LOOSE BACKFILL.

9 PIT BACKFILL SOIL PER SPECIFICATIONS

(10) UNDISTURBED EARTH

ORNAMENTAL TREE DETAIL

N.T.S.

PLANTING NOTES

- ALL PLANT MATERIAL SHALL BE INSTALLED ACCORDING TO SOUND NURSERY PRACTICES AND SHALL MEET ALL STANDARDS AS STATED IN THE LATEST EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- 2. NO SUBSTITUTIONS IN PLANT MATERIALS SHALL BE MADE WITHOUT WRITTEN AUTHORIZATION FROM OWNER OR LANDSCAPE ARCHITECT. IN THE EVENT OF DISCREPANCIES BETWEEN THE DRAWING AND THE PLANT LIST, THE DRAWING SHALL PREVAIL.
- 3. LOCATE ALL UTILITIES PRIOR TO ANY DIGGING OPERATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO EXISTING UTILITIES INCURRED BY HIS WORK.
- 4. ALL LANDSCAPED AREAS SHALL BE FULLY IRRIGATED WITH AN AUTOMATIC IRRIGATION SYSTEM.
- 5. STAKING AND GUYING ALTERNATIVES: METHODS INDICATED IN DRAWING DETAILS ARE PREFERRED. CONTRACTOR MAY SUGGEST ALTERNATE METHODS, ASSUMING FULL RESPONSIBILITY FOR THEIR IMPLEMENTATION. CONTRACTOR SHALL REPLACE, PLANT, OR UPRIGHT ANY TREES BLOWN OVER OR DAMAGED DUE TO INADEQUATE STAKING AT NO ADDITIONAL COST TO THE OWNER.
- 6. PLANTS MASSED IN BEDS SHALL BE ARRANGED USING TRIANGULAR SPACING.
- 7. PROVIDE A STEEL EDGE OR SPADE EDGE BETWEEN ALL PLANTING BEDS AND LAWN AREAS AS CALLED FOR ON PLANS.
- 8. ALL PLANTING BEDS TO BE TOP DRESSED WITH A MINIMUM OF 2" SHREDDED CYPRESS BARK MULCH.
- 9. PROVIDE GRASS SEEDING OR LAY SOD FOR PROPOSED LAWN AREAS TO ALL EDGES OF PAVEMENT AND/ OR LIMITS OF DISTURBANCE OUTSIDE R.O.W. OR PROPOSED LANDSCAPE EASEMENT.
- THE CONTRACTOR, SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING UNTIL FINAL ACCEPTANCE. ALL REQUIRED LANDSCAPING SHALL BE MAINTAINED IN A NEAT AND ORDERLY MANNER AT ALL TIMES. THE WORK SHALL INCLUDE, BUT NOT TO BE LIMITED TO, MOWING, EDGING, PRUNING, FERTILIZING, WATERING, WEEDING, AND OTHER SUCH ACTIVITIES COMMON TO THE MAINTENANCE OF LANDSCAPING. ALL PLANT MATERIALS SHALL BE MAINTAINED IN A HEALTHY AND GROWING CONDITION AS IS APPROPRIATE FOR THE SEASON OF THE YEAR. PLANT MATERIAL THAT DIES SHALL BE REPLACED WITH THE PLANT MATERIAL OF SIMILAR SIZE AND VARIETY.
- 11. CONTRACTOR SHALL WARRANTY PLANT MATERIAL TO REMAIN ALIVE AND HEALTHY FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. WARRANTY SHALL NOT INCLUDE DAMAGE FOR LOSS OF PLANT MATERIAL DUE TO NATURAL CAUSES, ACTS OF VANDALISM OR NEGLIGENCE ON THE PART OF THE OWNER.
- 12. QUANTITIES ARE APPROXIMATE AND ARE PROVIDED ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES AND PROVIDING SUFFICIENT QUANTITIES OF MATERIAL FOR COVERAGE BASED ON THE AREAS TO BE COVERED AND PLANT SPACING CALLED FOR.
- 13. ALL DISTURBED AREAS ON SITE NOT CALLED TO BE SODDED, SHALL BE REESTABLISHED WITH SEED OR HYDROMULCH.

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Kimley» Horn

P.I.A. MARK HATCHEL

LA. No. 2011010334 Date APRIL 2019

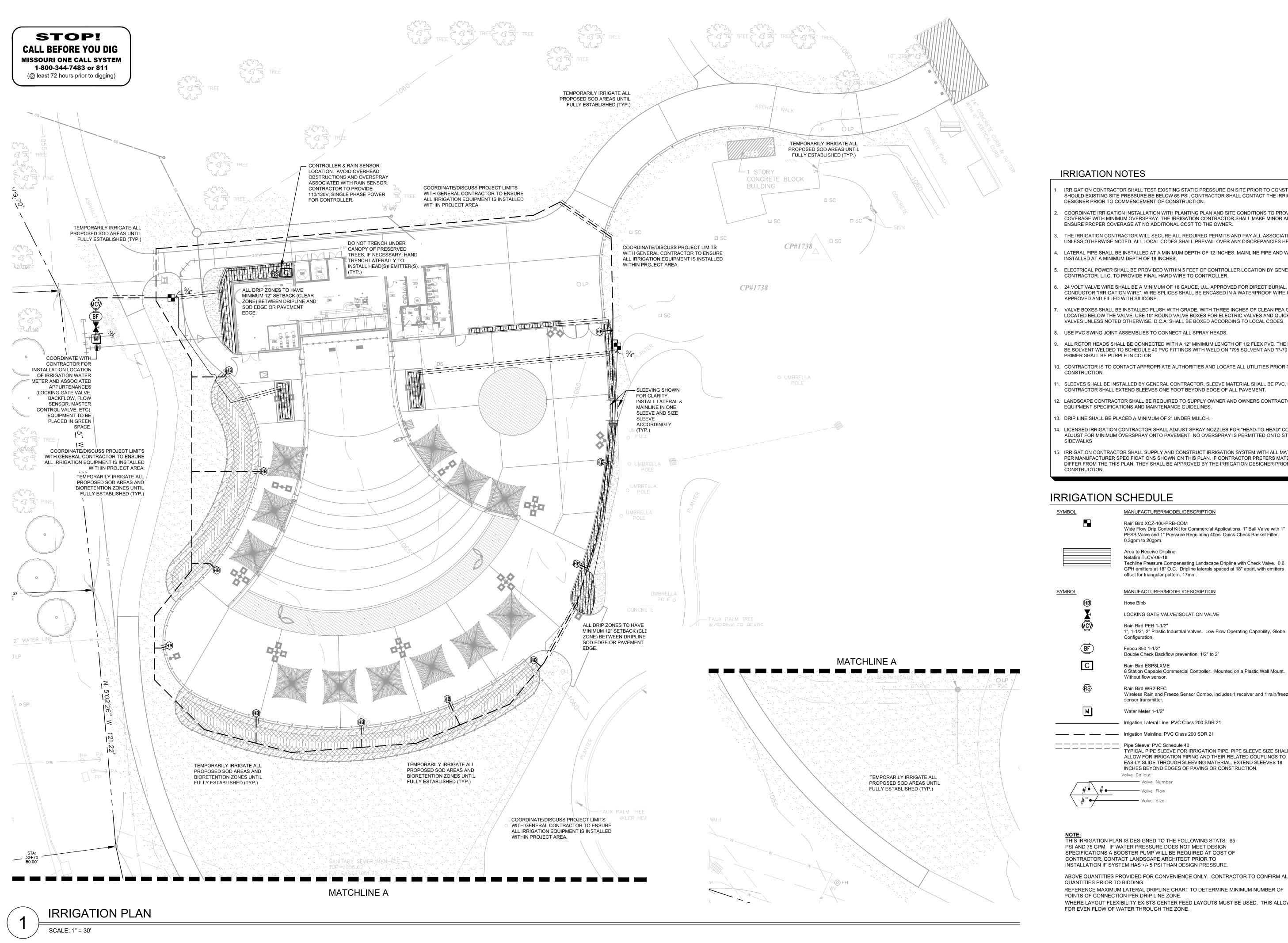
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PLANTING DETAILS

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IRRIGATION NOTES

IRRIGATION CONTRACTOR SHALL TEST EXISTING STATIC PRESSURE ON SITE PRIOR TO CONSTRUCTION. SHOULD EXISTING SITE PRESSURE BE BELOW 65 PSI, CONTRACTOR SHALL CONTACT THE IRRIGATION DESIGNER PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COORDINATE IRRIGATION INSTALLATION WITH PLANTING PLAN AND SITE CONDITIONS TO PROVIDE COMPLETE COVERAGE WITH MINIMUM OVERSPRAY. THE IRRIGATION CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO ENSURE PROPER COVERAGE AT NO ADDITIONAL COST TO THE OWNER.

THE IRRIGATION CONTRACTOR WILL SECURE ALL REQUIRED PERMITS AND PAY ALL ASSOCIATED FEES UNLESS OTHERWISE NOTED. ALL LOCAL CODES SHALL PREVAIL OVER ANY DISCREPANCIES HEREIN.

LATERAL PIPE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 12 INCHES. MAINLINE PIPE AND WIRES SHALL BE

ELECTRICAL POWER SHALL BE PROVIDED WITHIN 5 FEET OF CONTROLLER LOCATION BY GENERAL

CONTRACTOR. L.I.C. TO PROVIDE FINAL HARD WIRE TO CONTROLLER. 24 VOLT VALVE WIRE SHALL BE A MINIMUM OF 16 GAUGE, U.L. APPROVED FOR DIRECT BURIAL, SINGLE

CONDUCTOR "IRRIGATION WIRE". WIRE SPLICES SHALL BE ENCASED IN A WATERPROOF WIRE CONNECTOR UL APPROVED AND FILLED WITH SILICONE. VALVE BOXES SHALL BE INSTALLED FLUSH WITH GRADE, WITH THREE INCHES OF CLEAN PEA GRAVEL LOCATED BELOW THE VALVE. USE 10" ROUND VALVE BOXES FOR ELECTRIC VALVES AND QUICK COUPLING

USE PVC SWING JOINT ASSEMBLIES TO CONNECT ALL SPRAY HEADS.

ALL ROTOR HEADS SHALL BE CONNECTED WITH A 12" MINIMUM LENGTH OF 1/2 FLEX PVC. THE FLEX PVC SHALL BE SOLVENT WELDED TO SCHEDULE 40 PVC FITTINGS WITH WELD ON *795 SOLVENT AND *P-70 PRIMER.

IO. CONTRACTOR IS TO CONTACT APPROPRIATE AUTHORITIES AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

SLEEVES SHALL BE INSTALLED BY GENERAL CONTRACTOR. SLEEVE MATERIAL SHALL BE PVC, SCHD. 40. CONTRACTOR SHALL EXTEND SLEEVES ONE FOOT BEYOND EDGE OF ALL PAVEMENT.

12. LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO SUPPLY OWNER AND OWNERS CONTRACTOR WITH ALL EQUIPMENT SPECIFICATIONS AND MAINTENANCE GUIDELINES.

13. DRIP LINE SHALL BE PLACED A MINIMUM OF 2" UNDER MULCH.

4. LICENSED IRRIGATION CONTRACTOR SHALL ADJUST SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE AND ADJUST FOR MINIMUM OVERSPRAY ONTO PAVEMENT. NO OVERSPRAY IS PERMITTED ONTO STREETS OR

IRRIGATION CONTRACTOR SHALL SUPPLY AND CONSTRUCT IRRIGATION SYSTEM WITH ALL MATERIALS AND PER MANUFACTURER SPECIFICATIONS SHOWN ON THIS PLAN. IF CONTRACTOR PREFERS MATERIALS THAT DIFFER FROM THE THIS PLAN, THEY SHALL BE APPROVED BY THE IRRIGATION DESIGNER PRIOR TO

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Rain Bird XCZ-100-PRB-COM Wide Flow Drip Control Kit for Commercial Applications. 1" Ball Valve with 1" PESB Valve and 1" Pressure Regulating 40psi Quick-Check Basket Filter. 0.3gpm to 20gpm.	2
	Area to Receive Dripline Netafim TLCV-06-18 Techline Pressure Compensating Landscape Dripline with Check Valve. 0.6 GPH emitters at 18" O.C. Dripline laterals spaced at 18" apart, with emitters offset for triangular pattern. 17mm.	730.7 l.f.
<u>SYMBOL</u>	MANUFACTURER/MODEL/DESCRIPTION	<u>QTY</u>
HB	Hose Bibb	11
X	LOCKING GATE VALVE/ISOLATION VALVE	1
(CV)	Rain Bird PEB 1-1/2" 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration.	1
BF	Febco 850 1-1/2" Double Check Backflow prevention, 1/2" to 2"	1
С	Rain Bird ESP8LXME 8 Station Capable Commercial Controller. Mounted on a Plastic Wall Mount. Without flow sensor.	1
(RS)	Rain Bird WR2-RFC Wireless Rain and Freeze Sensor Combo, includes 1 receiver and 1 rain/freeze sensor transmitter.	1
M	Water Meter 1-1/2"	1
	Irrigation Lateral Line: PVC Class 200 SDR 21	462.5 l.f.
	Irrigation Mainline: PVC Class 200 SDR 21	1,043 l.f.
======	Pipe Sleeve: PVC Schedule 40 TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE. PIPE SLEEVE SIZE SHALL ALLOW FOR IRRIGATION PIPING AND THEIR RELATED COUPLINGS TO EASILY SLIDE THROUGH SLEEVING MATERIAL. EXTEND SLEEVES 18 INCHES BEYOND EDGES OF PAVING OR CONSTRUCTION. Valve Callout	291.6 l.f.

NOTE:
THIS IRRIGATION PLAN IS DESIGNED TO THE FOLLOWING STATS: 65 PSI AND 75 GPM. IF WATER PRESSURE DOES NOT MEET DESIGN SPECIFICATIONS A BOOSTER PUMP WILL BE REQUIRED AT COST OF CONTRACTOR. CONTACT LANDSCAPE ARCHITECT PRIOR TO INSTALLATION IF SYSTEM HAS +/- 5 PSI THAN DESIGN PRESSURE.

ABOVE QUANTITIES PROVIDED FOR CONVENIENCE ONLY. CONTRACTOR TO CONFIRM ALL QUANTITIES PRIOR TO BIDDING.

REFERENCE MAXIMUM LATERAL DRIPLINE CHART TO DETERMINE MINIMUM NUMBER OF POINTS OF CONNECTION PER DRIP LINE ZONE. WHERE LAYOUT FLEXIBILITY EXISTS CENTER FEED LAYOUTS MUST BE USED. THIS ALLOWS

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P.L.A. MARK HATCHEL
L.A. No. 2011010334 Date APRIL 2019

RRIGATION

APPROVAL: WHEREVER THE TERMS "APPROVE" OR "APPROVED" ARE USED IN THE SPECIFICATIONS. THEY SHALL MEAN THE APPROVAL OF THE OWNER'S CONSTRUCTION REPRESENTATIVE IN WRITING. 3. BEFORE ANY WORK IS STARTED, A CONFERENCE SHALL BE HELD BETWEEN THE CONTRACTOR AND THE

4. COORDINATION: COORDINATE AND COOPERATE WITH OTHER CONTRACTORS TO ENABLE THE WORK TO PROCEED AS RAPIDLY AND EFFICIENTLY AS POSSIBLE

OWNER'S CONSTRUCTION REPRESENTATIVE CONCERNING THE WORK UNDER THIS CONTRACT.

5. INSPECTION OF SITE: A. CONTRACTOR SHALL ACQUAINT HIMSELF WITH ALL SITE CONDITIONS. SUBMISSION OF HIS PROPOSAL SHALL BE CONSIDERED EVIDENCE THAT THE EXAMINATION HAS BEEN CONDUCTED. SHOULD UTILITIES NOT SHOWN ON THE

B. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS IN THE LAYOUT AS MAY BE REQUIRED TO CONNECT TO EXISTING STUBOUTS, SHOULD SUCH STUBS NOT BE LOCATED EXACTLY AS SHOWN, AND AS MAY BE REQUIRED TO

FOR ANY AND ALL DAMAGE THERETO ARISING FROM HIS OPERATIONS SUBSEQUENT TO DISCOVERY OF SUCH

PLANS BE FOUND DURING EXCAVATIONS, CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S CONSTRUCTION

REPRESENTATIVE FOR INSTRUCTIONS AS TO FURTHER ACTION. FAILURE TO DO SO WILL MAKE CONTRACTOR LIABLE

WORK AROUND EXISTING WORK AT NO INCREASE IN COST TO THE OWNER'S CONSTRUCTION REPRESENTATIVE. 6. PROTECTION OF EXISTING PLANTS AND SITE CONDITIONS: THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT SITE CONDITIONS TO REMAIN. SHOULD DAMAGE BE INCURRED, THE CONTRACTOR

7. THE OWNER RESERVES THE RIGHT TO SUBSTITUTE, ADD, OR DELETE ANY MATERIAL OR WORK AS THE WORK PROGRESSES. ADJUSTMENTS TO THE CONTRACT PRICE SHALL BE NEGOTIATED IF DEEMED NECESSARY BY THE OWNER ON A PER DIEM BASIS.

SHALL REPAIR THE DAMAGE TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

8. THE OWNER RESERVES THE RIGHT TO REJECT MATERIAL OR WORK WHICH DOES NOT CONFORM TO THE CONTRACT DOCUMENTS. REJECTED WORK SHALL BE REMOVED OR CORRECTED AT THE EARLIEST TIME POSSIBLE.

9. WORK SCHEDULE: WITHIN 10 DAYS AFTER AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT TO THE

OWNER A WORK SCHEDULE 10. "AS-BUILT" IRRIGATION DRAWINGS: PREPARE AN "AS-BUILT" DRAWING ON A BLUEPRINT WHICH SHALL SHOW DEVIATIONS FROM THE BID DOCUMENTS MADE DURING CONSTRUCTION AFFECTING THE MAIN LINE PIPE, CONTROLLER LOCATIONS. REMOTE CONTROL VALVES AND QUICK COUPLING VALVES. THE DRAWINGS SHALL ALSO

INDICATE AND SHOW APPROVED SUBSTITUTIONS OF SIZE, MATERIAL AND MANUFACTURERS NAME AND CATALOG NAME AND CATALOG NUMBER. THE DRAWINGS SHALL BE DELIVERED TO THE TENANT'S CONSTRUCTION REPRESENTATIVE BEFORE FINAL ACCEPTANCE OF WORK 11. FINAL ACCEPTANCE: FINAL ACCEPTANCE OF THE WORK MAY BE OBTAINED FROM THE OWNER'S CONSTRUCTION

REPRESENTATIVE UPON THE SATISFACTORY COMPLETION OF ALL WORK. 12. GUARANTEE: ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF ACCEPTANCE AGAINST ALL

DEFECTS IN MATERIAL. EQUIPMENT AND WORKMANSHIP, GUARANTEE SHALL ALSO COVER REPAIR OF DAMAGE TO ANY PART OF THE PREMISES RESULTING FROM LEAKS OR OTHER DEFECTS IN MATERIAL, EQUIPMENT AND WORKMANSHIP TO THE SATISFACTION OF THE TENANT'S CONSTRUCTION REPRESENTATIVE. REPAIRS, IF REQUIRED, SHALL BE DONE PROMPTLY AT NO COST TO THE OWNER.

13. A LAMINATED PLAN (8 1/2 X 11) SHOWING THE DIFFERENT IRRIGATION ZONES IN COLOR, PREPARED BY THE IRRIGATION CONTRACTOR, SHALL BE POSTED IN THE MECHANICAL ROOM.

C. MATERIALS:

1. GENERAL: ALL MATERIALS THROUGHOUT THE SYSTEM SHALL BE NEW AND IN PERFECT CONDITION 2. PLASTIC PIPING: ALL MAIN LINES AND LATERAL LINES SHALL BE CLASS 200 POLYVINYL CHLORIDE (PVC) PIPE AND SHALL COMPLY WITH ONE OF THE FOLLOWING STANDARDS: ASTM D 1785, ASTM D-2241, AWWA C-900, OR AWWA C-905. SDR-PR PIPE SHALL HAVE A MINIMUM WALL THICKNESS AS REQUIRED BY SDR-26. PVC GASKETS FITTINGS SHALL CONFORMING TO ASTM D 3139. GASKETS SHALL CONFORM TO ASTM F 477. SOLVENT-WELD PVC FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2466. THREADED PVC PIPE FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2464. CONFORMING TO ASTM D-1784

3. PLASTIC FITTINGS: ALL SOLVENT-WELD PVC FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2466. SCHEDULE 40 SOLVENT-WELD, POLYVINYL CHLORIDE (PVC) STANDARD WEIGHT AS MANUFACTURED BY SLOANE, LASCO, OR APPROVED EQUAL.

4. SOLVENT CEMENT: PVC CEMENT SHALL MEET ASTM D 2564 AND PVC CLEANER-TYPE SHALL MEET ASTM F 656.

5. SPRINKLER HEAD RISERS: SCHEDULE 40 PVC FOR RISERS. PIPE SHALL BE CUT WITH A STANDARD PIPE CUTTING TOOL WITH SHARP CUTTERS, REAM ONLY TO FULL DIAMETER OF PIPE AND CLEAN ALL ROUGH EDGES OR BURRS. CUT ALL THREADS ACCURATELY WITH SHARP DIES. NOT MORE THAN THREE(3) FULL THREADS SHALL SHOW BEYOND FITTINGS WHEN PIPE IS MADE UP. ASSEMBLIES SHALL BE AS DETAILED.

