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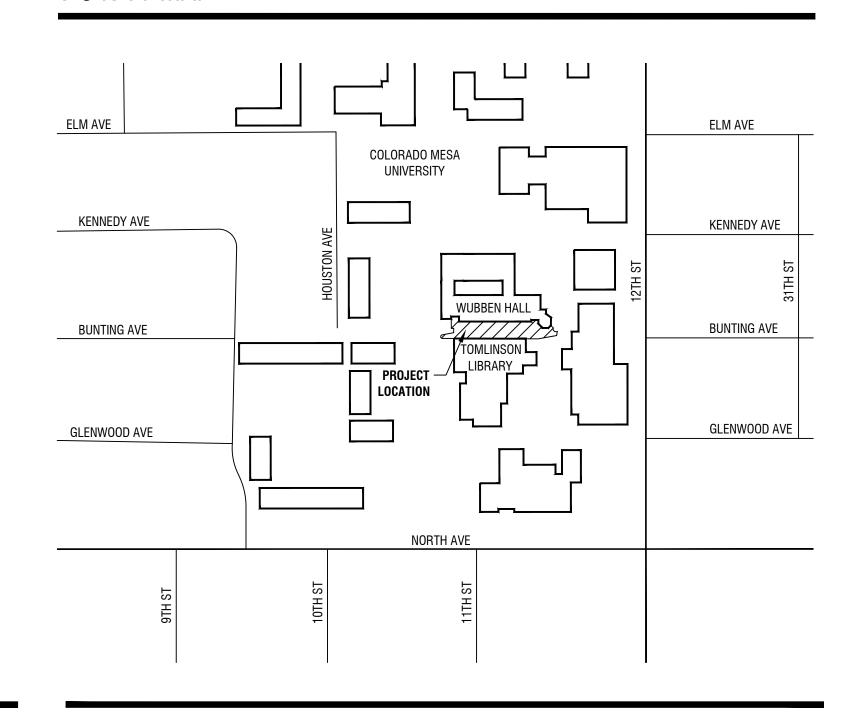
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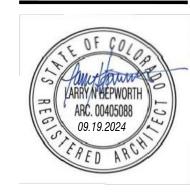
COLORADO MESA UNIVERSITY - WUBBEN SCIENCE CENTER ART WALK

1316 COLLEGE PL, GRAND JUNCTION, CO 81501

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WALK



COVER SHEET

1.01 PROJECT IDENTIFICATION

PROJECT NAME: WUBBEN SCIENCE ART WALK THE OWNER, HEREINAFTER REFERRED TO AS OWNER: COLORADO MESA UNIVERSITY

1.02 NOTICE TO PROSPECTIVE BIDDERS A. THESE DOCUMENTS CONSTITUTE AN INVITATION TO BID AND REQUEST FOR QUALIFICATIONS

1.03 PROJECT DESCRIPTION

A. PROJECT CONSISTS OF LANDSCAPING SOUTH OF THE WUBBEN SCIENCE CENTER WITH THE FOLLOWING AMENITIES: DEMOLITION, SITE, GRADING, LANDSCAPE AND IRRIGATION.