6. AUTOMATIC CONTROLLER: SEE LEGEND

7. REMOTE CONTROL VALVES: SEE LEGEND

MINIMUM PVC SCHEDULE 40 PLASTIC PIPE

8. CONTROL WIRING: 24 VOLT SOLID UL APPROVED FOR DIRECT BURIAL IN GROUND. MINIMUM WIRE SIZE: 16 GAUGE. ALL SPLICES SHALL BE MADE WITHIN VALVE BOX. 9. SLEEVES FOR CONTROL WIRING: UNDER ALL WALKS AND PAVED AREAS AND WHERE INDICATED ON DRAWINGS.

10. SPRINKLER HEADS/ DRIP LINE: SEE LEGEND

11. QUICK COUPLING VALVES: SHALL BE NOTED ON DRAWINGS.

GENERAL IRRIGATION SPECIFICATIONS AND NOTES

1. LAY OUT WORK AS ACCURATELY AS POSSIBLE TO THE DRAWINGS. THE DRAWINGS, THOUGH CAREFULLY DRAWN, ARE GENERALLY DIAGRAMMATIC TO THE EXTENT THAT SWING JOINTS, OFFSETS, AND ALL FITTINGS ARE NOT

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL AND COMPLETE COVERAGE OF ALL IRRIGATED AREAS AND SHALL MAKE ANY NECESSARY MINOR ADJUSTMENTS AT NO ADDITIONAL COST TO THE OWNER'S CONSTRUCTION

3. ANY MAJOR REVISIONS TO THE IRRIGATION SYSTEM MUST BE SUBMITTED AND ANSWERED IN WRITTEN FORM, ALONG WITH ANY CHANGE IN CONTRACT PRICE.

E. INSTALLATION:

1. EXCAVATION AND TRENCHING:

A. PERFORM ALL EXCAVATIONS AS REQUIRED FOR THE INSTALLATION OF THE WORK INCLUDING UNDER THIS SECTION, INCLUDING SHORING OF EARTH BANKS TO PREVENT CAVE-INS. RESTORE ALL SURFACES, EXISTING UNDERGROUND INSTALLATIONS, ETC., DAMAGED OR CUT AS A RESULT OF THE EXCAVATIONS TO AND IN A MANNER

B. TRENCHES SHALL BE MADE WIDE ENOUGH TO ALLOW A MINIMUM OF 6 INCHES BETWEEN PARALLEL PIPE LINES TRENCHES FOR PIPE LINES SHALL BE MADE OF SUFFICIENT DEPTHS TO PROVIDE THE MINIMUM COVER FROM FINISH GRADE AS FOLLOWS:

1) 24" MINIMUM BELOW BOTTOM PAVEMENT PER SLEEVING INSTALLATION DETAIL THIS SHEET

2) MINIMUM COVER OVER IRRIGATION LINES TO HEADS/ DRIPLINE EXCEPT VEHICLE TRAFFIC AREAS ARE AS FOLLOWS:

> 12" COVER OVER LATERALS 18" COVER OVER MAINLINE

C. MAINTAIN ALL WARNING SIGNS, SHORING, BARRICADES, FLARES AND RED LANTERNS AS REQUIRED BY THE SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY AND LOCAL ORDINANCES.

A. INSTALL REMOTE CONTROL VALVES WHERE SHOWN AND GROUP TOGETHER WHERE PRACTICAL, PLACE NO CLOSER THAN 6 INCHES TO WALK EDGES, BUILDINGS AND WALLS.

B. PLASTIC PIPE AND FITTINGS SHALL BE SOLVENT WELDED USING SOLVENTS AND METHODS RECOMMENDED BY MANUFACTURER OF THE PIPE, EXCEPT WHERE SCREWED CONNECTIONS ARE REQUIRED. PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED OF DIRT, DUST AND MOISTURE BEFORE APPLYING SOLVENT WITH A NON-SYNTHETIC

C. PIPE MAY BE ASSEMBLED AND WELDED ON THE SURFACE. SNAKE PIPE FROM SIDE TO SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.

D. MAKE ALL CONNECTIONS BETWEEN PLASTIC PIPE AND METAL VALVES OR STEEL PIPE WITH THREADED FITTINGS USING PLASTIC MALE ADAPTERS.

3. SPRINKLER HEADS/ DRIPLINE:

A. INSTALL ALL SPRINKLERS/ DRIPLINE AS DETAILED ON DRAWINGS. B. DO NOT SCALE PLANS FOR EXACT HEAD LOCATION.

C. PROVIDE A MINIMUM OF 4" BETWEEN SPRINKLERS/ DRIPLINE AND PAVEMENT/ BUILDINGS.

4. CLOSING OF PIPE AND FLUSHING LINES:

A. CAP OR PLUG ALL OPENINGS AS SOON AS LINES HAVE BEEN INSTALLED TO PREVENT THE ENTRANCE OF MATERIALS THAT WOULD OBSTRUCT THE PIPE. LEAVE IN PLACE UNTIL REMOVAL IS NECESSARY FOR COMPLETION OF INSTALLATION

B. THOROUGHLY FLUSH OUT ALL WATER LINES BEFORE INSTALLING HEADS, DRIPLINE, VALVES AND OTHER HYDRANTS.

C. TEST IN ACCORDANCE WITH PARAGRAPH ON HYDROSTATIC TESTS. D. UPON COMPLETION OF THE TESTING, THE CONTRACTOR SHALL COMPLETE ASSEMBLY AND ADJUST SPRINKLER

HEADS FOR PROPER DISTRIBUTION.

5. INSPECTIONS:

A. SPRINKLER/ DRIPLINE LAYOUT AND SPACING INSPECTION: VERIFICATION THAT THE IRRIGATION DESIGN IS ACCURATELY INSTALLED IN THE FIELD. IT WILL ALSO PROVIDE FOR ALTERATION OR MODIFICATION OF THE SYSTEM TO MEET FIELD CONDITIONS. SPACING SHOULD BE WITHIN 5% OF THE DESIGN SPACING. B. PIPE INSTALLATION DEPTH INSPECTION: ALL PIPES IN THE SYSTEM SHALL BE INSTALLED TO DEPTHS AS PREVIOUSLY DESCRIBED IN SECTION 'E' OF THESE SPECIFICATIONS.

C. OPEN TRENCH INSPECTION: THE TRENCH AND ALL JOINTS AND EVERY TRANSITION IN PIPE SIZE, WILL BE OPEN WHERE OPEN TRENCH INSPECTION IS REQUIRED. D. INSPECTIONS WILL BE PERFORMED THROUGHOUT THE DURATION OF THE INSTALLATION. INSPECTION MAY BE

MADE BY THE GOVERNING AGENCY/ OWNER TO ENSURE COMPLIANCE WITH DESIGN INTENT, SPECIFICATIONS, AND THE IRRIGATION CODES

A. REQUEST THE PRESENCE OF THE OWNER IN WRITING AT LEAST 48 HOURS IN ADVANCE OF TESTING.

B. TESTING TO BE ACCOMPLISHED AT THE EXPENSE OF THE CONTRACTOR AND IN THE PRESENCE OF THE OWNER. C. CENTER LOAD PIPING WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING OR SLIPPING UNDER PRESSURE

D. APPLYING A CONTINUOUS AND STATIC WATER PRESSURE OF 125 PSI WHEN WELDED PLASTIC JOINTS HAVE CURED AT LEAST 3 HOURS AND WITH THE RISERS CAPPED AS FOLLOWS:

1) MAIN LINES AND SUBMAINS TO BE TESTED

2) NO PRESSURE LOSS IS ALLOWED FOR SOLVENT WELD MAINLINE/ PIPE.

E. FOR PVC AND O-RING GASKET PIPE THE ALLOWABLE LEAKAGE SHALL NOT EXCEED THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FOLLOWING FORMULA:

L=NPD^{1/2}/ 1,850

IN WHICH: L=ALLOWABLE LEAKAGE, IN GALLONS PER HOUR N=NUMBER OF JOINTS D=PIPE DIAMETER IN INCHES

P=AVERAGE TEST PRESSURE IN PSI GAUGE

F. REPAIR LEAKS RESULTING FROM TESTS.

7. AUTOMATIC CONTROLLERS: A. CONNECT REMOTE CONTROL VALVES TO CONTROLLER IN A CLOCKWISE SEQUENCE TO CORRESPOND WITH

STATION SETTING BEGINNING WITH STATIONS 1, 2, 3, ETC

8. AUTOMATIC CONTROL WIRING:

A. INSTALL CONTROL WIRING, SPRINKLER MAINS AND LATERALS IN COMMON TRENCHES WHEREVER POSSIBLE.

B. INSTALL CONTROL WIRES AT LEAST 18" BELOW FINISHED GRADE AND SNAKE WIRE SIDE TO SIDE IN TRENCH BELOW MAIN LINE. EXPANSION CURLS SHALL BE PROVIDED WITHIN THREE (3') FEET OF EACH WIRE CONNECTION TO SOLENOID AND AT LEAST EVERY THREE HUNDRED (300') FEET IN LENGTH. (EXPANSION CURLS ARE FORMED BY WRAPPING AT LEAST FIVE (5) TURNS OF WIRE AROUND A ROD OR PIPE 1" OR MORE IN DIAMETER, THEN WITHDRAWING THE ROD).

C. CONTROL WIRE SPLICES WILL BE ALLOWED ONLY RUNS OVER 1000 FT. CONNECTIONS SHALL BE IN VALVE BOX AND LOCATION TO BE SHOWN ON AS-BUILT PLANS D. ALL WIRING PASSING UNDER EXISTING OR FUTURE PAVING, CONSTRUCTION, ETC., SHALL BE ENCASED IN

PLASTIC OR GALVANIZED STEEL CONDUIT EXTENDING AT LEAST 24" BEYOND EDGES OF PAVING OR CONSTRUCTION.

9. BACKFILL AND COMPACTING:

A. AFTER SYSTEM IS OPERATING AND REQUIRED TESTS AND INSPECTIONS HAVE BEEN MADE, BACKFILL EXCAVATIONS AND TRENCHES WITH CLEAN SOIL, FREE OF RUBBISH. INITIAL BACKFILL MATERIAL TO 6 INCHES ABOVE THE TOP OF PIPE SHALL BE FREE OF ROCKS OR STONES LARGER THAN ONE INCH IN DIAMETER FINAL BACKFILL MATERIAL SHALL BE FREE OF ROCKS OR STONES LARGER THAN 3 INCHES IN DIAMETER.

B. BACKFILL FOR ALL TRENCHES, REGARDLESS OF THE TYPE OF PIPE COVERED, SHALL BE COMPACTED TO MINIMUM 90% DENSITY

C. COMPACT TRENCHES IN AREAS TO BE PLANTED BY THOROUGHLY FLOODING THE BACKFILL. JETTING PROCESS MAY BE USED IN THOSE AREAS.

D. DRESS OFF ALL AREAS TO FINISH GRADES.

10. PROTECTIVE RADIUS OF EXISTING TREES: A. AN AUGER IS TO BE USED TO TUNNEL UNDER EXISTING TREES IF IRRIGATION IS INSTALLED WITHIN THE PROTECTIVE RADIUS OF EXISTING TREES AND ONLY IF THERE IS NO OTHER OPTION OR TO DO SO CREATES AN UNREASONABLE HARDSHIP.

F. CLEAN-UP:

1. REMOVE FROM THE SITE ALL DEBRIS RESULTING FROM WORK OF THIS SECTION.

LINE FLUSHING VALVE #F-TLFV-1 COMPRESSION RING BLANK TL (TYP.) LATERAL (OR EXHAUST HEADER) (INSTALL PER SPECS) SHUT-OFF VALVE #TLSOV (BLANK TUBING MAY BE ATTACHED TO OUTLET) [/] 3/4" GRAVFL SUMP (1 CUBIC FOOT) BRICK SUPPORTS (THREE)

LINE FLUSHING VALVE

(2) MAINLINE PIPE 1" SCH. 40 (3) LATERAL PIPE (4) WIRING IN CONDUIT TIE A 24-INCH LOOP IN ALL WIRING AT CHANGES OF DIRECTION OF 30° OR FLUSH CAP-(LOW POINT) GREATER. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE. ALL SOLVENT WELD PLASTIC PIPING TO BE SNAKED IN TRENCH AS SHOWN. 1" SCH. 40 MANIFOLD — FROM CURB TYPICAL ALL SOLVENT WELD PLASTIC PIPING TO PVC TO HOSE -BE RAN IN TRENCH AS SHOWN. COMPRESSION ADAPTER (8) RUN WIRING BENEATH AND BESIDE INSTALL FLUSH CAP/AIR VENTS AT HIGHEST AND LOWEST POINT. MAINLINE. TAPE AND BUNDLE AT STAKE DRIP HOSE AT EVERY 3RD EMITTER. 10-FOOT INTERVALS. USE HUNTER INSERT FIITINGS FOR DRIP CONNECTIONS TYPICAL DRIP IRRIGATION INSTALLATION DETAIL

JUMBO BOX -

FEBCO 1 1/2" 850 DOUBLE

BACKFLOW PREVENTER

CHECK ASSEMBLY

10" PLASTIC BOX -

FINISH GRADE-

AIR / VACUUM -RELIEF VALVE

3/4"M x 1/2"F TxT-

3/4" PVC COUPLING -

3/4" SCH 80 RISER -

BRICK SUPPORTS ----

CLAMPED TO PVC

AIR/VACUUM RELIEF

1 30-INCH LINEAR LENGTH OF WIRE, COILED

WATERPROOF CONNECTIO

REMOTE CONTROL VALVE:

VALVE BOX WITH COVER

FINISH GRADE/TOP OF MULCH

PVC SCH 80 NIPPLE (CLOSE)

RAIN BIRD VB-STD

PVC SCH 40 ELL

BRICK (1 OF 4)

SCH 40 ELL

PVC SCH 80 NIPPLE

PVC MAINLINE PIPE

SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND

PVC SCH 40 TEE OR ELL

PVC LATERAL PIPE

(HIGH POINT)

- PVC LATERAL

PROFESSIONAL LANDSCAPE

DRIP LINE INSERT FITTINGS

PVC SCH 40 MALE ADAPTER

(16) 3.0-INCH MINIMUM DEPTH OF

3/4-INCH WASHED GRAVE

DETAIL - N.T.S.

(3) ID TAG: RAIN BIRD VID SERIES

3/4" CRUSHED

GRAVEL SUMP

(PLUMBED TO POLY

-3/4" MINUS WASHED

PEB SERIES VALVE

-AIR VENT AT HIGH POINT

OF EACH DRIP VALVE

REDUCTION BUSHING

(LENGTH AS REQUIRED):

VALVE BOX -

STAINLESS STEEL

1 1/2" MASTER VALVE -

1) FINISH GRADE

2) QUICK-COUPLING VALVE

3) VALVE BOX WITH COVER

(4) 3/4" MINUS WASHED GRAVEL

6) PVC SCH 40 STREET ELL-1

BRICK SUPPORTS (2)

))PVC SCH 40

TEE OR ELL X 1'

) PVC SCH 40 STREET ELL-1'

DETAIL - N.T.S

5) PVC SCH 80 NIPPLE-1"

ONE-PIECE BODY WITH 1 INCH INLET

FINISHED GRADE

-WASHED GRAVEL

1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO (11) PVC SCH 40 ELL-1"

HOSE BIBB

MAINLINE, LATERAL AND WIRING IN THE

SAME TRENCH

10" PLASTIC BOX

3/4" MINUS

WASHED GRAVEL

4" MIN. CLEARANCE

24" MINIMUM TO

24" MAX.

FINISHED GRADE

PVC CAP (TYPICAL)

DOUBLE CHECK ASSEMBLY BACKFLOW PREVENTER

1 1/2" LOCKING ISOLATION/GATE VALVE -

NEW WATER METER

BRICK SUPPORTS TYP.

SECTION VIEW

1. ALL IRRIGATION SLEEVES TO BE SCHEDULE 40 PVC.

TO 24-INCHES MINIMUM ABOVE FINISHED GRADE.

SECTION VIEW

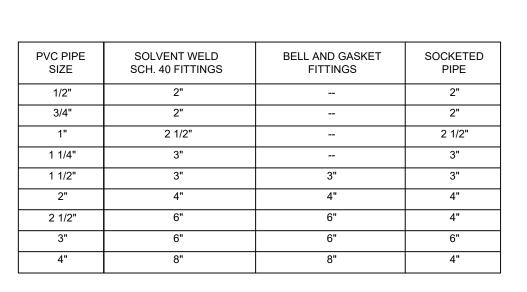
4. MECHANICALLY TAMP TO 95° PROCTOR.

SLEEVE DETAIL

. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT

3. WHERE THERE IS MORE THAN ONE SLEEVE. EXTEND THE SMALLER SLEEVE

STANDARD VALVE -



SLEEVE SCHEDULE

1. SLEEVE BELOW ALL HARDSCAPE

OR WITH BUNDLE WITHIN.

SEE SPECIFICATIONS.

N.T.S.

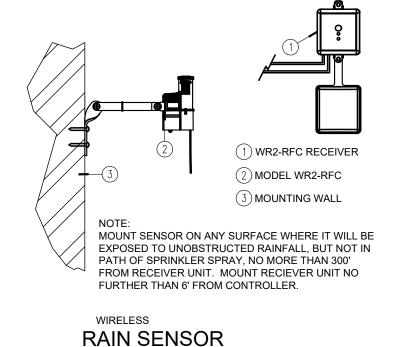
ELEMENTS WITH SCHD. 40 PVC

2. FOR PIPE AND WIRE BURIAL DEPTHS

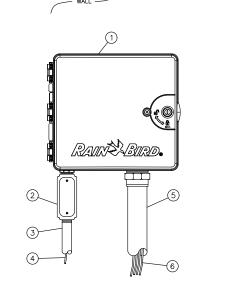
TWICE THE DIAMETER OF THE PIPE

PIPE AND WIRE TRENCHING





DETAIL - N.T.S.



ESP8-LXME CONTROLLER

CABINET WITH WALL MOUNT, INSTALL CONTROLLER

JUNCTION BOX 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY POWER SUPPLY WIRE 2-INCH CONDUIT AND FITTINGS FOR STATION WIRES WIRES TO REMOTE CONTROL VALVES

IRRIGATION CONTROLLER:

RECOMMENDATIONS.

ESP-LXME CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS, ADDITIONAL MODULES IN 4-, 8- AND 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER UP TO 48 STATIONS MAXIMUM. 2. FOR EASE OF INSTALLATION INTO A CONTROLLER WITH MORE THAN 24 STATIONS, INSTALL A JUNCTION BOX AT THE BASE OF CONTROLLER AND

RAIN BIRD ESP8-LXME CONTROLLER IN PLASTIC

AND CABINET ON WALL PER MANUFACTURER'S

AWG MULTI CONDUCTOR WIRE TO BE USED IN CONTROLLER. 3. USE STEEL CONDUIT FOR ABOVE GRADE AND SCH 40 PVC CONDUIT FOR BELOW GRADE CONDITIONS.

4. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND

TRANSITION LARGER VALVE AND COMMON WIRES FROM FIELD TO 18

RESISTANCE OF 10 OHMS OR LESS.

DETAIL - N.T.S.

W/ SHUT-OFF VALVE

95% REVIEW SET

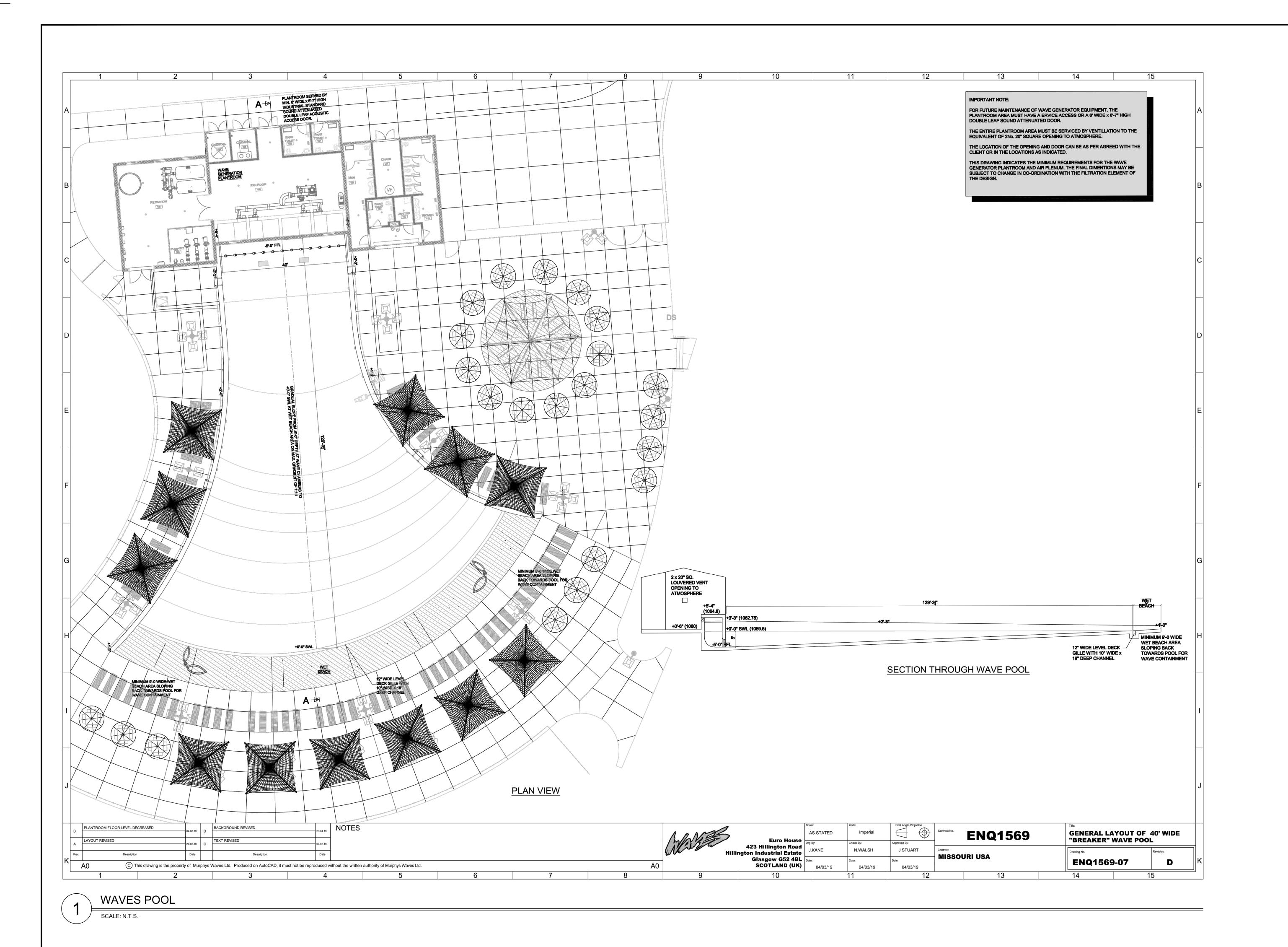
FOR REVIEW ONLY

Kimley » Horn

.A. No. 2011010334 Date APRIL 2019

S

MARK HATCHEL



13455 Noel Road, Suite 700, Dallas, Texas 75240
PHONE: 214-420-5600 FAX: 214-420-5680
WWW.KIMLEY-HORN.COM
MISSOURI REGISTRATION NUMBER 001512

FOR INFORMATION ONLY

SUMMIT WAVES
WAVE POOL ADDITIO

VES EQUIPMENT

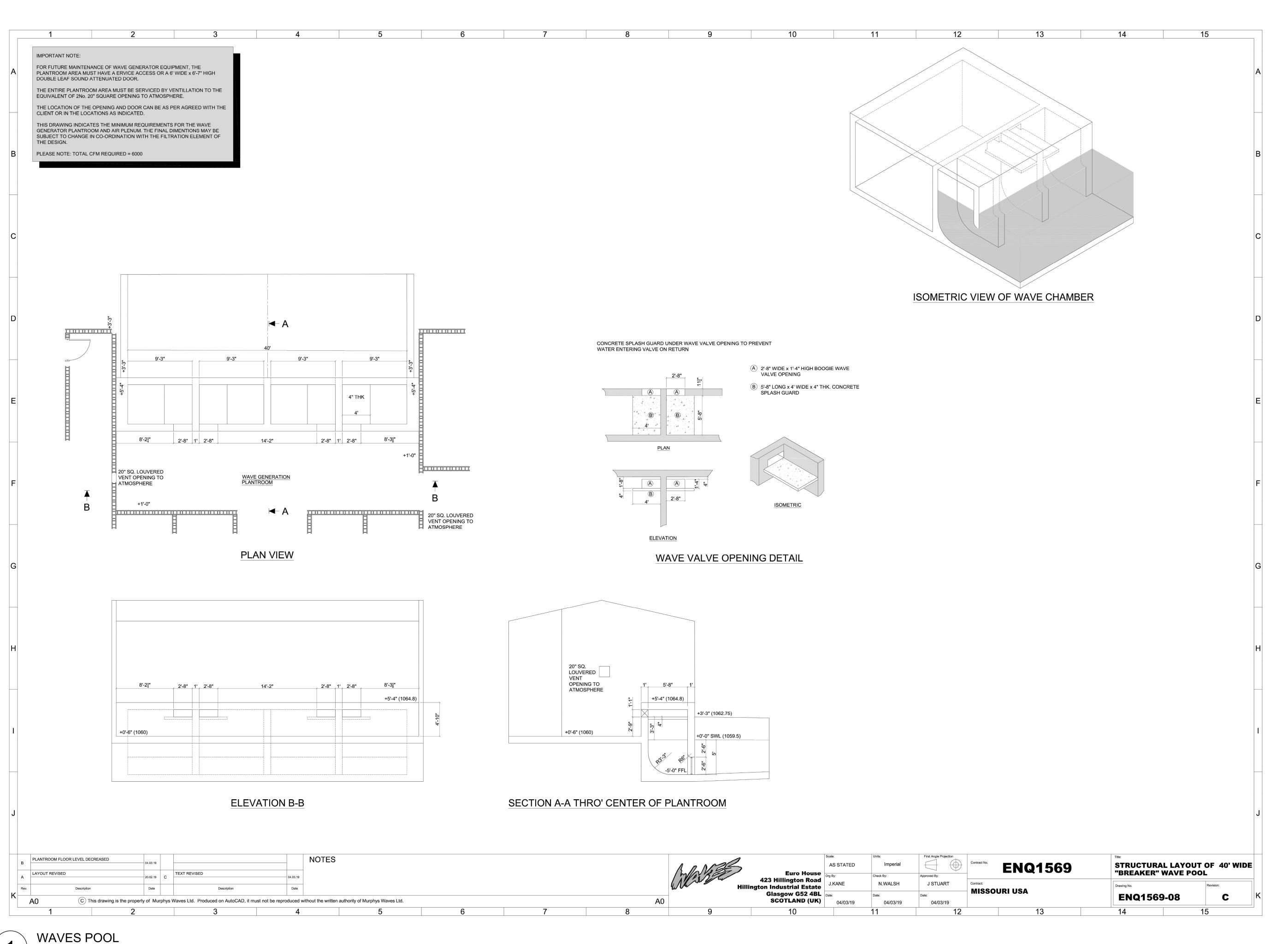
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MISSOURI REGISTRATION NUMBER 001512

FOR INFORMATION ONLY

SUMMIT WAVES
WAVE POOL ADDITION
I FF'S SUMMIT MO

VES EQUIPMENT 2

| 04/15/2019 |0. 064538700 |ees summit\Dwg\Sheet\L-17_Murphy Pools.dwg [MURPHY POOLS]

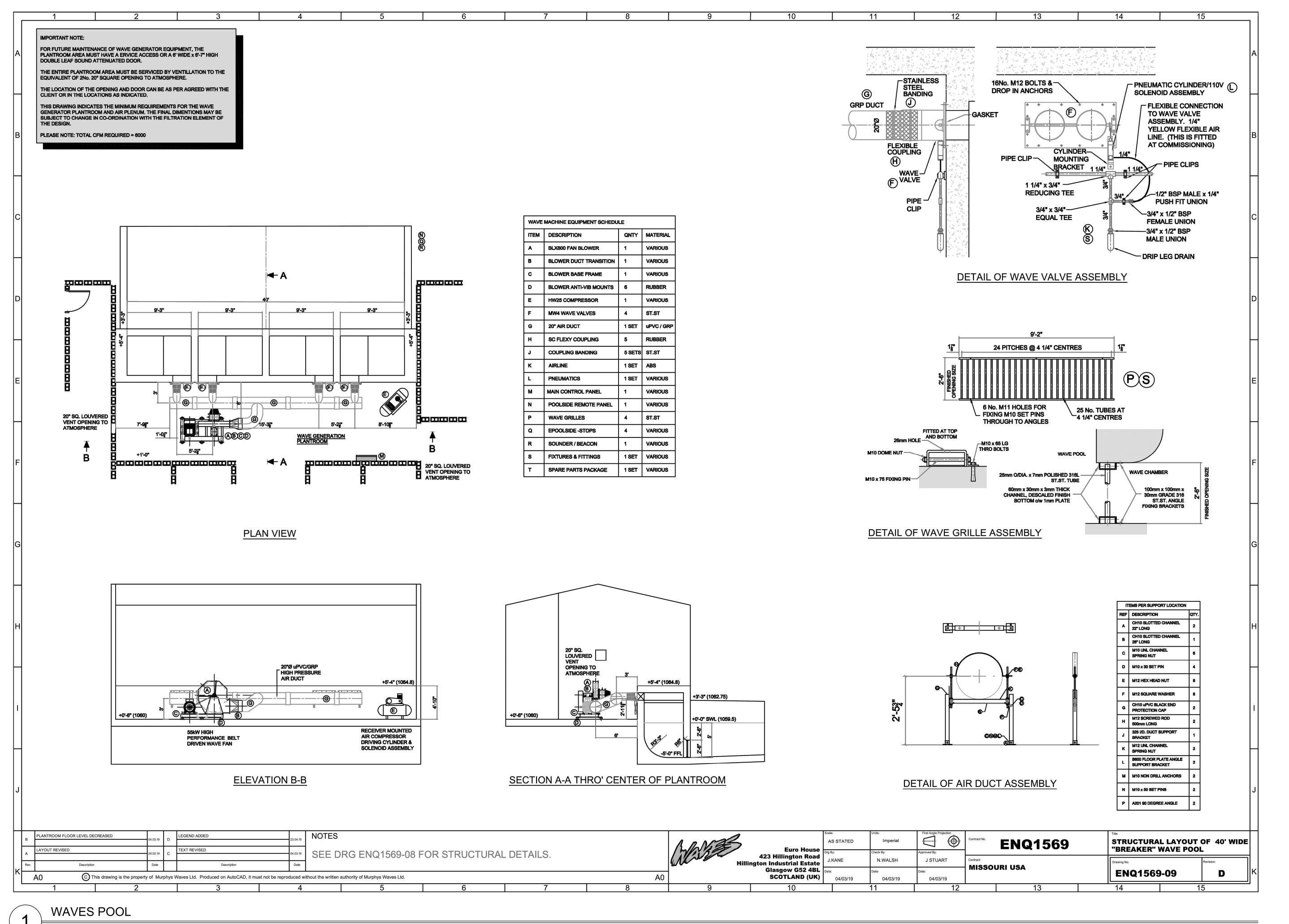
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Date: 04/15/2
Project No. 064538

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SCALE: N.T.S.



SCALE: N.T.S.

SHEET

FOR INFORMATION

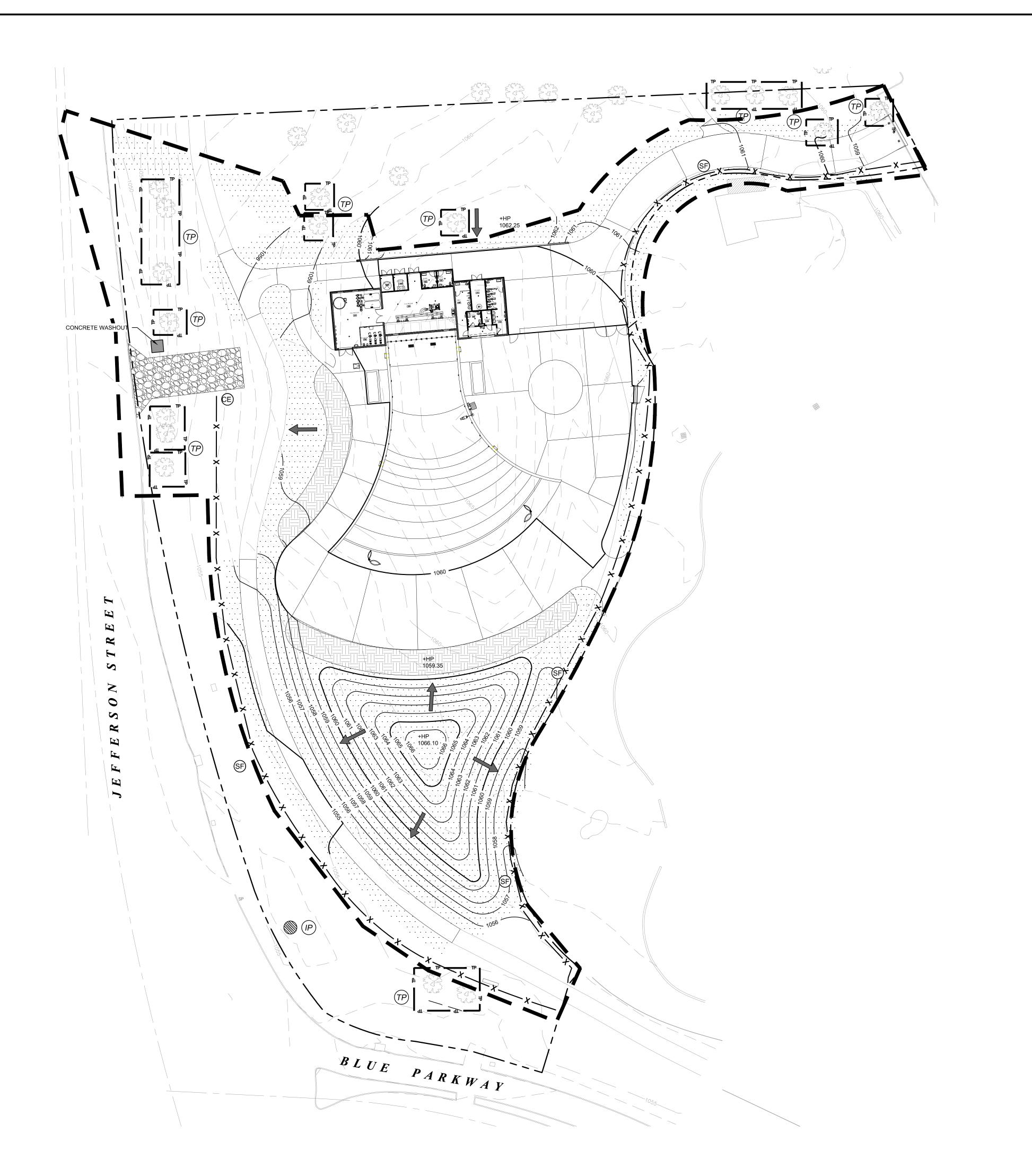
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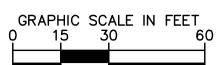
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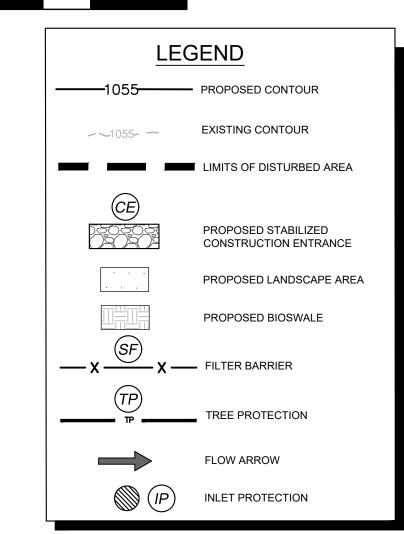
EQUIPMEN

STOP! **CALL BEFORE YOU DIG** MISSOURI ONE CALL SYSTEM 1-800-344-7483 or 811 (@ least 72 hours prior to digging)









SITE MAP-GENERAL NOTES

- 1. CONTRACTOR IS SOLELY RESPONSIBLE FOR SELECTION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL SWPPP CONTROLS - CONTROLS SHOWN ON THIS SITE MAP ARE SUGGESTED
- 2. CONTRACTOR SHALL RECORD INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL DATES FOR EACH BMP EMPLOYED (WHETHER CALLED OUT ON ORIGINAL SWPPP OR NOT) DIRECTLY ON THE SITE MAP.
- 4. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AS PER THE STORM WATER POLLUTION PREVENTION PLAN. AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S), AND SITE PAVING.
- 5. BMP'S HAVE BEEN LOCATED AS INDICATED ON THIS PLAN IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER, FOR EXAMPLE: SILT FENCES

EROSION CONTROL SCHEDULE AND SEQUENCING

- A. NOTIFY ALL APPLICABLE AUTHORITIES AT LEAST 48 HOURS PRIOR TO BEGINNING ANY WORK; CALL THE 'MISSOURI ONE CALL CENTER' AT1-800-344-7482 FOR UTILITY LOCATIONS. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION FENCING PRIOR TO ANY CLEARING AND
- DEMOLISH AREAS INDICATED ON EXISTING CONDITIONS AND REMOVAL ITEMS SHEET. (IF APPLICABLE)
- CLEAR AND GRUB AND STRIP TOPSOIL. STOCKPILE TOPSOIL FOR LATER USE.
- CONSTRUCT TEMPORARY RETENTION/DETENTION POND. (IF APPLICABLE)
- ROUGH GRADE SITE PER GRADING PLAN. INSTALL STORM SEWER LINES AND APPURTENANCES.
- INSTALL TEMPORARY EROSION/SEDIMENTATION Controls ON NEW STORM SEWER INLETS. INSTALL WATER AND WASTE WATER LINES AND APPURTENANCES.
- ENSURE THAT ALL UNDERGROUND UTILITY CROSSINGS ARE COMPLETED.
- RAISE MANHOLE FRAMES AND COVERS TO TOP OF NATURAL GROUND. CONSTRUCT PAVED AREAS, CURBS. ISLANDS AND INSTALL INLET EROSION PROTECTION.
- M. COMPLETE RESTORATION OF SITE VEGETATION. WRITE CONCURRENCE LETTER AND SCHEDULE FINAL INSPECTION WITH INSPECTOR.
- REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS WHEN RESTORATION HAS BEEN ACCEPTED.
- COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED BY ITEM "O"

TOTAL STATION LAYOUT

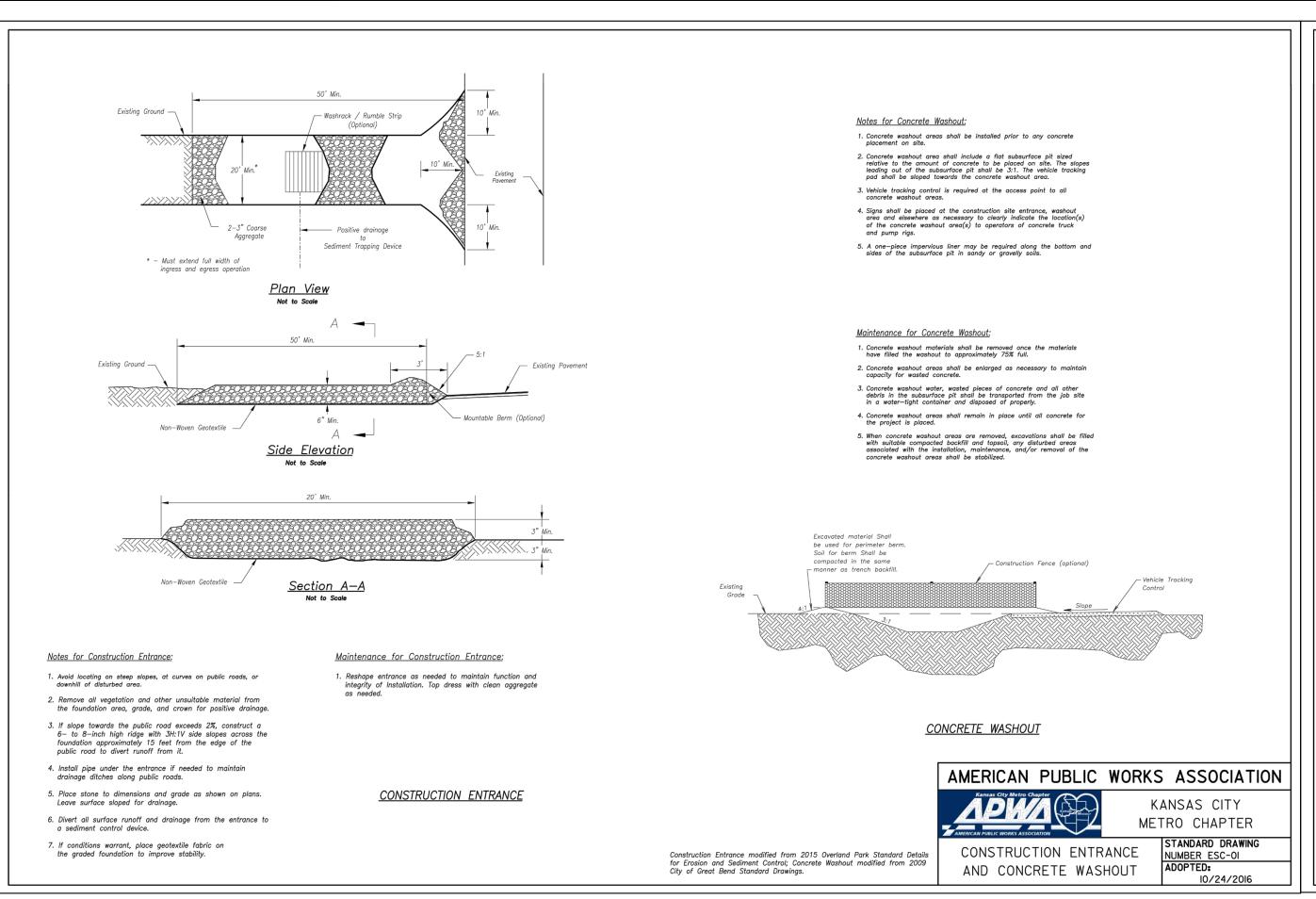
KIMLEY-HORN WILL PROVIDE AN AUTOCAD FILE OF THIS PLAN TO THE CONTRACTOR'S SURVEYOR TO USE FOR LAYOUT, VIA TOTAL STATION.