FROM GENERAL CONTRACTORS FOR THE CONSTRUCTION OF THE PROJECT DESCRIBED

1.04 PROCUREMENT TIMETABLE

A. THE OWNER RESERVES THE RIGHT TO CHANGE THE SCHEDULE OR TERMINATE THE ENTIRE PROCUREMENT PROCESS AT ANY TIME.

1.05 PROCUREMENT DOCUMENTS

A. AVAILABILITY OF DOCUMENTS: COMPLETE SETS OF PROCUREMENT DOCUMENTS MAY BE OBTAINED AT THE FOLLOWING ADDRESS:

DESIGN WEST ARCHITECTS 255 SOUTH 300 WEST

kenia@designwestarchitects.com

LOGAN, UTAH 84321 KENI ALTHOUSE, PLA

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 CONSTRUCTION SCHEDULE

A. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ARCHITECT AND OWNER, A BAR-CHART TYPE PROGRESS SCHEDULE FOR THE ENTIRE PROJECT, WITHIN SEVEN (7) DAYS AFTER AWARD OF CONTRACT. PROVIDE A SEPARATE BAR FOR EACH WORK ITEM LISTED IN THE SCHEDULE OF VALUES. INCLUDE APPROPRIATE TIME FOR PROJECT MOBILIZATION, PROCUREMENT OF PRODUCTS, REVIEW AND RETURN OF SHOP DRAWINGS, INSTALLATION, TESTING, FINAL CLEANUP AND INSTALLATION TIME FOR WORK UNDER SEPARATE CONTRACTS. IDENTIFY EACH CALENDAR DAY THROUGHOUT THE SCHEDULE. HIGHLIGHT CRITICAL PATH ELEMENTS OF THE SCHEDULE THAT ARE IMPORTANT TO COMPLETE THE WORK ON TIME. CORRELATE THE ORGANIZATION OF THE SCHEDULE WITH THE DATE OF

SUBSTANTIAL COMPLETION INDICATED IN THE OWNER-CONTRACTOR AGREEMENT.

1.02 PROJECT COORDINATION & ADMINISTRATION

A. COORDINATE THE WORK OF THE COMPLETE PROJECT TO ASSURE AN EFFICIENT AND ORDERLY SEQUENCE OF INSTALLATION OF CONSTRUCTION ELEMENTS, AND FOR INSTALLATION OF ITEMS FURNISHED AND INSTALLED BY OTHERS, WITH PROVISIONS FOR ACCOMMODATING OTHER ITEMS TO BE INSTALLED LATER. UTILIZE SPACE EFFICIENTLY TO MAXIMIZE ACCESSIBILITY FOR OTHER INSTALLATIONS, AND FOR MAINTENANCE.

1.03 PRE-CONSTRUCTION MEETING

A. MEET WITH THE OWNER'S DESIGNATED CONSTRUCTION REPRESENTATIVE BEFORE STARTING CONSTRUCTION. DISCUSS PROCEDURES AND REQUIREMENTS FOR SITE ACCESS, WORK HOURS, PARKING, DELIVERIES AND RECEIVING, DEBRIS AND WASTE RECEPTACLES, TEMPORARY BARRICADES, AND CONSTRUCTION OPERATIONS THAT MAY BE OFFENSIVE.

1.04 MAINTENANCE OF CONSTRUCTION DOCUMENTS A. THE CONTRACTOR SHALL MAINTAIN AT THE PROJECT SITE, A "RECORD SET OF CONSTRUCTION DOCUMENTS" AND THE FOLLOWING RELATED DRAWINGS OR DOCUMENTS PREPARED BY OTHERS: SHOP DRAWINGS AND DATA SHEETS PREPARED BY THE

MANUFACTURERS, FABRICATORS, AND SUPPLIERS. B. DO NOT CONSTRUCT ANY PORTION OF THE WORK RELATED TO THESE DRAWINGS AT ANY TIME WITHOUT SUCH DRAWINGS BEING AVAILABLE AT THE PROJECT SITE.

C. "AS BUILT" DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR. DRAWINGS SHALL INDICATE THE SIZE AND DIMENSIONS OF ALL CONCEALED AND UNDERGROUND WORK, AND SHALL INDICATE DEPTH OF MAJOR CONDUIT AND PIPING.

1.05 PERMITS AND LOCAL CODES A. THE LAWS IN FORCE AT THE BUILDING LOCATION SHALL GOVERN. THESE INCLUDE THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODE. INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, NATIONAL ELECTRIC CODE, LIFE SAFETY CODE, ANSI 117.1 AND LOCAL ORDINANCES. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL NECESSARY BUILDING PERMITS AND FOR INSPECTION SERVICES OF LOCAL AUTHORITIES AND HIS OWN BUSINESS LICENSES. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF OCCUPATIONAL SAFETY AND HEALTH

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROGRESS MEETINGS A. SCHEDULE AND ADMINISTER MEETINGS THROUGHOUT PROGRESS OF THE WORK AT

STANDARDS, FEDERAL, STATE, COUNTY AND MUNICIPAL LAWS.