SITE MAP-SITE SPECIFIC NOTES

- CONSTRUCTION ENTRANCE SHALL BE LOCATED SO AS TO PROVIDE THE LEAST AMOUNT OF DISTURBANCE TO THE FLOW OF TRAFFIC IN AND OUT OF THE SITE. ADDITIONALLY, CONSTRUCTION ENTRANCE SHALL BE LOCATED TO COINCIDE WITH THE PHASING OF THE PAVEMENT REPLACEMENT.
- . THE NATURE OF THIS SITE'S CONSTRUCTION CONSISTS OF:
- A. DEMOLITION PRELIMINARY GRADING
- UTILITY INSTALLATION PAVEMENT CONSTRUCTION
- FINAL GRADING AND STABILIZATION
- CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT PREPARED BY INTERTEK PSI (PROJECT NO. 03381842 DATED DECEMBER 14, 2018) FOR SOIL CONDITIONS.
- . ALL STORM WATER ON-SITE WILL SHEET FLOW INTO THE ON-SITE UNDERGROUND STORM DRAINAGE SYSTEM OR CONTINUE ALONG EXISTING DRAINAGE ROUTE
- NO SEDIMENTATION BASINS HAVE BEEN PROVIDED ON THIS SITE BECAUSE THE AREA OF DISTURBANCE IS LESS THAN 10.0 ACRES.
- POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURES INCLUDE STABILIZATION BY
- PERMANENT PAVING, DRAINAGE SYSTEM STRUCTURE, OR LANDSCAPING.
- VELOCITY DISSIPATION DEVICES (RIP-RAP) WILL NOT BE USED.
- DISTURBED PORTIONS OF SITE MUST BE STABILIZED. STABILIZATION PRACTICES MUST BE INITIATED WITHIN 14 DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION HAS BEEN EITHER TEMPORARILY OR PERMANENTLY CEASED, UNLESS EXCEPTED WITHIN THE NPDES PERMIT. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF STABILIZATION OR PERMANENT DRAINAGE FACILITIES.
- PER FIRM MAP NO. 29095C0417G EFFECTIVE 01-20-2017, THE SITE IS LOCATED WITHIN FEMA DESIGNATED "X"
-). CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP/SITE MAP TO INCLUDE BMP'S FOR ANY OFF-SITE MATERIAL WASTE, BORROW OR EQUIPMENT STORAGE AREAS.
- 1. CONTRACTOR SHALL INSPECT DISTURBED AREAS, MATERIAL STORAGE AREAS EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND VEHICLE ENTRY AND EXIT AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER.

95% REVIEW SET FOR REVIEW ONLY **Kimley** »Horn KEVIN S. GASKEY

P.E. No. 28441 Date APRIL 2019



Top of silt fence below top of downstream berm to

Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.

is removed and Late Stage Area Inlet is being installed.

Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.

Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

(Typical all sides)

Plan

Not to Scale

(Area inlets at final grade and existing inlets)

accumulation of sediment is visible.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.

2. Remove deposited sediment from filter socks or similar when any

3. Repair or replace as necessary to maintain function and integrity

AREA INLET AND

JUNCTION BOX PROTECTION

AMERICAN PUBLIC WORKS ASSOCIATION

Place biodegradable log, staked wattles or other approved sediment control device in front of each inlet opening. (Not to be placed in throat of inlet).

KANSAS CITY

METRO CHAPTER

NUMBER ESC-07
ADOPTED:

prevent bypass

- Wire Reinforced Silt Fence

-Wire Reinforced Silt Fence-

Not to Scale

EARLY STAGE AREA INLET

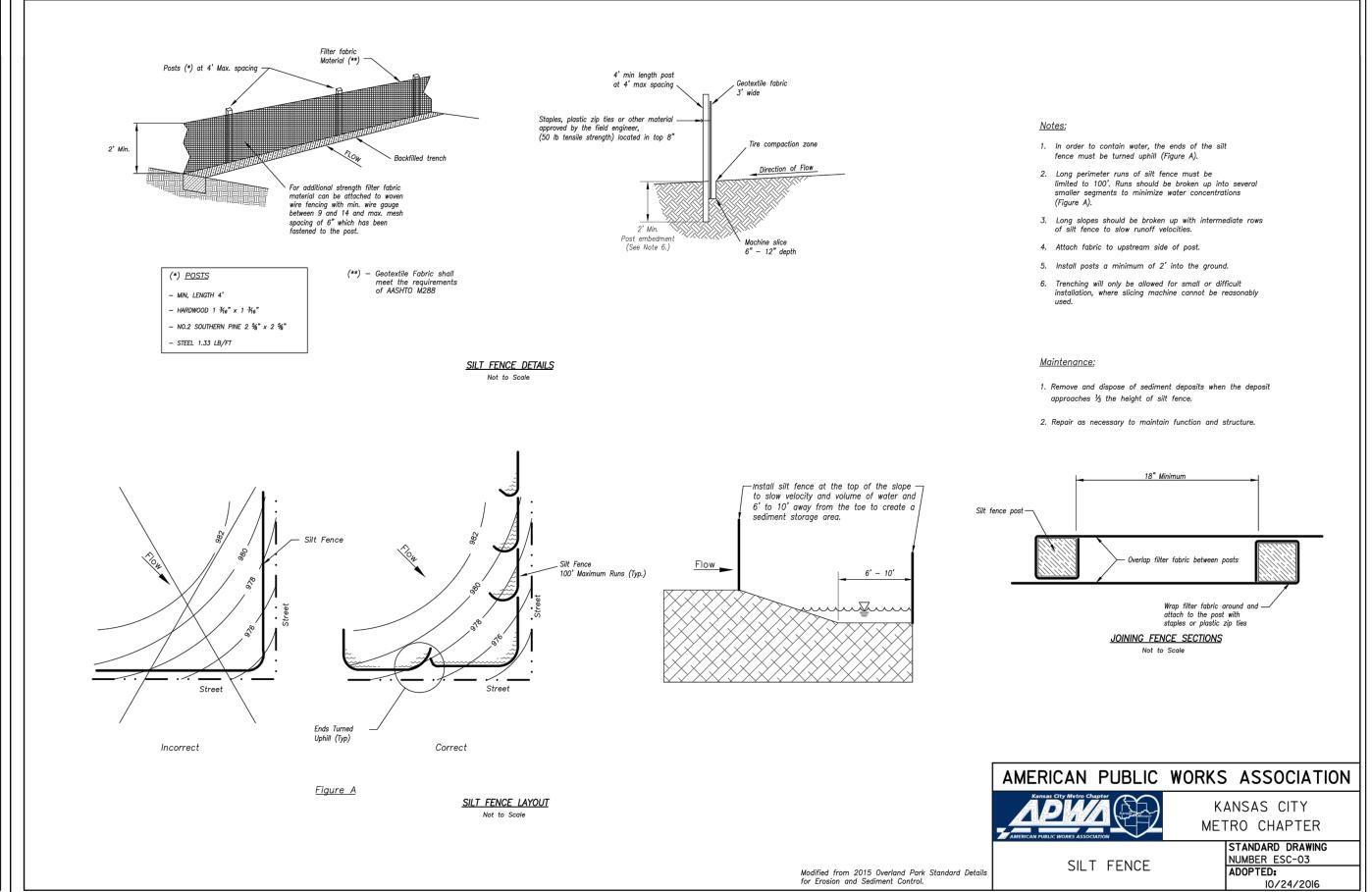
(All open boxes and inlets not at final grade)

* — Contractor shall field verify that Ponded Water Depth will not cause excessive unintended flooding.

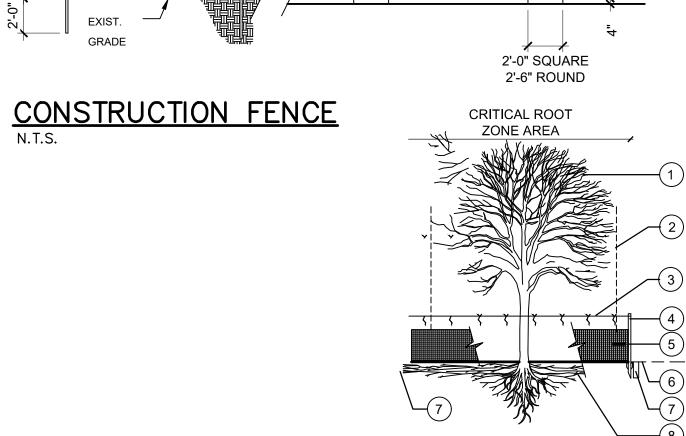
Proposed —/ Finished Grade

vated Area for

(See Silt Fence Detail for Installation Requirements)



CHAIN LINK FENCE FABRIC IS TO BE 11 GAUGE HOT DIPPED ZINC COATED (GALVANIZED) IRON OR STEEL 8'-0" HIGH W/2 1/2" SQUARE DIAMOND. USE 8'-0" x 1 5/8" DIA. O.D. GALVANIZED IRON POSTS. CORNER AND GATE POSTS WILL BE 8'-0" x 2 3/4" DIA. O.D. ALL NON-MOVABLE FENCE POSTS TO BE SET IN A MIN. 2'-0" IN GROUND OR SET IN 4" THICK CONCRETE PAD 2'-0" SQUARE OR 2'-6" ROUND W/CORNER & GATE POSTS ADEQUATELY BRACED. 10'-0" MIN.



- (1) EXISTING TREE(S) TO REMAIN.
- (2) DRIPLINE OF EXISTING TREE (TYP) (3) CONTINUOUS NYLON TIE STRING TIED TO STAKE TOPS W/ 2' TUNDRA WEIGHT

ORANGE STREAMERS @ 3' O.C.

- $\left(ext{ 4 }
 ight)$ 8' METAL T-STAKES: 8' O.C. MIN., DRIVEN 2' INTO GROUND AT (OR OUTSIDE) TREE DRIPLINE
- (6) EXISTING GRADE TO BE DISTURBED.

(5) 4' MIN. HEIGHT ORANGE PLASTIC

RECOMMENDATIONS (TYP).

FENCING INSTALLED PER MANF.

@ PRUNING TRENCH AS REQ'D.

SUPPLEMENT W/ SILT FENCE FABRIC

- (7) ROOT PRUNING TRENCH 12" OUTSIDE FENCE -SEE NOTES.
- (8) EXISTING GRADE TO REMAIN.

- 1. PERFORM ROOT PRUNING ON ALL EXISTING TREES TO REMAIN WHERE CONSTRUCTION ACTIVITY FALLS WITHIN DRIP LINE OF EXISTING TREES.
- 2. ROOT PRUNING METHOD: 2 MONTHS MIN. PRIOR TO EXCAVATION & CONSTRUCTION ACTIVITIES, HAND CUT ROOTS BY DIGGING A 18"-24" DEEP x 8" WIDE TRENCH ALONG THE OUTSIDE PERIMETER OF EXISTING TREE(S) ADJACENT TO CONSTRUCTION AREAS. MAXIMIZE PRUNING TRENCH DISTANCE FROM TRUNK TO THE FULLEST EXTENT POSSIBLE, W/ THE ROOT PRUNING LINE PLACED @ THE EDGE OF CONSTRUCTION LIMITS.

TREE PROTECTION DETAIL

VEGETATIVE STABILIZATION REQUIREMENTS

TEMPORARY SEEDING ALL DISTURBED AREAS WHICH WILL BE LEFT DORMANT FOR GREATER THAN 14 DAYS SHALL BE SEEDED WITH FAST-GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING OPERATIONS. SELECTION OF THE SEED WILL DEPEND ON THE TIME OF YEAR IT IS APPLIED (SEE DESCRIPTIONS IN TABLE 2). REFERENCE LANDSCAPE PLAN FOR PERMANENT STABILIZATION REQUIREMENTS. VEGETATION TABLE* TEMPORARY SEEDING PLANTING RATE <u>SPECIES</u> CRIMSON CLOVER *7#/ACRE*

*USE ONLY USDA CERTIFIED SEED.

<u>PLANTING—DATES</u> 8/15 - 11/30 *30#/ACRE* MILLET, FOXTAIL 5/1 - 8/31 RYEGRASS, ANNUAL 8/15 - 9/30 *30#/ACRE* SPRANGLETOP, GREEN 2.5#/ACRE 2/1 - 5/1 9/1 - 10/15 *TALL FESCUE* 7#-10#/1000 SF

SURFACE PREPARATION FOR TEMPORARY SEEDING

1. INSTALL EROSION STRUCTURES SUCH AS DIKES, DIVERSIONS, ETC. PRIOR TO SEEDING.

2. FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR LINE BEFORE SEEDING.

3. ENSURE SEED BED IS PULVERIZED, LOOSE, AND UNIFORM.

<u>APPLICATION</u>

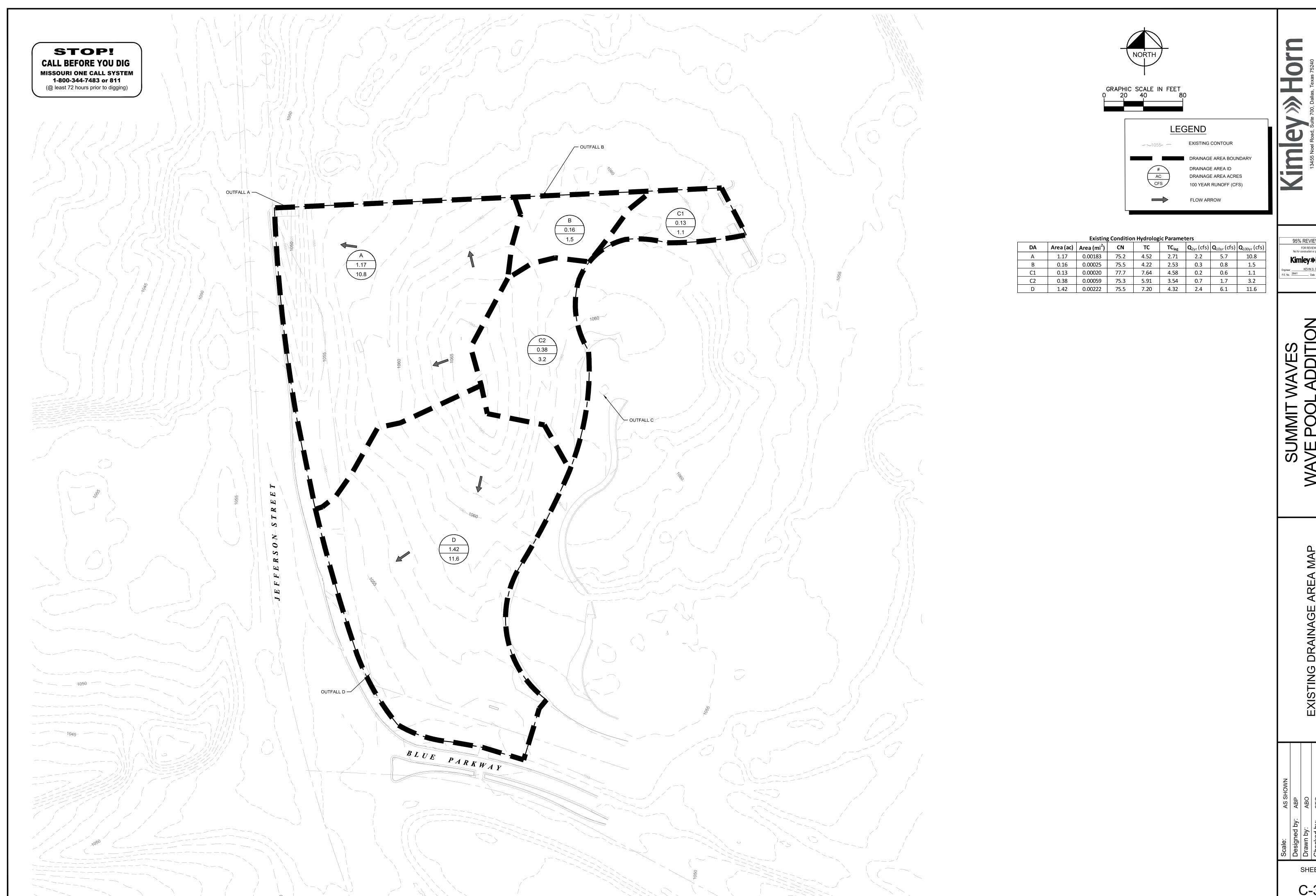
1. WHEN HYDROMULCHING IS USED, DO NOT MIX SEED AND

FERTILIZER MORE THAN 30 MINUTES PRIOR TO APPLICATION.

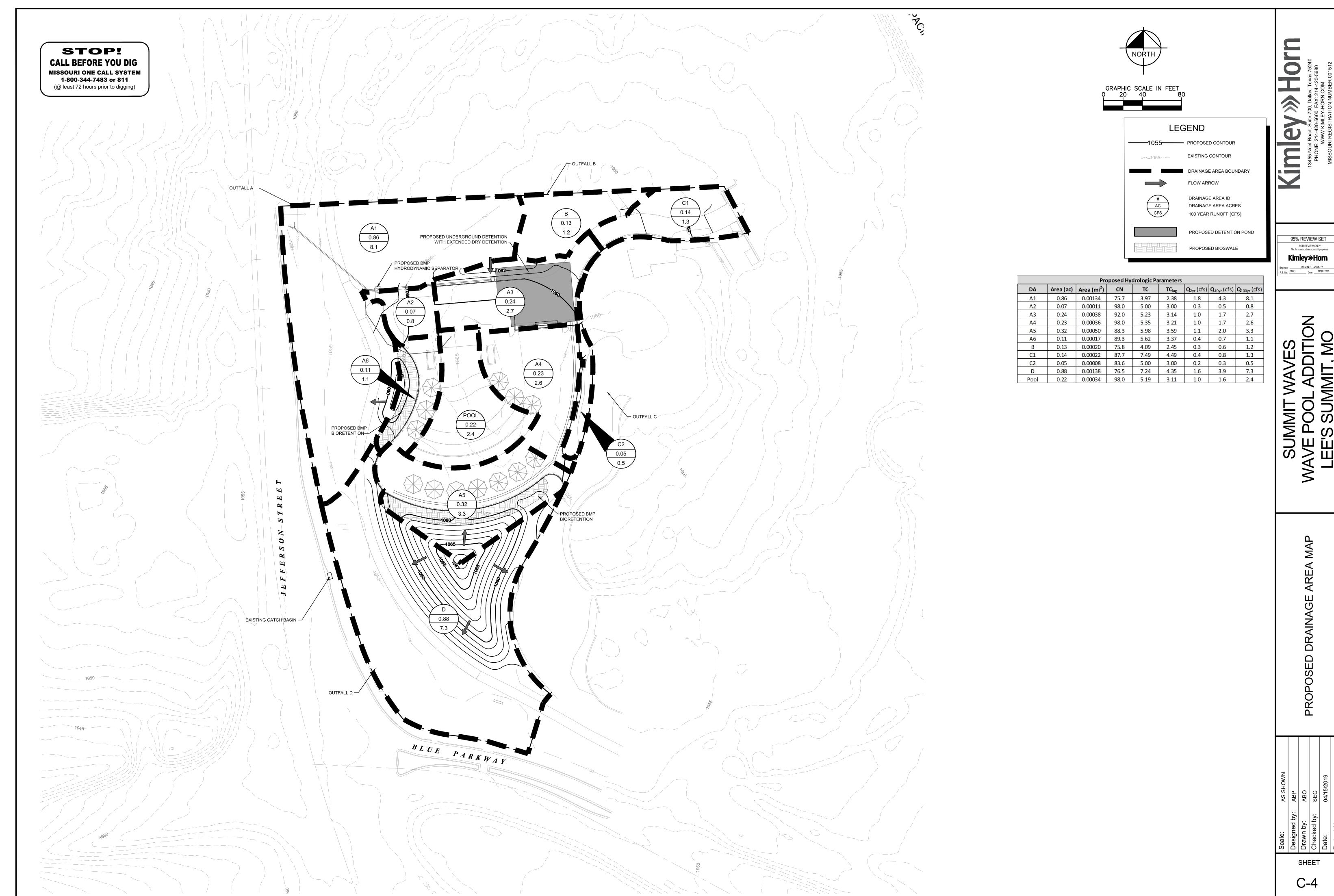
2. APPLY SEED EVENLY USING PROPER EQUIPMENT AND WATER TO AID VEGETATION GROWTH.

3. EROSION CONTROL NETTING SHALL BE INSTALLED OVER FILL SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDED TO PROTECT AGAINST EROSION. MULCH (STRAW OR FIBER) SHALL BE USED ON RELATIVELY FLAT SLOPES.

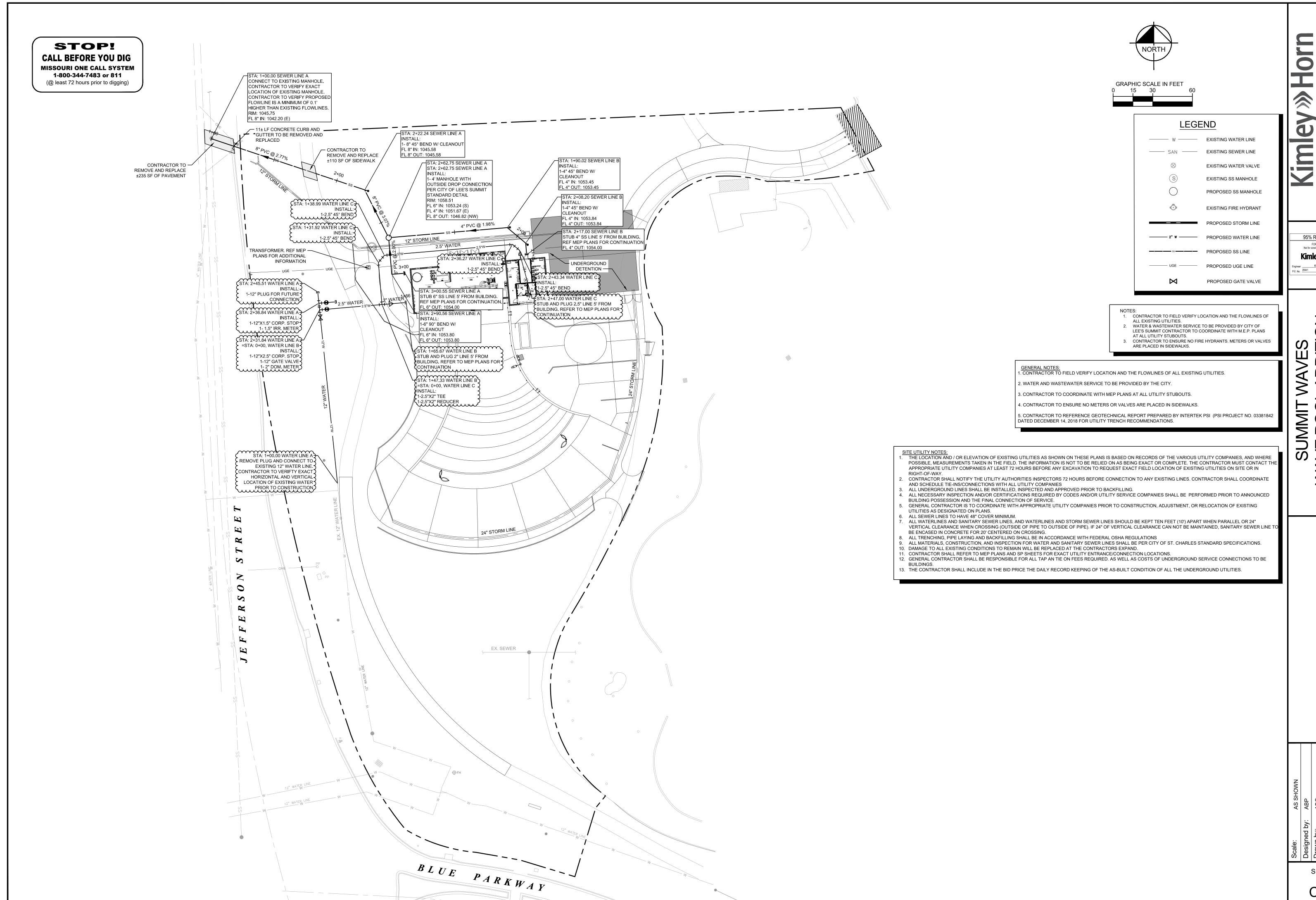
95% REVIEW SET FOR REVIEW ONLY Not for construction or permit purposes Kimley»Horn Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019



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Not for construction or permit purposes. **Kimley**Horn | Engineer | KEVIN S. GASKEY | P.E. No. | 28441 | Date | APRIL 2019 |



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Not for construction or permit purposes, **Kimley**»Horn



700, Dallas, Texas 75240 00 FAX: 214-420-5680 EY-HORN.COM ATION NUMBER 001512

13455 Noel Road, Suite 700, Dalla PHONE: 214-420-5600 FAX: 2 WWW.KIMLEY-HORN. MISSOURI REGISTRATION NU

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Kimley»Horn

KEVIN S. GASKEY

Kimley» Horn

Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

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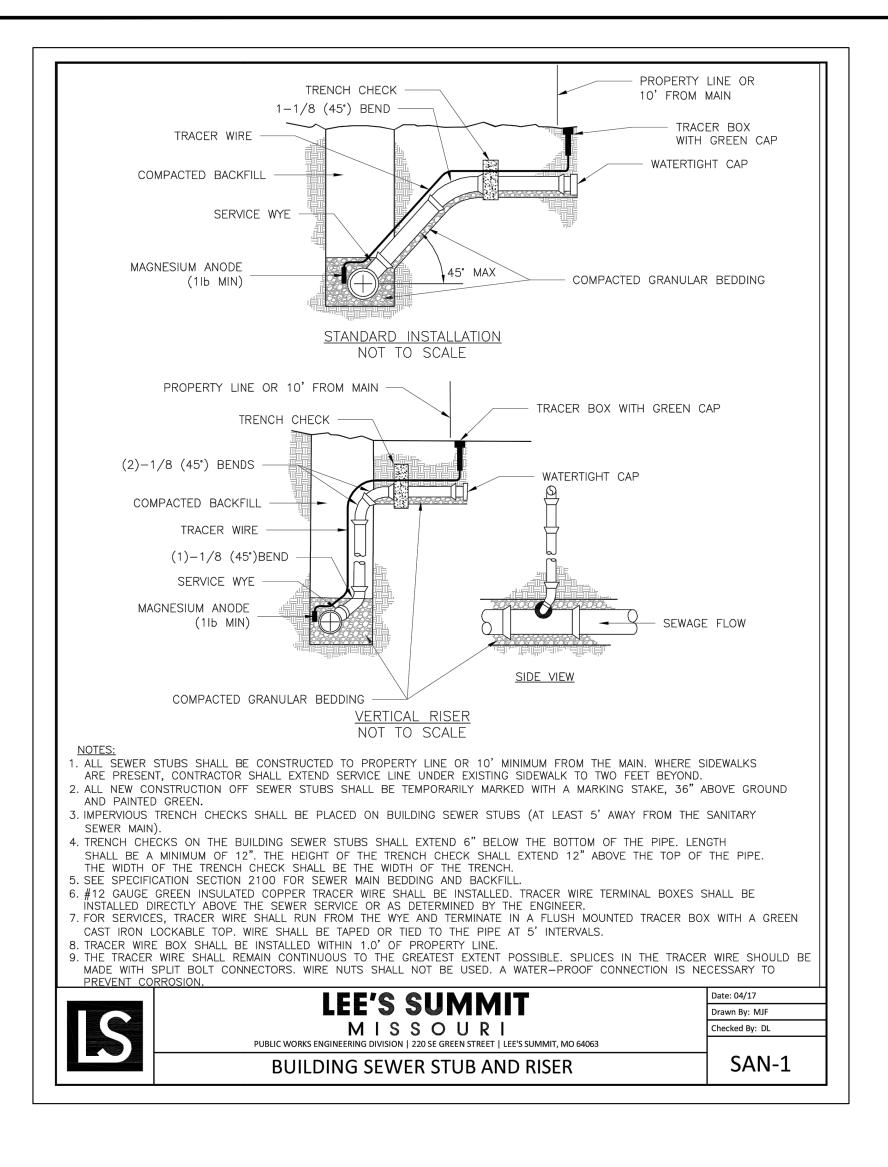
TILITY PLAN

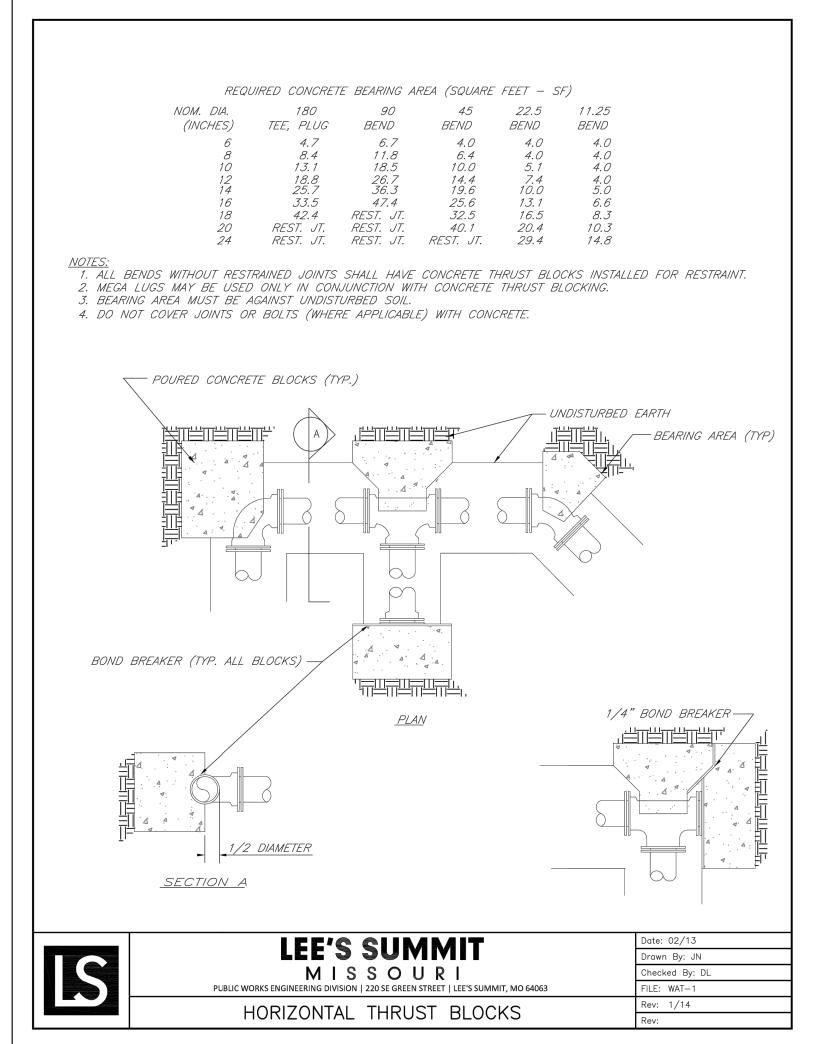
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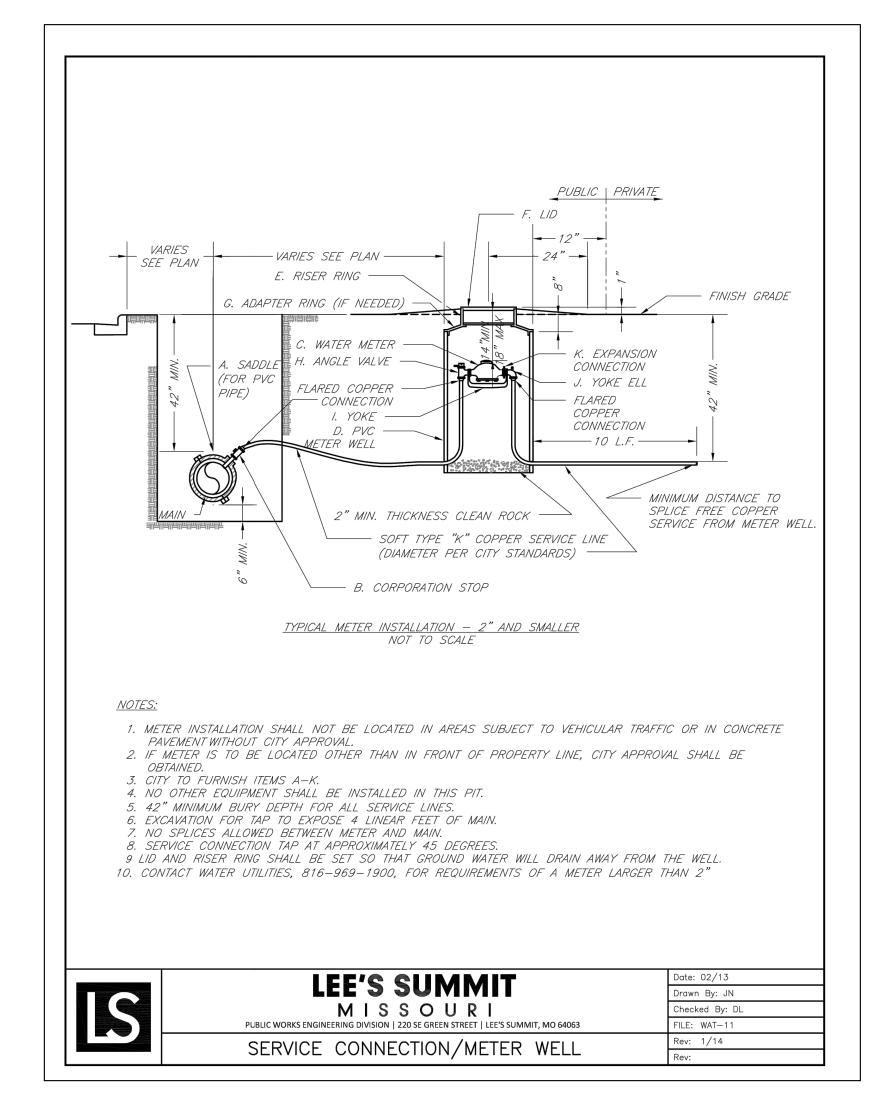
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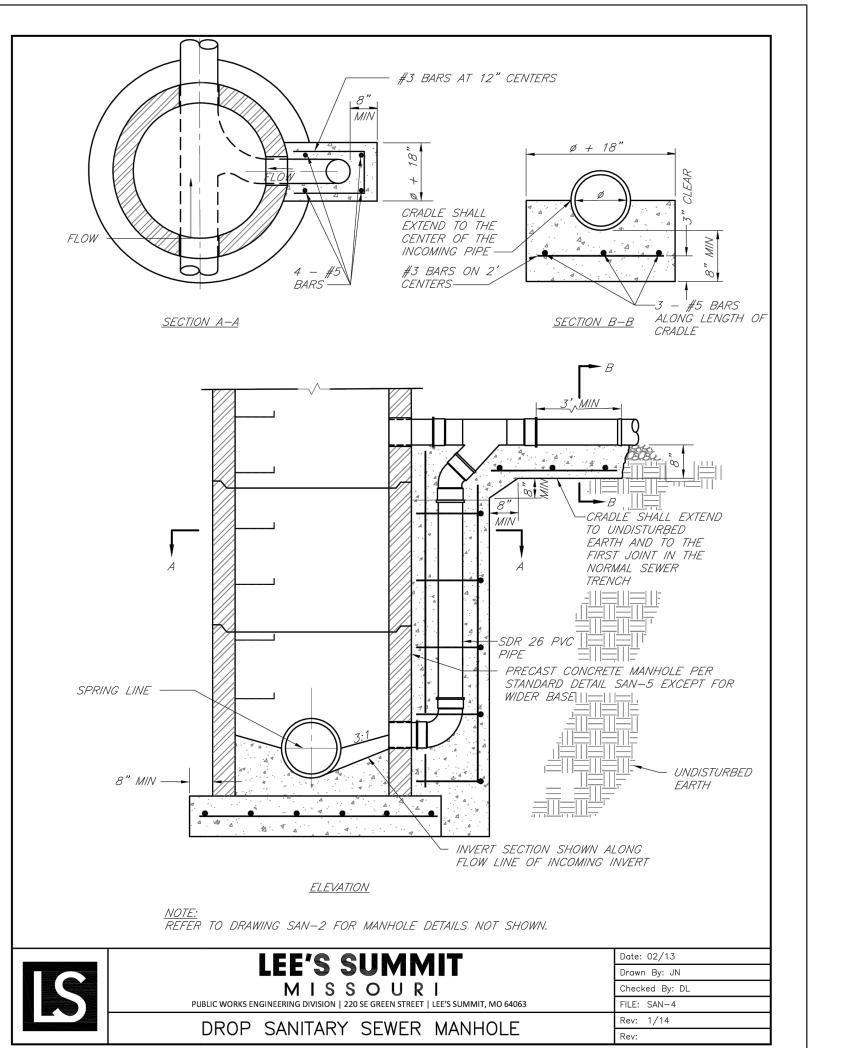
SHEET

C-5









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Kimley>>> Horn

Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

WAVE POOL ADDITION LEE'S SUMMIT, MO

UTILITY DETAILS

 Drawn by:
 ABO

 Checked by:
 SEG

 Date:
 04/15/2019

 Project No.
 064538700



STA: 1+00.00 STORM LINE A

1-12" FLARED WING HEADWALL

STA: 1+99.52 STORM LINE A

STA: 2+09.71 STORM LINE A

1-VORTSENTRY STRUCTURE

STORM LINE A

INSTALL:

1-12" 45° BEND

INSTALL:

RIM: 1058.09

FL 12" IN: 1049,58 FL 12" OUT: 1049.58 CONNECT TO UNDERGROUND

STA: 3+27.84 STORM LINE A

DETENTION OUTFALL

JUNCTION BOX PER

DETAIL (THIS SHEET)

FL 12" OUT: 1050.20

DETENTION POND

FL 12": 1050.22

INSTALL:

RIM: 1060.40 FL 12" IN: 1050.20

POOL DRAIN

FL 4": 1051.60

STA: 2+20.44 STORM LINE C

1-4" 45° BEND

Δ=65°34'46"-

R=140.00'

BLUE PARKWAY

CB=S82°29'40"W

STA: 2+40.90 STORM LINE C

CONTRACTOR TO REFERENCE SP SHEETS

FOR EXACT HORIZONTAL AND VERTICAL LOCATION OF WINTERIZATION DRAIN

- STORMTRAP UNDERGROUND DETENTION SYSTEM

STA: 1+00.00 STORM LINE B

UNDERGROUND DETENTION

STA: 1+23.24 STORM LINE B

STA: 1+32.71 STORM LINE B POINT OF CURVATURE

STA: 1+53.56 STORM LINE B

DECK DRAINAGE CONNECTION

REFERENCE DECK DRAINAGE PLAN

DECK DRAINAGE CONNECTION

REFERENCE DECK DRAINAGE PLAN

CONNECT TO

FL 24" IN: 1050.66

FOR CONTINUATION

FL 24": 1050.77

L 24": 1050.82

FOR CONTINUATION

STA: 1+82.09 STORM LINE B

DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

STA: 2+02.18 STORM LINE B DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

FL 24": 1050.92

FOR CONTINUATION L 24": 1051.06

FOR CONTINUATION FL 24": 1051.16 STA: 2+18.50 STORM LINE B POINT OF TANGENCY FL 24": 1051.24

STA: 2+24.24 STORM LINE B DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

FOR CONTINUATION FL 24": 1051.27

INSTALL:

1-24" 30° BEND

FOR CONTINUATION

FL 24": 1051.47

STA: 2+64.85 STORM LINE B POINT OF CURVATURE

DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

STA: 2+46.81 STORM LINE B

(SEE SHEET C-10 FOR DETAILS)

Δ=24°34'35"— R=200.00'

L=85.79'

C=85.13'

CB=S7°24'59"W

INSTALL:

STA: 1+93.85 STORM LINE A

1-4" 45° BEND

FL 4": 1050.18

STA: 1+65.71 STORM LINE C

1-4" 30° BEND

FL 4": 1050.65

STA: 1+90.00 STORM LINE C

DECK DRAINAGE CONNECTION

FOR CONTINUATION

BIORETENTION AREA -

REFERENCE DECK DRAINAGE PLAN

1-4" 30° BEND

FL 4": 1050.96

BIORETENTION AREA -

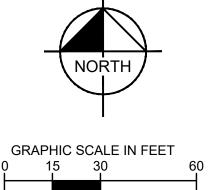
STA: 1+27.79 STORM LINE C

= STA: 1+00, STORM LINE C

INSTALL

1-12"X4" 45° WYE

FL 12": 1049.49



LEGEND

— W — EXISTING WATER LINE

——— SAN ——— EXISTING SEWER LINE

EXISTING WATER VALVE

EXISTING SS MANHOLE

PROPOSED SS MANHOLE

EXISTING FIRE HYDRANT

PROPOSED STORM LINE

PROPOSED UGE LINE

PROPOSED GATE VALVE

PROPOSED SS LINE

DETENTION OUTFALL JUNCTION BOX DETAILS

WSEL_{100-YR}=1054.30 WSEL_{10-YR}=1052.80 WSEL_{2-YR}=1051.70 -

WSEL_{WQV}=1051.30

1051.3 1050.20

FRONT VIEW

TOP VIEW

WEIR CALCULATIONS:

 $Q = C*L*H^{1.5}$ C = 3.0

 $Q = C*A*(2*g*H)^{0.5}$

ORIFICE CALCULATIONS:

C = 0.6 $g = 32.2 FT/S^2$

OPENING #1 (WQV) D = 1 IN

OPENING #2 D = 6 IN $A = 0.20 \text{ FT}^2$

 $A = 0.01 \text{ FT}^2$ INVERT ELEVATION = 1050.20 INVERT ELEVATION = 1051.55

H = WSEL - CENTROID

H = WSEL - CENTROID

Outfall Structure Summary									
	Volume	Elevation	Ор	(Total				
Design Storm	(ac-ft)	(ft)	Weir	Weir	Orifice	Actual	Actual		
WQV	0.11	1051.30	0.29	0.03	0.03	0.00	0.00	0.00	0.03
2-year	0.20	1051.70	0.46	0.03	0.03	0.38	0.37	0.37	0.40
10-year	0.30	1052.80	1.05	0.04	0.04	2.76	1.06	1.06	1.10
100-year	0.43	1054.30	2.08	0.05	0.05	7.79	1.57	1.57	1.62

	Elevation Discharge Summary Table									
Elevation	Ор	Opening #1			Opening #2	2	Total			
Elevation	Weir	Orifice	Actual	Weir	Orifice	Actual	Actual			
1050.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1051.2	0.25	0.03	0.03	0.00	0.00	0.00	0.03			
1052.2	0.71	0.04	0.04	1.28	0.76	0.76	0.80			
1053.2	1.30	0.05	0.05	3.93	1.21	1.21	1.26			
1054.2	2.00	0.05	0.05	7.41	1.54	1.54	1.59			
1054.72	2.40	0.06	0.06	9.49	1.68	1.68	1.74			

Stage Sto	orage Sumr	nary Table
Elevation	Area	Volume
(ft)	(ac)	(ac-ft)
1050.20	0.10	0.00
1054.72	0.10	0.45

THE DETENTION DESIGN BELOW ASSUMES THE RUNOFF FROM THE POOL WOULD BE DETAINED AND TREATED TO MEET WATER QUANTITY AND QUALITY REQUIREMENTS. KIMLEY-HORN RECEIVED FEEDBACK FROM THE CITY DURING THE DRC PRE-SUBMITTAL MEETING THAT THE POOL DOES NOT NEED TO BE COUNTED IN THE STORM WATER QUALITY AND DETENTION CALCULATIONS. KIMLEY-HORN WILL REVISE THE DESIGN WITH THE 100% SUBMITTAL TO SHOW THE POOL BYPASSING THE DETENTION

STRUCTURE AND WATER QUALITY DEVICES.