MAXIMUM MONTHLY INTERVALS.

B. ATTENDANCE REQUIRED: JOB SUPERINTENDENT, MAJOR SUBCONTRACTORS AND

SUPPLIERS. OWNER. ARCHITECT. AS APPROPRIATE TO AGENDA TOPICS FOR EACH MEETING.

C. RECORD MINUTES AND DISTRIBUTE COPIES WITHIN TWO DAYS AFTER MEETING TO PARTICIPANTS, WITH TWO COPIES TO ARCHITECT, OWNER, PARTICIPANTS, AND THOSE

AFFECTED BY DECISIONS MADE. 3.02 CONSTRUCTION PROGRESS SCHEDULE

A. IF PRELIMINARY SCHEDULE REQUIRES REVISION AFTER REVIEW. SUBMIT REVISED SCHEDULE

B. WITHIN 20 DAYS AFTER REVIEW OF PRELIMINARY SCHEDULE, SUBMIT DRAFT OF PROPOSED COMPLETE SCHEDULE FOR REVIEW.

1. INCLUDE WRITTEN CERTIFICATION THAT MAJOR SUBCONTRACTORS HAVE REVIEWED AND

ACCEPTED PROPOSED SCHEDULE. C. WITHIN 10 DAYS AFTER JOINT REVIEW, SUBMIT COMPLETE SCHEDULE.

D. SUBMIT UPDATED SCHEDULE WITH EACH APPLICATION FOR PAYMENT.

3.03 SUBMITTALS FOR REVIEW

A. WHEN THE FOLLOWING ARE SPECIFIED IN INDIVIDUAL SECTIONS, SUBMIT THEM FOR REVIEW:

PRODUCT DATA.

2. SHOP DRAWINGS SAMPLES FOR SELECTION.

SAMPLES FOR VERIFICATION.

B. SUBMIT TO ARCHITECT FOR REVIEW FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS.

C. SAMPLES WILL BE REVIEWED ONLY FOR AESTHETIC, COLOR, OR FINISH SELECTION. D. AFTER REVIEW, PROVIDE COPIES AND DISTRIBUTE IN ACCORDANCE WITH SUBMITTAL

PROCEDURES ARTICLE BELOW AND FOR RECORD DOCUMENTS PURPOSES DESCRIBED IN SECTION 01 7800 - CLOSEOUT SUBMITTALS.

3.04 SUBMITTALS FOR INFORMATION A. WHEN THE FOLLOWING ARE SPECIFIED IN INDIVIDUAL SECTIONS, SUBMIT THEM FOR INFORMATION:

 DESIGN DATA. 2. CERTIFICATES.

TEST REPORTS.

4. INSPECTION REPORTS

MANUFACTURER'S INSTRUCTIONS.

6. MANUFACTURER'S FIELD REPORTS

7. OTHER TYPES INDICATED. B. SUBMIT FOR ARCHITECT'S KNOWLEDGE AND CONTRACT ADMINISTRATOR OR FOR OWNER.

NO ACTION WILL BE TAKEN.

3.05 SUBMITTALS FOR PROJECT CLOSEOUT A. SUBMIT CORRECTION PUNCH LIST FOR SUBSTANTIAL COMPLETION.

B. SUBMIT FINAL CORRECTION PUNCH LIST FOR SUBSTANTIAL COMPLETION. C. WHEN THE FOLLOWING ARE SPECIFIED IN INDIVIDUAL SECTIONS, SUBMIT THEM AT PROJECT

1. PROJECT RECORD DOCUMENTS.

2. OPERATION AND MAINTENANCE DATA. WARRANTIES.

4. BONDS.

OTHER TYPES AS INDICATED. D. SUBMIT FOR OWNER'S BENEFIT DURING AND AFTER PROJECT COMPLETION. 3.06 NUMBER OF COPIES OF SUBMITTALS

A. DOCUMENTS FOR REVIEW: 1. SMALL SIZE SHEETS, NOT LARGER THAN 8-1/2 X 11 INCHES: SUBMIT THE NUMBER OF COPIES THAT CONTRACTOR REQUIRES, PLUS TWO COPIES THAT WILL BE RETAINED BY

ARCHITECT. ELECTRONIC COPIES ARE ACCEPTABLE AND ENCOURAGED. B. DOCUMENTS FOR INFORMATION: SUBMIT TWO COPIES. ELECTRONIC COPIES ARE ACCEPTABLE AND ENCOURAGED.