- CONTRACTOR TO FIELD VERIFY LOCATION AND THE FLOWLINES OF ALL EXISTING UTILITIES.
- 2. WATER & WASTEWATER SERVICE TO BE PROVIDED BY CITY OF LEE'S SUMMIT CONTRACTOR TO COORDINATE WITH M.E.P. PLANS AT ALL UTILITY STUBOUTS.
- 3. CONTRACTOR TO ENSURE NO FIRE HYDRANTS. METERS OR VALVES ARE PLACED IN SIDEWALKS.

- 1. CONTRACTOR TO FIELD VERIFY LOCATION AND THE FLOWLINES OF ALL EXISTING UTILITIES.
- 2. WATER AND WASTEWATER SERVICE TO BE PROVIDED BY THE CITY.
- 3. CONTRACTOR TO COORDINATE WITH MEP PLANS AT ALL UTILITY STUBOUTS.
- 4. CONTRACTOR TO ENSURE NO METERS OR VALVES ARE PLACED IN SIDEWALKS.

5. CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT PREPARED BY INTERTEK PSI (PSI PROJECT NO. 03381842 DATED DECEMBER 14, 2018 FOR UTILITY TRENCH RECOMMENDATIONS

- . THE LOCATION AND / OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF EXISTING UTILITIES ON SITE OR IN RIGHT-OF-WAY. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTION TO ANY EXISTING LINES.
- CONTRACTOR SHALL COORDINATE AND SCHEDULE TIE-INS/CONNECTIONS WITH ALL UTILITY COMPANIES
- ALL UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED PRIOR TO BACKFILLING. ALL NECESSARY INSPECTION AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE
- PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE. GENERAL CONTRACTOR IS TO COORDINATE WITH APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR

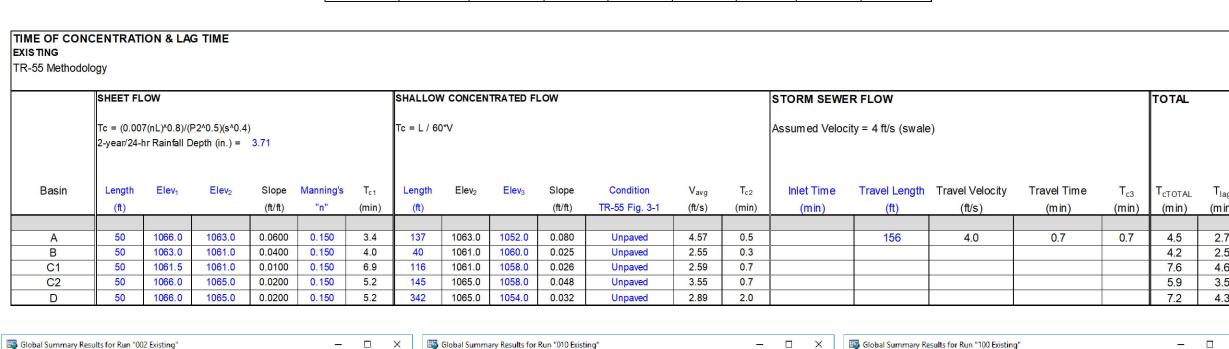
ALL WATERLINES AND SANITARY SEWER LINES, AND WATERLINES AND STORM SEWER LINES SHOULD BE KEPT TEN FEET (10') APART

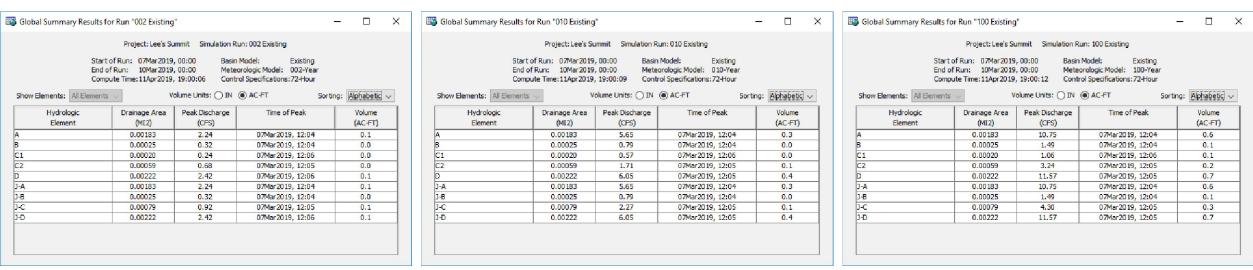
- RELOCATION OF EXISTING UTILITIES AS DESIGNATED ON PLANS. ALL SEWER LINES TO HAVE 48" COVER MINIMUM.
- WHEN PARALLEL OR 24" VERTICAL CLEARANCE WHEN CROSSING (OUTSIDE OF PIPE TO OUTSIDE OF PIPE). IF 24" OF VERTICAL CLEARANCE CAN NOT BE MAINTAINED, SANITARY SEWER LINE TO BE ENCASED IN CONCRETE FOR 20' CENTERED ON CROSSING.
- ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS
- ALL MATERIALS, CONSTRUCTION, AND INSPECTION FOR WATER AND SANITARY SEWER LINES SHALL BE PER CITY OF ST. CHARLES
- STANDARD SPECIFICATIONS. 10. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT THE CONTRACTORS EXPAND.
- 11. CONTRACTOR SHALL REFER TO MEP PLANS AND SP SHEETS FOR EXACT UTILITY ENTRANCE/CONNECTION LOCATIONS. 12. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TAP AN TIE ON FEES REQUIRED. AS WELL AS COSTS OF UNDERGROUND SERVICE CONNECTIONS TO BE BUILDINGS.
- 13. THE CONTRACTOR SHALL INCLUDE IN THE BID PRICE THE DAILY RECORD KEEPING OF THE AS-BUILT CONDITION OF ALL THE UNDERGROUND UTILITIES.

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 Engineer
 KEVIN S. GASKEY

 P.E. No.
 28441
 Date
 APRIL 2019

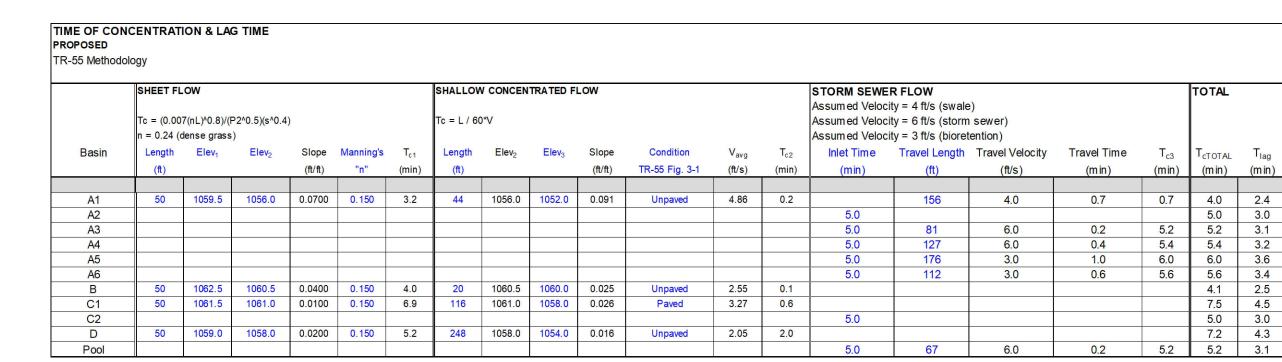
Existing Condition Hydrologic Parameters DA Area (ac) Area (mi²) CN TC TC_{lag} Q_{2yr} (cfs) Q_{10yr} (cfs) Q_{100yr} (cfs) A 1.17 0.00183 75.2 4.52 2.71 2.2 5.7 0.16 | 0.00025 | 75.5 | 4.22 | 2.53 | 0.3 | 0.8 C1 0.13 0.00020 77.7 7.64 4.58 0.2 0.6 C2 0.38 0.00059 75.3 5.91 3.54 0.7 1.7 D 1.42 0.00222 75.5 7.20 4.32 2.4 6.1 11.6

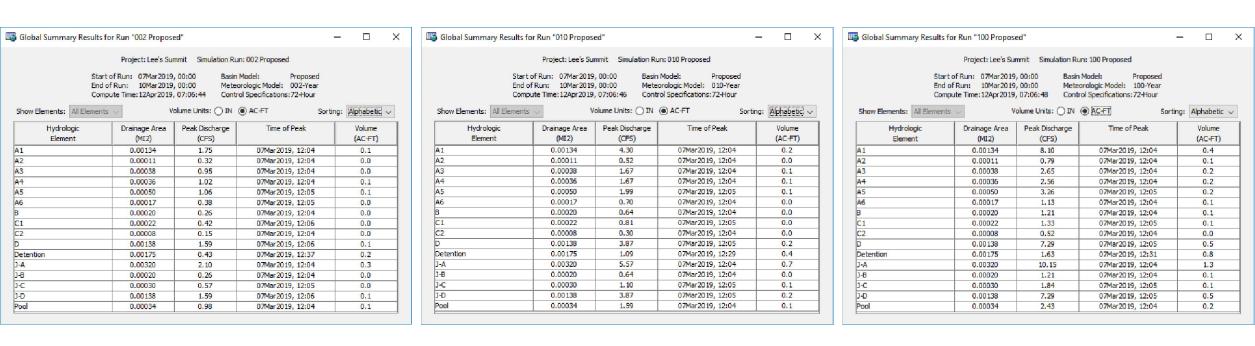




HYDROLOGIC CALCULATIONS - PROPOSED CONDITIONS

	Proposed Hydrologic Parameters							
DA	Area (ac)	Area (mi²)	CN	TC	TC _{lag}	Q _{2yr} (cfs)	Q _{10yr} (cfs)	Q _{100yr} (cfs)
A1	0.86	0.00134	75.7	3.97	2.38	1.8	4.3	8.1
A2	0.07	0.00011	98.0	5.00	3.00	0.3	0.5	0.8
A3	0.24	0.00038	92.0	5.23	3.14	1.0	1.7	2.7
A4	0.23	0.00036	98.0	5.35	3.21	1.0	1.7	2.6
A5	0.32	0.00050	88.3	5.98	3.59	1.1	2.0	3.3
A6	0.11	0.00017	89.3	5.62	3.37	0.4	0.7	1.1
В	0.13	0.00020	75.8	4.09	2.45	0.3	0.6	1.2
C1	0.14	0.00022	87.7	7. 4 9	4.49	0.4	0.8	1.3
C2	0.05	0.00008	83.6	5.00	3.00	0.2	0.3	0.5
D	0.88	0.00138	76.5	7.24	4.35	1.6	3.9	7.3
Pool	0.22	0.00034	98.0	5.19	3.11	1.0	1.6	2.4



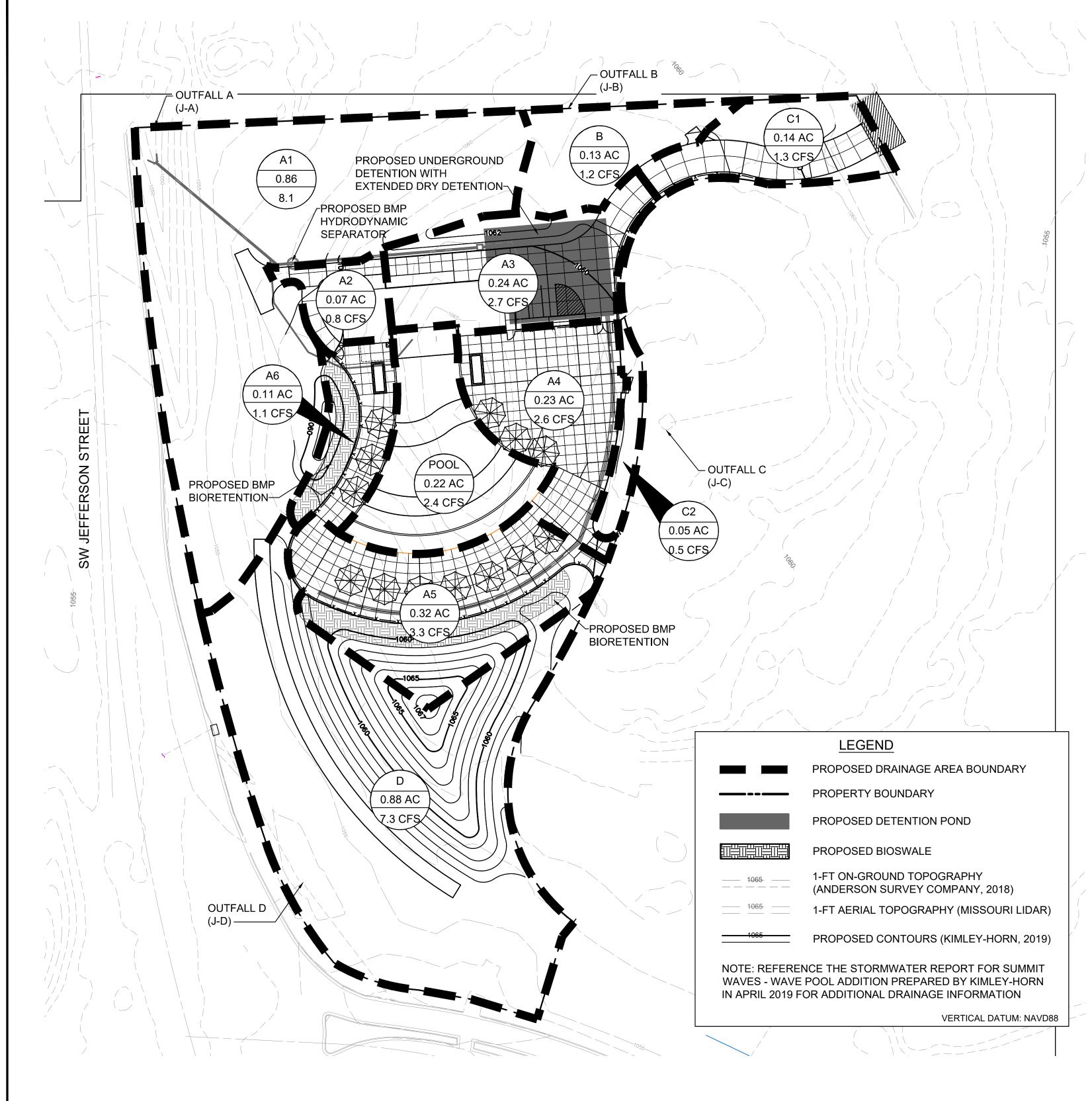


Summary Results for Re	Servoir Deter	ition				X
Pro	ject: Lee's Sum	mit Simula	ation Run: 002 Propose	d		
	R	eservoir: De	tention			
Start of Run	07Mar 2019,	00:00	Basin Model:	Proposed		
End of Run:	10Mar 2019,	00:00	Meteorologic Model:	002-Year		
Compute Tim	e:12Apr2019,	07:06:44	Control Specifications	s:72-Hour		
	Volume	Units: () IN	AC-FT			
Computed Results						
Peak Inflow:	4.37 (CFS)	Date/Time	e of Peak Inflow: 07	Mar2019, 12	2:04	
Peak Discharge:	0.43 (CFS)	Date/Time	e of Peak Discharge:07	Mar 2019, 12	2:37	
Inflow Volume:	0.2 (AC-FT)	Peak Stor	rage: 0.	1 (AC-FT)		
Discharge Volume	:0.2 (AC-FT)	Peak Elev	ation: 10	51.7 (FT)		

Summary Results for Re	eservoir "Detent	tion"		_	×
Pro		nit Simula servoir: Det	tion Run: 100 Propos tention	sed	
End of Run:	: 07Mar 2019, 0 10Mar 2019, 0 ie:12Apr 2019, 0 Volume U	0:00 7:06:48	Basin Model: Meteorologic Mode Control Specification		
Computed Results					
Peak Inflow: Peak Discharge: Inflow Volume: Discharge Volume	0.8 (AC-FT)		of Peak Discharge: age:	07Mar 2019, 12 07Mar 2019, 12 0.4 (AC-FT) 1054.3 (FT)	

■ Summary	Results for Re	servoir "Deten	tion"		-	
	Pro		nit Simula servoir: Det	tion Run: 010 Propose tention	ed	
	End of Run:	07Mar2019, 0 10Mar2019, 0 e:12Apr2019, 0	0:00	Basin Model: Meteorologic Model: Control Specification		
Computed R	esults	Volume U	Jnits: O IN	AC-FT		
Pe	esults eak Inflow: eak Discharge: flow Volume:	7.61 (CFS) 1.09 (CFS)	Date/Time	of Peak Inflow: 0' of Peak Discharge:0'		

Junction	2 YR				10 YR		100 YR			
Junction	Existing	Proposed	Difference	Existing	Proposed	Difference	Existing	Proposed	Difference	
J-A	2.24	2.10	-0.14	5.65	5.57	-0.08	10.75	10.15	-0.60	
J-B	0.32	0.26	-0.06	0.79	0.64	-0.15	1.49	1.21	-0.28	
J-C	0.92	0.57	-0.35	2.27	1.10	-1.17	4.30	1.84	-2.46	
J-D	2.42	1.59	-0.83	6.05	3.87	-2.18	11.57	7.29	-4.28	



WATER QUALITY CALCULATIONS - PROPOSED CONDITIONS

Water Quality Calculations - Outfall A (Disturbed Area):

Land Use	Area	CN	CN*A
Grass	1.27	74	93.98
Pavement	0.01	98	0.98
,	C	N _{PreWeighted} =	74.2

Land Use	Area	CN	CN*A
Grass	0.32	74	23.68
Pavement	0.97	98	95.06
	C	N _{PostWeighted} =	92.0

C. Level of Service (LS) Calculation

CN _{PreWeighted} =	74.2
CN _{PostWeighted} =	92.0
Difference =	17.9
LS Requried	8
(Table 4.2)=	0

D. Proposed B	BMP Package				
DA	Cover/BMP Description	Treatment Area	VR	VR*Area	
A1 (Bypass, Disturbed)	None	0.10	0.00	0.00	
A2 (Bypass)	Bypass) None		0.00	0.00	
А3	A3 Extended Dry Detention + Hydrodynamic Seperator		8.00	1.92	
A4	Extended Dry Detention + Hydrodynamic Seperator	0.23	8.00	1.84	
A5	Bioretention, Extended Dry Detention, + Hydrodynamic 0.32			5.28	
A6	A6 Bioretention, Extended Dry Detention, + Hydrodynamic		16.50	1.82	
Pool	Extended Dry Detention + Hydrodynamic Seperator	0.22	8.00	1.76	
Total =					
Weighted VR =					
Required VR =					

% Site Impervious	75%
₹v	0.73
WQV (in)	1.00
WQV (ac-ft)	0.11
Release Rate (hr)	40
Q _{wqv} (cfs)	0.03