C. SAMPLES: SUBMIT THE NUMBER SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS; ONE OF WHICH WILL BE RETAINED BY ARCHITECT.

 AFTER REVIEW, PRODUCE DUPLICATES. 2. RETAINED SAMPLES WILL NOT BE RETURNED TO CONTRACTOR UNLESS SPECIFICALLY SO

3.07 SUBMITTAL PROCEDURES A. SHOP DRAWING PROCEDURES:

1. PREPARE ACCURATE, DRAWN-TO-SCALE, ORIGINAL SHOP DRAWING DOCUMENTATION BY INTERPRETING THE CONTRACT DOCUMENTS AND COORDINATING RELATED WORK. 2. GENERIC, NON-PROJECT SPECIFIC INFORMATION SUBMITTED AS SHOP DRAWINGS DO

NOT MEET THE REQUIREMENTS FOR SHOP DRAWINGS. B. SEQUENTIALLY NUMBER THE TRANSMITTAL FORM. REVISE SUBMITTALS WITH ORIGINAL NUMBER AND A SEQUENTIAL ALPHABETIC SUFFIX.

C. IDENTIFY PROJECT, CONTRACTOR, SUBCONTRACTOR OR SUPPLIER; PERTINENT DRAWING AND DETAIL NUMBER, AND SPECIFICATION SECTION NUMBER, AS APPROPRIATE ON EACH

D. APPLY CONTRACTOR'S STAMP, SIGNED OR INITIALED CERTIFYING THAT REVIEW, APPROVAL, VERIFICATION OF PRODUCTS REQUIRED, FIELD DIMENSIONS, ADJACENT CONSTRUCTION WORK, AND COORDINATION OF INFORMATION IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK AND CONTRACT DOCUMENTS.

E. FOR EACH SUBMITTAL FOR REVIEW, ALLOW 15 DAYS EXCLUDING DELIVERY TIME TO AND

F. IDENTIFY VARIATIONS FROM CONTRACT DOCUMENTS AND PRODUCT OR SYSTEM LIMITATIONS THAT MAY BE DETRIMENTAL TO SUCCESSFUL PERFORMANCE OF THE

G. PROVIDE SPACE FOR CONTRACTOR AND ARCHITECT REVIEW STAMPS. H. WHEN REVISED FOR RESUBMISSION, IDENTIFY ALL CHANGES MADE SINCE PREVIOUS

I. DISTRIBUTE REVIEWED SUBMITTALS AS APPROPRIATE. INSTRUCT PARTIES TO PROMPTLY REPORT ANY INABILITY TO COMPLY WITH REQUIREMENTS.

J. SUBMITTALS NOT REQUESTED WILL NOT BE RECOGNIZED OR PROCESSED. END OF SECTION

SECTION 01 4000

QUALITY REQUIREMENTS

TO ARCHITECT AND TO CONTRACTOR.

CERTIFICATIONS AS APPROPRIATE.

A. TESTING AGENCY QUALIFICATIONS: 1. PRIOR TO START OF WORK, SUBMIT AGENCY NAME, ADDRESS, AND TELEPHONE NUMBER,

AND NAMES OF FULL TIME REGISTERED ENGINEER AND RESPONSIBLE OFFICER. B. TEST REPORTS: AFTER EACH TEST/INSPECTION, PROMPTLY SUBMIT TWO COPIES OF REPORT

C. CERTIFICATES: WHEN SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS, SUBMIT CERTIFICATION BY THE MANUFACTURER AND CONTRACTOR OR INSTALLATION/APPLICATION