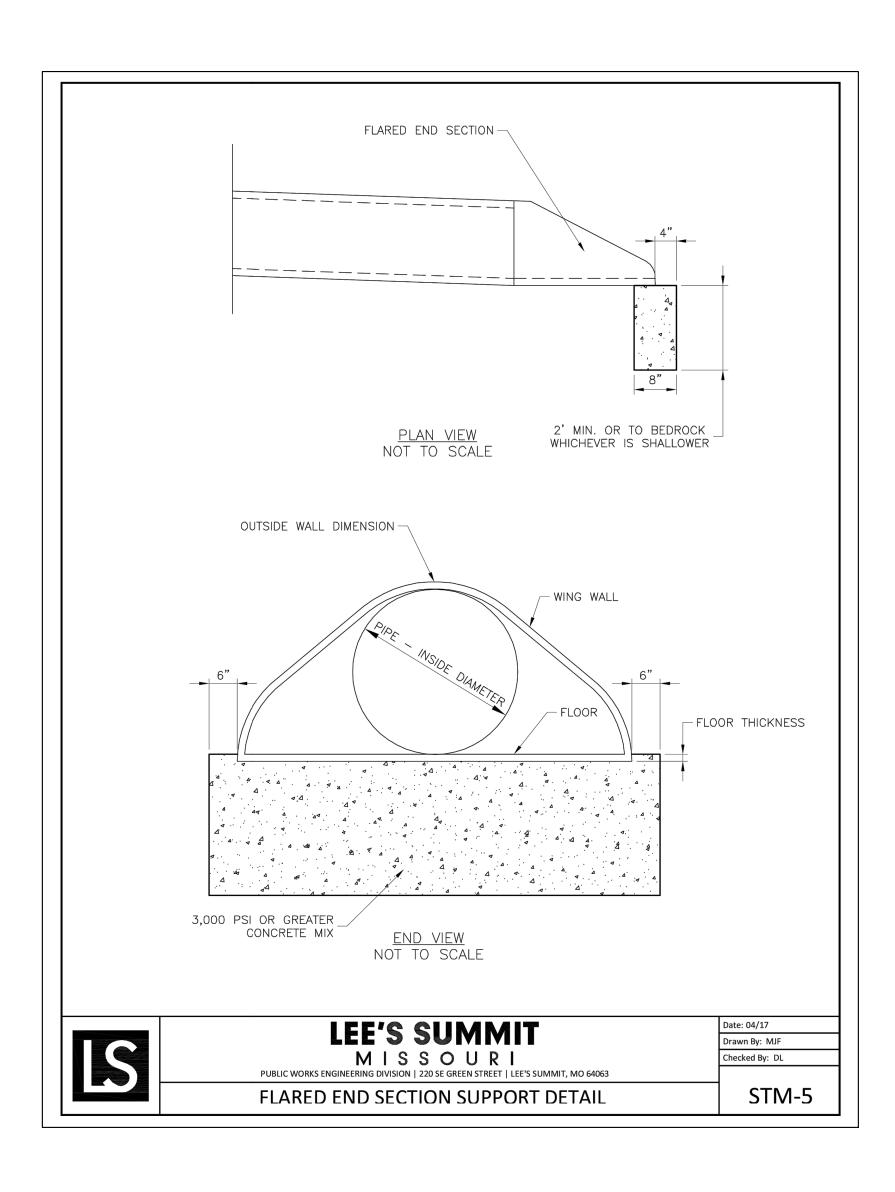
olume'		A. Predevelopm	ent CN	l		A. Predevelopm	ent CN	I	
	75%	Land Use	Area	CN	CN*A	Land Use	Area	CN	CN*A
	0.73	Grass	1.33	74	98.42	Grass	0.15	74	11.1
	1.00	Pavement	0.09	98	8.82	Pavement	0.01	98	0.98
	0.11			CN _{PreWeighted} =	75.5			$CN_{PreWeighted} =$	75.5
	40								
	0.03	B. Postdevelopr	B. Postdevelopment CN			B. Postdevelopn	nent Cl	N	
		Land Use	Area	CN	CN*A	Land Use	Area	CN	CN*A
		Grass	0.79	74	58.46	Grass	0.12	74	8.88
		Pavement	0.10	98	9.8	Pavement	0.01	98	0.98
				CN _{PostWeighted} =	76.7			CN _{PostWeighted} =	75.8

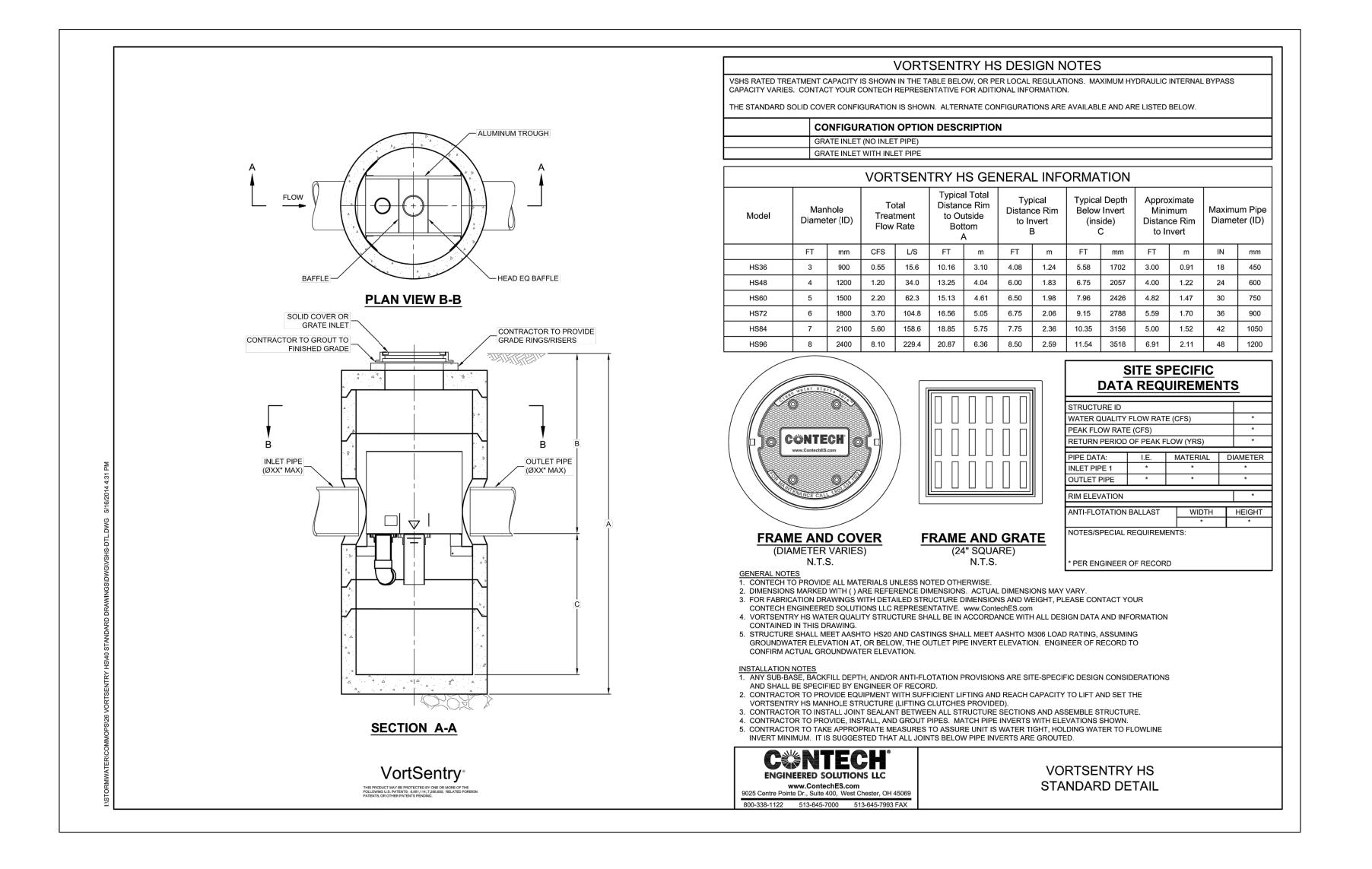
C. Level of Service	e (LS)	Calculation
$CN_{PreWeighted} =$	75.5	
$CN_{PostWeighted} =$	76.7	
Difference =	1.2	
LS Requried	n /o	
(Table 4.2)=	n/a	

Water Quality Calculations - Outfall D:

C. Level of Service (LS) Calculatio							
$CN_{PreWeighted} =$	75.5						
$CN_{PostWeighted} =$	75.8						
Difference =	0.3						
LS Requried	n/a						
(Table 4.2)=	II/a						

Water Quality Calculations - Outfall B:





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Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

SUMMIT WAVES
AVE POOL ADDITION
LEE'S SUMMIT, MO

CONSTRUCTION DETAILS

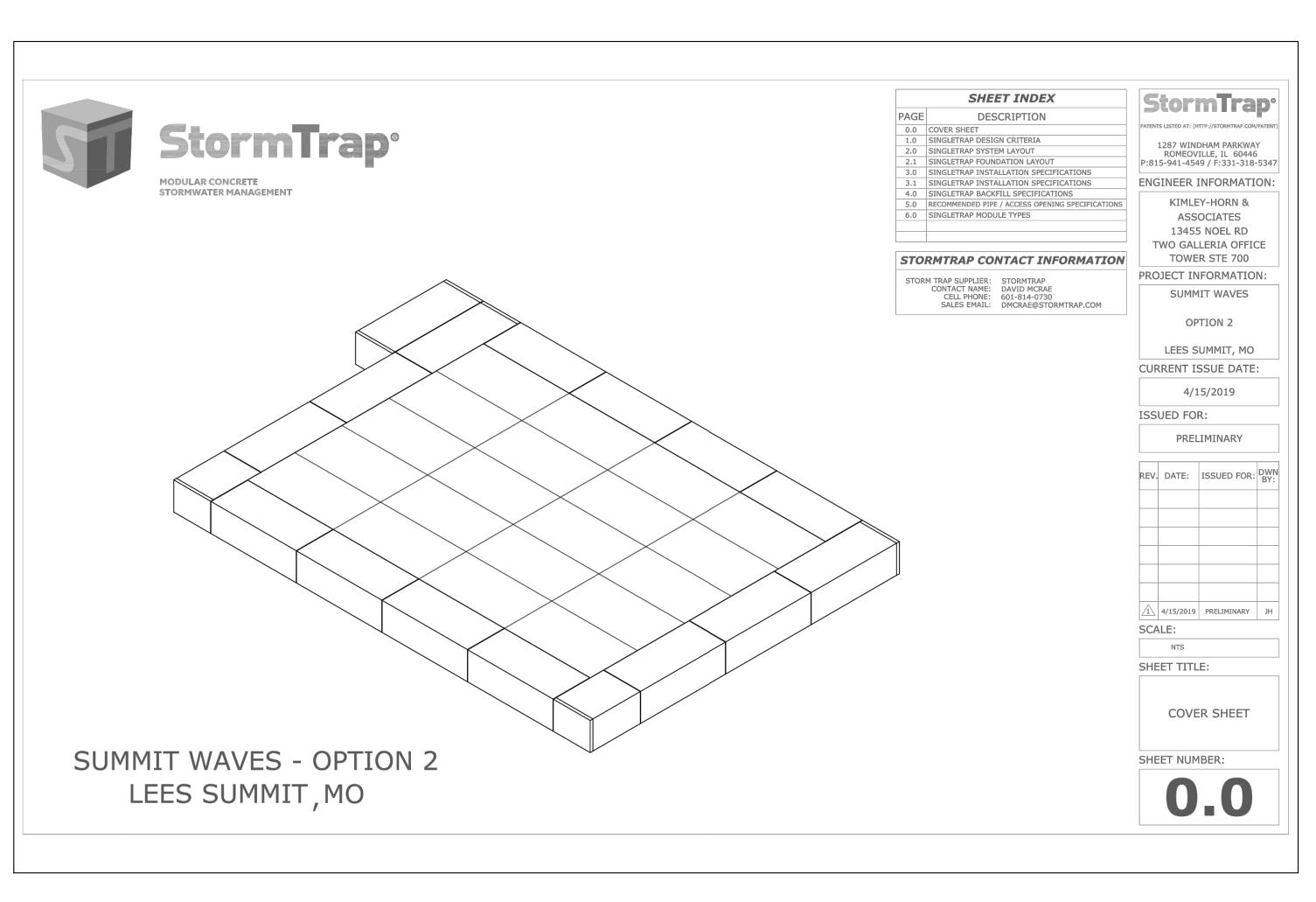
Checked by: SEG

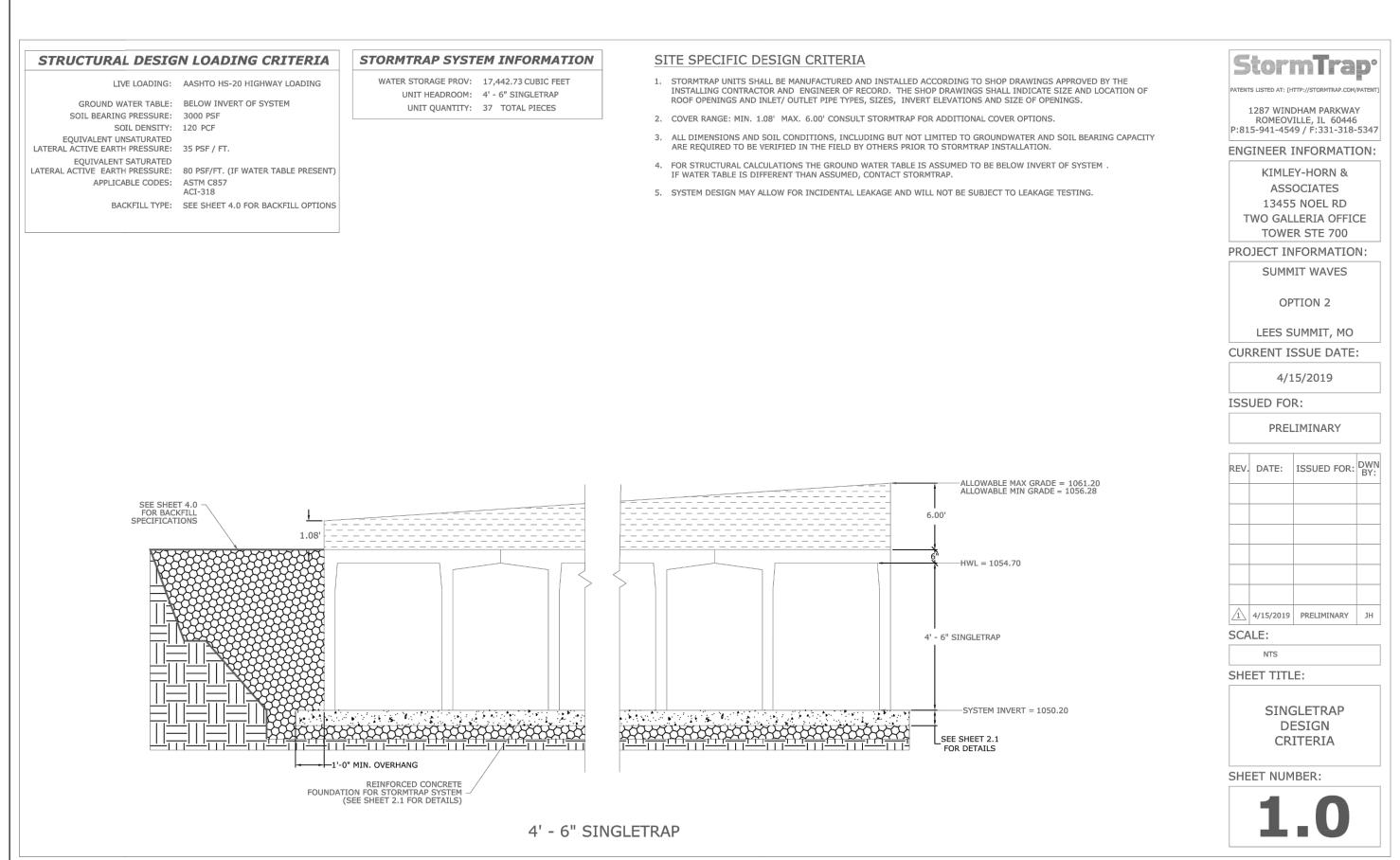
Date: 04/15/2019

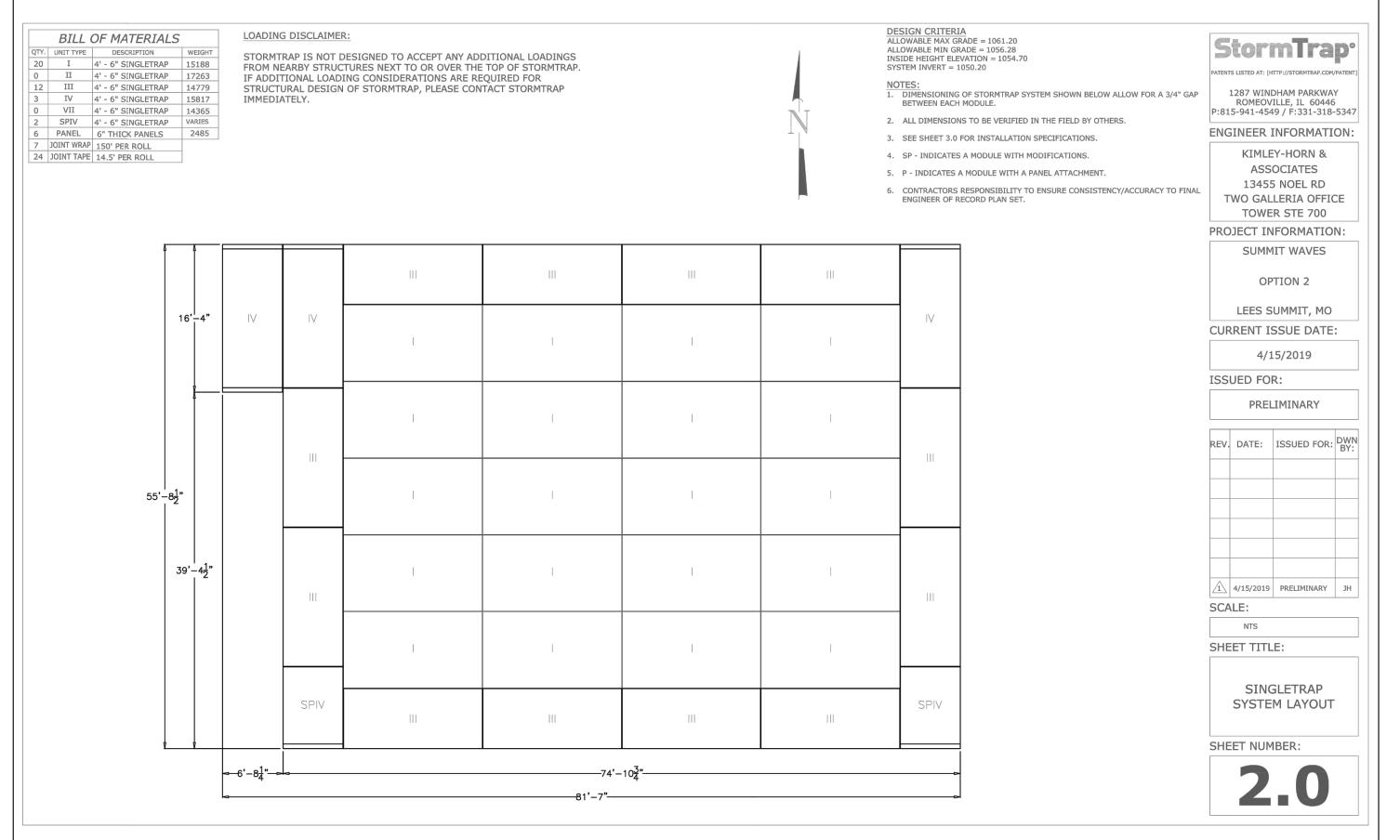
Project No. 064538700

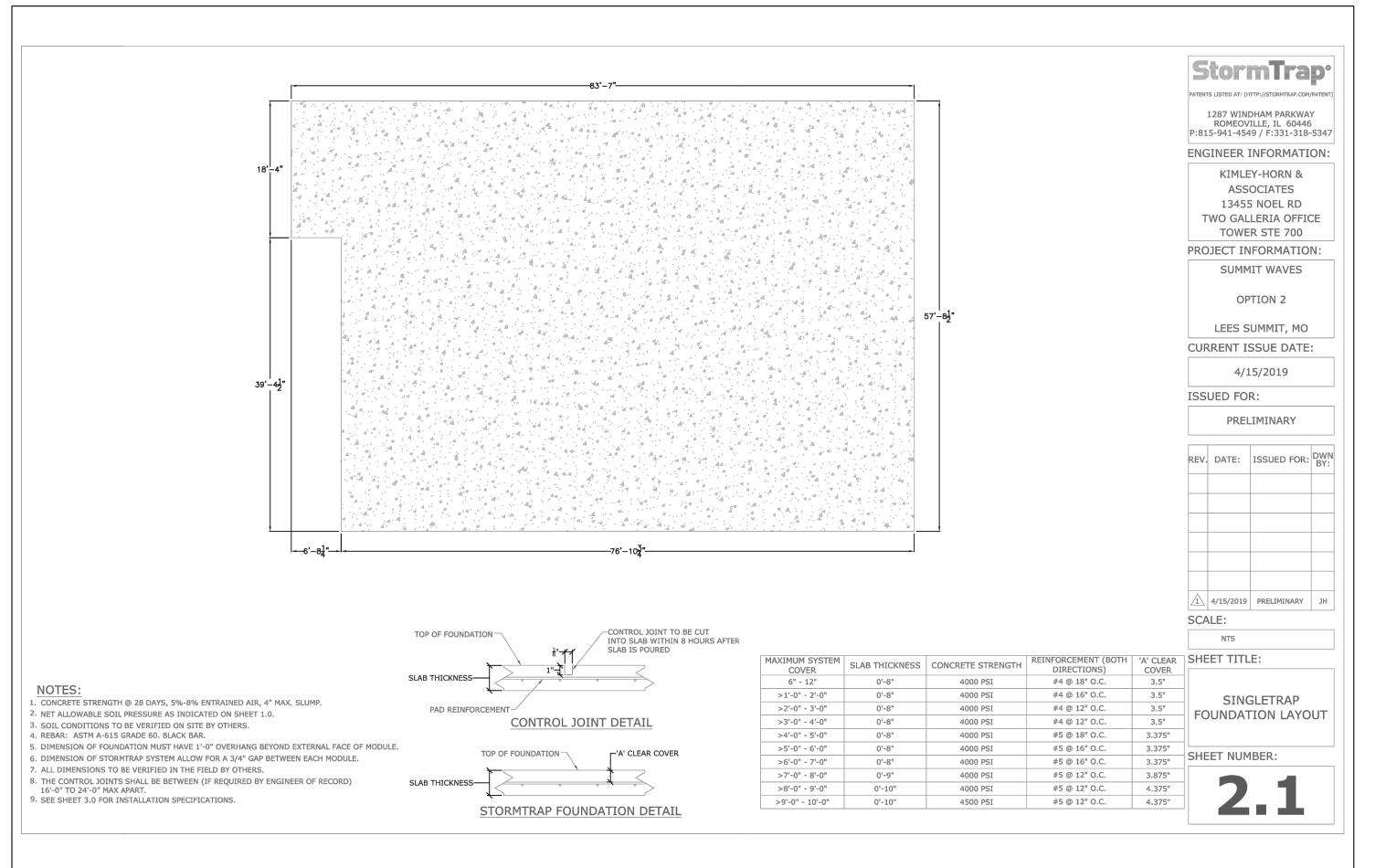
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Engineer