SUBCONTRACTOR TO ARCHITECT, IN QUANTITIES SPECIFIED FOR PRODUCT DATA. 1. INDICATE MATERIAL OR PRODUCT CONFORMS TO OR EXCEEDS SPECIFIED REQUIREMENTS. SUBMIT SUPPORTING REFERENCE DATA, AFFIDAVITS, AND

PART 2 PRODUCTS - NOT USED

3.01 CONTROL OF INSTALLATION

A. MONITOR QUALITY CONTROL OVER SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES. SITE CONDITIONS, AND WORKMANSHIP, TO PRODUCE WORK OF SPECIFIED QUALITY.

B. COMPLY WITH MANUFACTURERS' INSTRUCTIONS, INCLUDING EACH STEP IN SEQUENCE. C. SHOULD MANUFACTURERS' INSTRUCTIONS CONFLICT WITH CONTRACT DOCUMENTS,

REQUEST CLARIFICATION FROM ARCHITECT BEFORE PROCEEDING. D. COMPLY WITH SPECIFIED STANDARDS AS MINIMUM QUALITY FOR THE WORK EXCEPT WHERE MORE STRINGENT TOLERANCES, CODES, OR SPECIFIED REQUIREMENTS INDICATE HIGHER STANDARDS OR MORE PRECISE WORKMANSHIP.

E. HAVE WORK PERFORMED BY PERSONS QUALIFIED TO PRODUCE REQUIRED AND SPECIFIED

F. VERIFY THAT FIELD MEASUREMENTS ARE AS INDICATED ON SHOP DRAWINGS OR AS

INSTRUCTED BY THE MANUFACTURER. G. SECURE PRODUCTS IN PLACE WITH POSITIVE ANCHORAGE DEVICES DESIGNED AND SIZED TO WITHSTAND STRESSES, VIBRATION, PHYSICAL DISTORTION, AND DISFIGUREMENT.

3.02 DEFECT ASSESSMENT A. REPLACE WORK OR PORTIONS OF THE WORK NOT CONFORMING TO SPECIFIED

REQUIREMENTS.

B. IF. IN THE OPINION OF THE ARCHITECT. IT IS NOT PRACTICAL TO REMOVE AND REPLACE THE

WORK, ARCHITECT WILL DIRECT AN APPROPRIATE REMEDY OR ADJUST PAYMENT. END OF SECTION

SECTION 01 5639

TEMPORARY TREE AND PLANT PROTECTION

1.01 SECTION INCLUDES

A. CONTRACTOR SHALL PROTECT AND AVOID DAMAGING EXISTING TREES. SHRUBS. LANDSCAPE, AND ADJACENT VEGETATION.

PART 2 PRODUCTS - NOT USED

A. VEHICULAR AND PEDESTRIAN TRAFFIC SHALL BE LIMITED TO AREAS MARKED. THRU-TRAFFIC

AND STOCKPILING OF EQUIPMENT AND MATERIALS ARE NOT PERMITTED WITHIN MARKED B. NO CONSTRUCTION ROADS ARE TO BE CREATED WITHIN THE DRIP LINES OF ANY TREES OR OTHER VEGETATION DESIGNATED TO BE SAVED WITHOUT APPROVAL OF LANDSCAPE

ARCHITECT.

3.02 PROTECTED AREAS A. PROTECTED AREAS WILL BE DESIGNATED ON THE PLANS BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL ADEQUATELY MARK AREAS.

1. NO ACCESS OF CONSTRUCTION VEHICLES OR WORKERS ON FOOT IS PERMITTED THROUGH PROTECTED AREAS. 2. NO MATERIAL SHALL BE STOCKPILED AND NO EQUIPMENT SHALL BE PARKED OR

REPAIRED WITHIN THESE AREAS. 3.03 TREES AND PLANTINGS

A. TREES DESIGNATED TO BE PRESERVED WITHIN THE LIMITS OF CONSTRUCTION, SHALL BE PROTECTED FROM DAMAGE ASSOCIATED WITH CONSTRUCTION. 1. A STURDY, PHYSICAL BARRIER (FLORESCENT ORANGE IN COLOR) SHALL BE FIXED IN