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P.E. No. 28441 ___ Date ___APRIL 2019

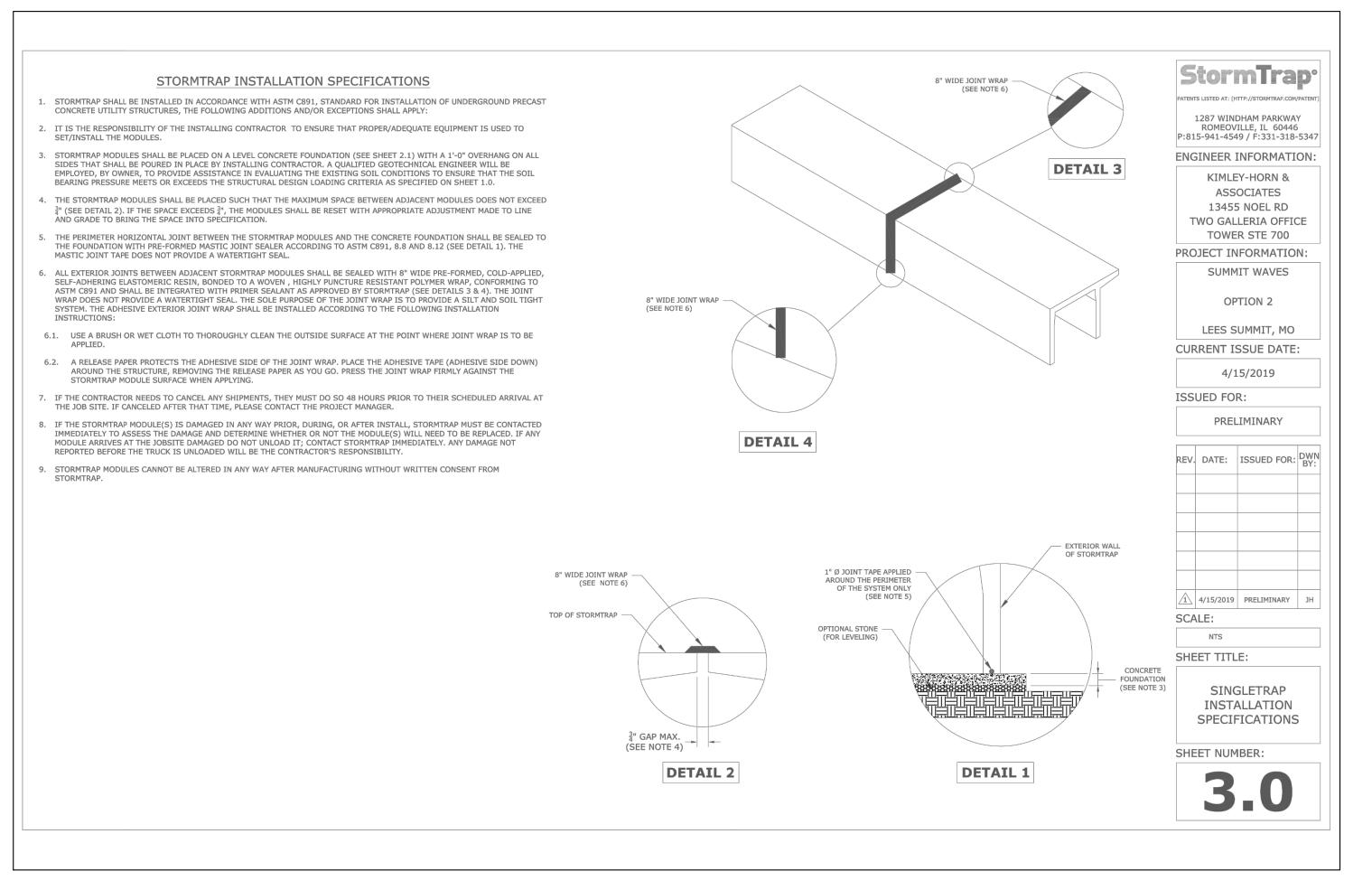
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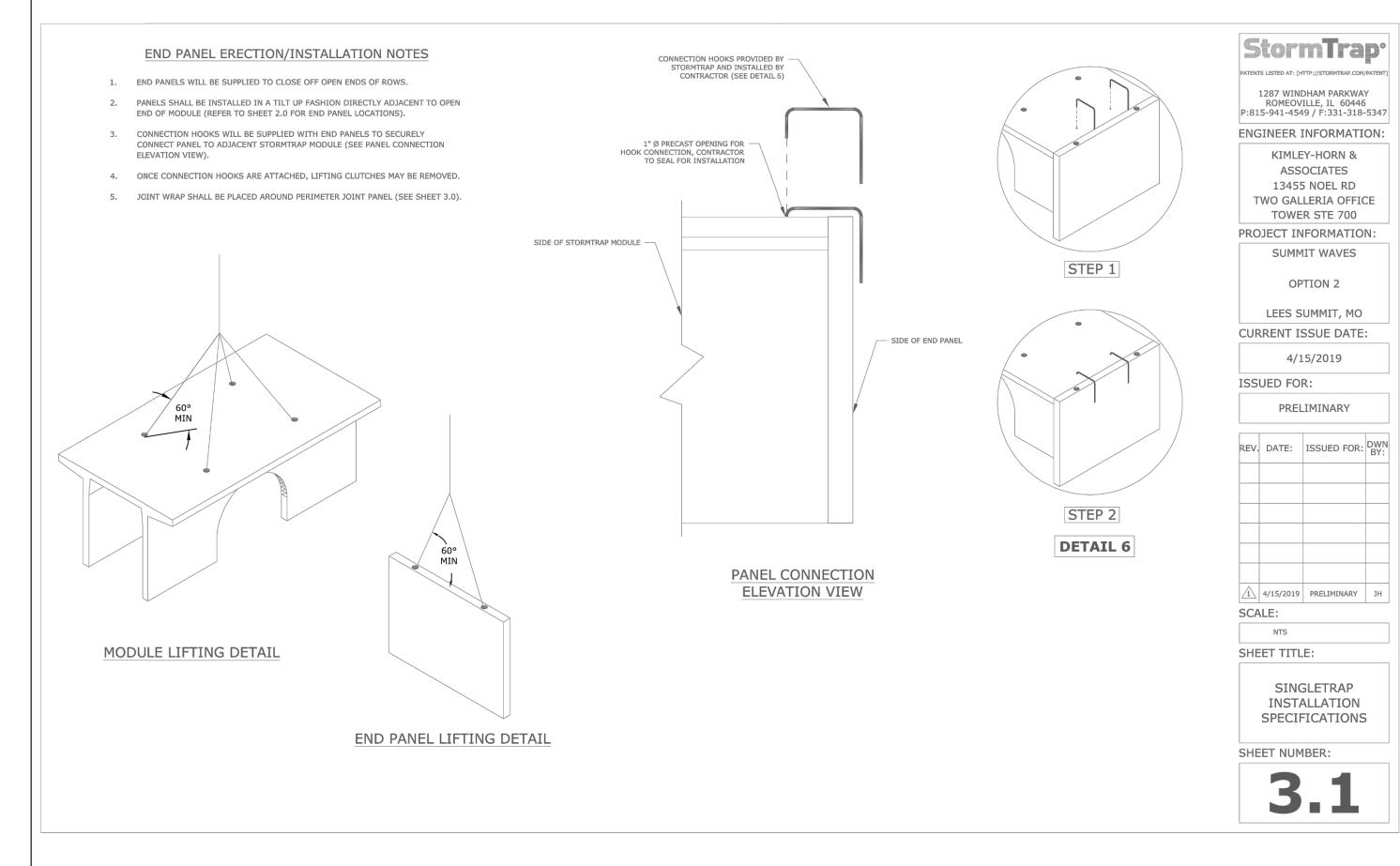
ETENTION DETAILS

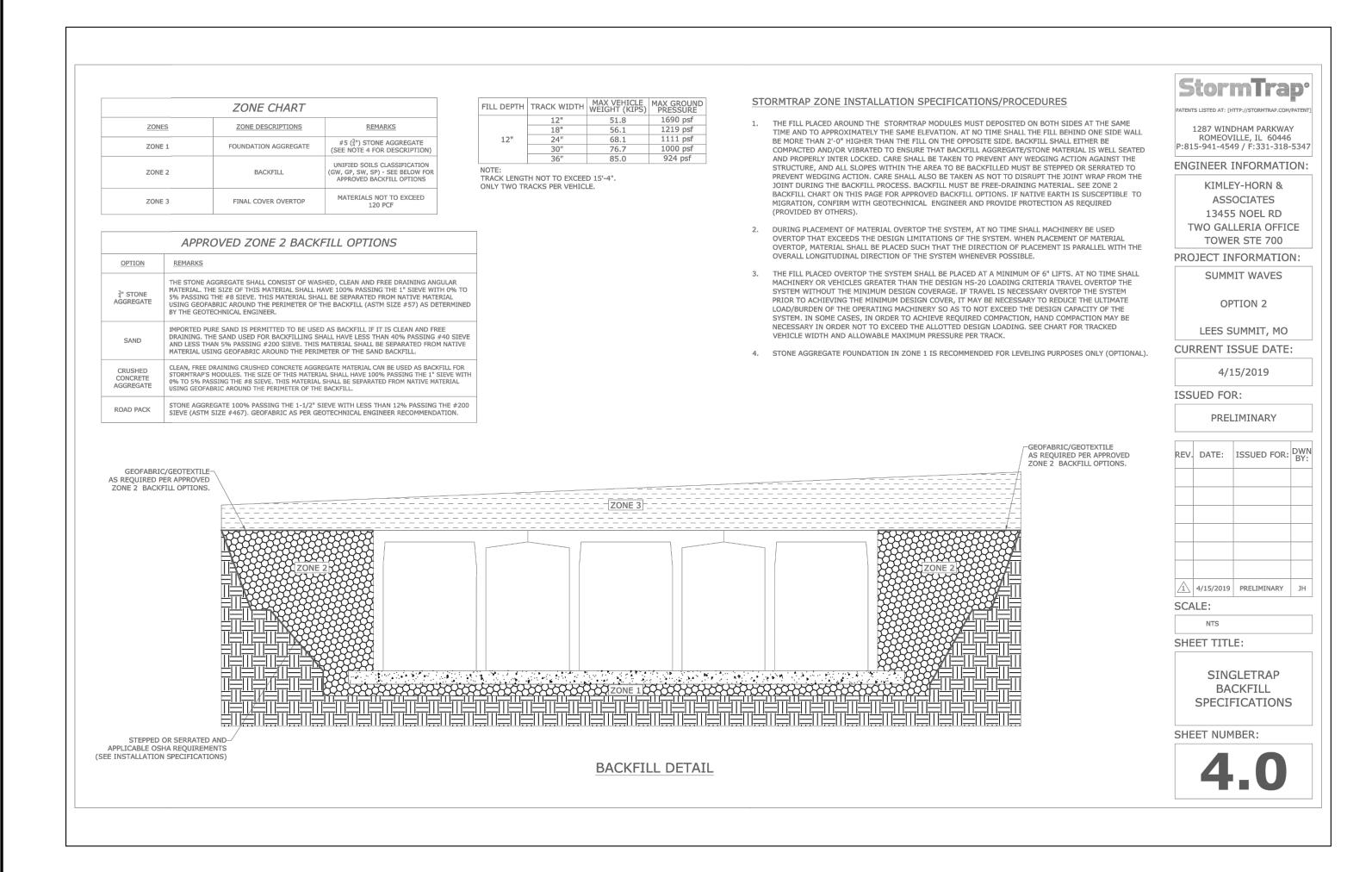
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id by: SEG
04/15/2019
No. 064538700

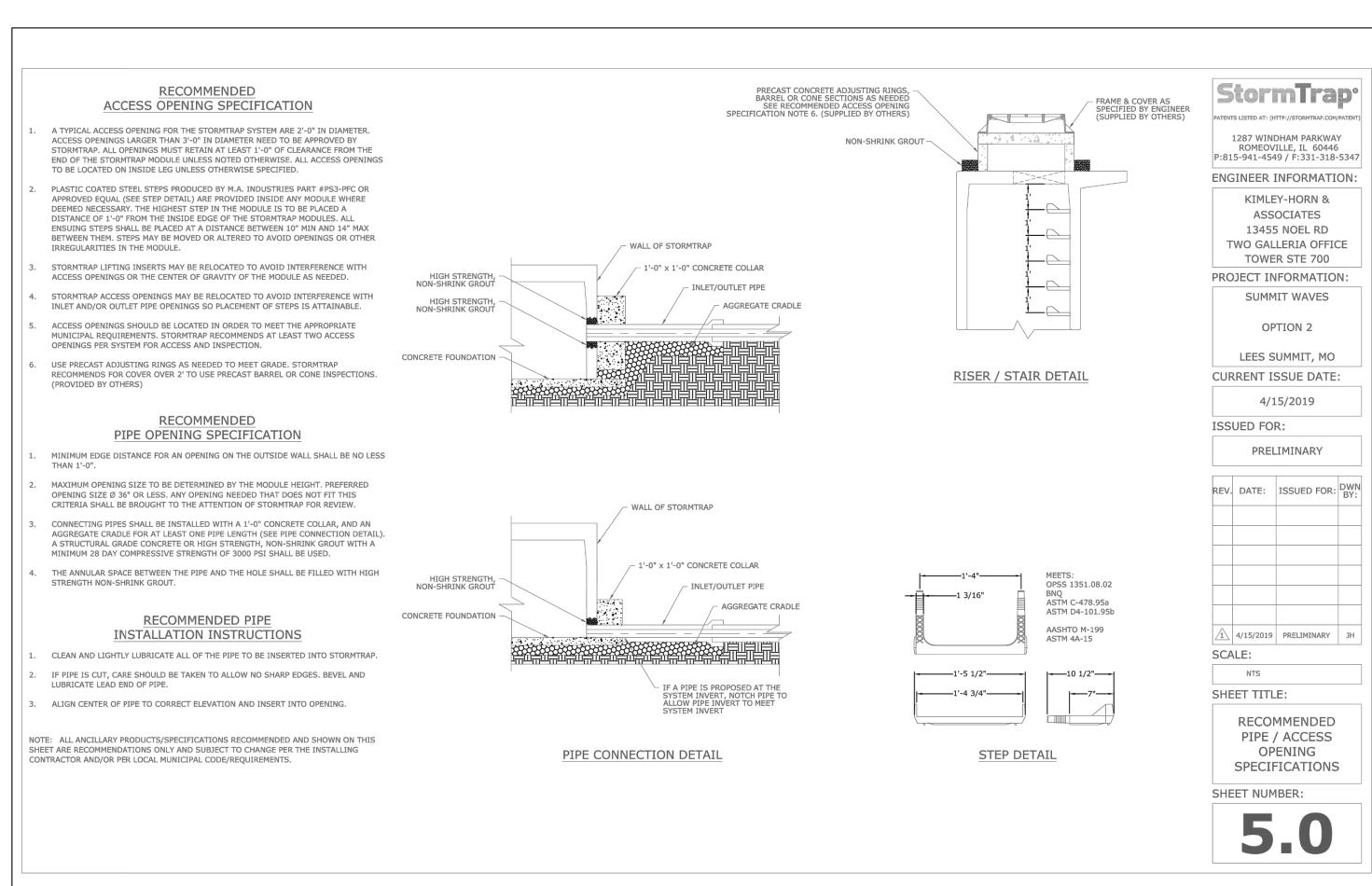
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Project No.

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Kimley» Horn

Engineer

Engineer

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APRIL 2019

APRIL 2019

IMIT WAVES
OOL ADDITION
SUMMIT, MO

TENTION DETAILS

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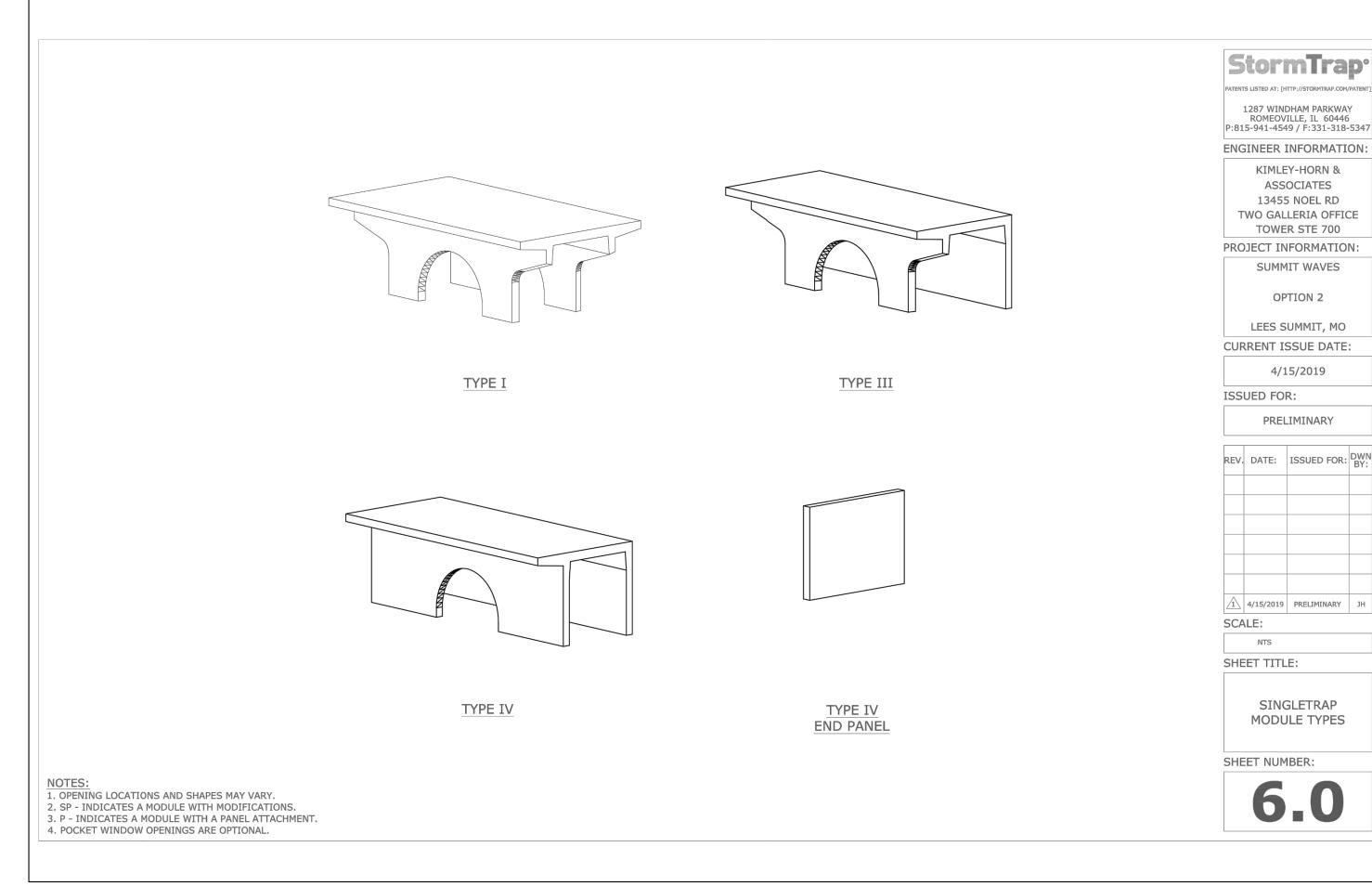
wn by: ABO

scked by: SEG

e: 04/15/2019

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StormTrap^o 1287 WINDHAM PARKWAY ROMEOVILLE, IL 60446 P:815-941-4549 / F:331-318-5347 ENGINEER INFORMATION: REV. DATE: ISSUED FOR: DWN BY:

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P.E. No. 28441 Date APRIL 2019

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