PLACE AROUND EACH TREE FOR THE DURATION OF CONSTRUCTION. a. BARRIER SHALL BE PLACED AT THE TREE'S CANOPY DRIP LINE OR A RADIUS OF TWELVE TIMES THE DIAMETER OF THE TRUNK AT 4.5-FOOT DBH (DIAMETER AT

BREAST HEIGHT), WHICHEVER IS LARGER. b. Barrier shall be fixed so it cannot be moved easily; but the material can BE FLEXIBLE, SUCH AS ORANGE SNOW FENCE ATTACHED TO T-POSTS DRIVEN INTO THE GROUND, AND SHALL ACT AS AN EFFECTIVE DETERRENT TO DELIBERATE OR

ACCIDENTAL DAMAGE OF EACH TREE. c. The movement or storage of equipment, material, debris, or fill within THESE REQUIRED PROTECTIVE BARRIERS IS PROHIBITED.

d. FENCE SHALL REMAIN IN PLACE DURING CONSTRUCTION TO PREVENT UNINTENDED

3.04 EXCAVATED AREAS

A. WHERE EXCAVATION FOR NEW CONSTRUCTION IS REQUIRED WITHIN DRIP LINE OF TREES. HAND CLEAR AND EXCAVATE TO MINIMIZE DAMAGE TO ROOT SYSTEMS. USE NARROW-TINE SPADING FORKS, COMB SOIL TO EXPOSE ROOTS, AND CLEANLY CUT ROOTS AS CLOSE TO **EXCAVATION AS POSSIBLE.**

1. COVER EXPOSED ROOTS WITH BURLAP AND WATER REGULARLY TO PREVENT ROOTS

FROM DRYING OUT. BACKFULL WITH SOIL AS SOON AS POSSIBLE. 2. TEMPORARILY SUPPORT AND PROTECT ROOTS FROM DAMAGE UNTIL THEY ARE

PERMANENTLY RELOCATED AND COVERED WITH SOIL.

3. COAT CUT FACES OF ROOTS MORE THAN 1-1/2 INCHES IN DIAMETER WITH AN EMULSIFIED ASPHALT OR OTHER APPROVED COATING FORMULATED FOR USE ON DAMAGED PLANT

3.05 DAMAGE TO EXISTING VEGETATION

A. ANY TREES DAMAGED DURING CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED BY A CERTIFIED ARBORIST ACCEPTABLE TO THE LANDSCAPE ARCHITECT AT THE CONTRACTOR'S

B. ANY TREE JUDGED BY THE ACCEPTED CERTIFIED ARBORIST TO BE DAMAGED BEYOND REPAIR SHALL BE REMOVED AT CONTRACTOR'S EXPENSE.

C. FOR EACH TREE ERRONEOUSLY REMOVED OR DAMAGED BEYOND REPAIR, AN ASSESSMENT WILL BE IMMEDIATELY WITHHELD FROM CONTRACTOR'S PROGRESS PAYMENTS. 1. THIS ASSESSMENT WILL BE EQUAL TO THE VALUE OF THE TREE PRIOR TO DAMAGE.

2. THIS ASSESSMENT WILL BE DETERMINED BY A TREE APPRAISER, SELECTED BY LANDSCAPE ARCHITECT AND PAID FOR BY CONTRACTOR. 3. THE COST FOR HIRING A TREE APPRAISER SHALL ALSO BE WITHHELD FROM

CONTRACTOR'S PROGRESS PAYMENTS. D. CONTRACTOR SHALL REPLACE EACH DAMAGED TREE WITH NURSERY-GROWN MATERIAL OF SIMILAR SIZE AND OF THE SAME OR APPROVED SPECIES.

1. REPLACEMENT TREES SHALL BE THE GREATER OF A TWO (2)-INCH CALIPER OR SIZE EQUIVALENT TO THE SIZE OF THE DAMAGED TREE, BALLED AND BURLAPPED, AND PLANTED IN ACCORDANCE WITH THE PROVISIONS OUTLINED IN THESE SPECIFICATIONS. E. DAMAGED VEGETATION SHALL BE REPLACED BY CONTRACTOR WITH AN EQUAL VALUE PER

END OF SECTION

SECTION 01 6000 PRODUCT REQUIREMENTS

SQUARE FOOT OF DAMAGE.

SUBMITTALS FOR INTERFACING WORK.

1.01 SUBMITTALS A. PRODUCT DATA SUBMITTALS: SUBMIT MANUFACTURER'S STANDARD PUBLISHED DATA. MARK EACH COPY TO IDENTIFY APPLICABLE PRODUCTS, MODELS, OPTIONS, AND OTHER

DATA. SUPPLEMENT MANUFACTURERS' STANDARD DATA TO PROVIDE INFORMATION SPECIFIC TO THIS PROJECT. B. SHOP DRAWING SUBMITTALS: PREPARED SPECIFICALLY FOR THIS PROJECT; INDICATE UTILITY AND ELECTRICAL CHARACTERISTICS, UTILITY CONNECTION REQUIREMENTS, AND

LOCATION OF UTILITY OUTLETS FOR SERVICE FOR FUNCTIONAL EQUIPMENT AND APPLIANCES. C. SAMPLE SUBMITTALS: ILLUSTRATE FUNCTIONAL AND AESTHETIC CHARACTERISTICS OF THE PRODUCT, WITH INTEGRAL PARTS AND ATTACHMENT DEVICES. COORDINATE SAMPLE

2.01 NEW PRODUCTS A. PROVIDE NEW PRODUCTS UNLESS SPECIFICALLY REQUIRED OR PERMITTED BY THE CONTRACT DOCUMENTS.

2.02 PRODUCT OPTIONS A. PRODUCTS SPECIFIED BY REFERENCE STANDARDS OR BY DESCRIPTION ONLY: USE ANY PRODUCT MEETING THOSE STANDARDS OR DESCRIPTION.

B. PRODUCTS SPECIFIED BY NAMING ONE OR MORE MANUFACTURERS: USE A PRODUCT OF ONE OF THE MANUFACTURERS NAMED AND MEETING SPECIFICATIONS, NO OPTIONS OR SUBSTITUTIONS ALLOWED.

C. PRODUCTS SPECIFIED BY NAMING ONE OR MORE MANUFACTURERS WITH A PROVISION FOR SUBSTITUTIONS: SUBMIT A REQUEST FOR SUBSTITUTION FOR ANY MANUFACTURER NOT

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES A. SUBSTITUTION REQUESTS MUST BE SUBMITTED DURING THE BID PERIOD. BID QUESTIONS AND SUBSTITUTION REQUESTS WILL BE ADDRESSED BY THE ARCHITECT AND APPROVED BY

CMU UNTIL 72 HOURS PRIOR TO THE BID DATE PUBLISHED BY THE CONSTRUCTION B. DOCUMENT EACH REQUEST WITH COMPLETE DATA SUBSTANTIATING COMPLIANCE OF

PROPOSED SUBSTITUTION WITH CONTRACT DOCUMENTS. C. A REQUEST FOR SUBSTITUTION CONSTITUTES A REPRESENTATION THAT THE SUBMITTERS 1. HAS INVESTIGATED PROPOSED PRODUCT AND DETERMINED THAT IT MEETS OR EXCEEDS THE QUALITY LEVEL OF THE SPECIFIED PRODUCT.

3. WILL COORDINATE INSTALLATION AND MAKE CHANGES TO OTHER WORK THAT MAY BE REQUIRED FOR THE WORK TO BE COMPLETE WITH NO ADDITIONAL COST TO OWNER.

2. WILL PROVIDE THE SAME WARRANTY FOR THE SUBSTITUTION AS FOR THE SPECIFIED

4. WAIVES CLAIMS FOR ADDITIONAL COSTS OR TIME EXTENSION THAT MAY SUBSEQUENTLY BECOME APPARENT. D. SUBSTITUTION SUBMITTAL PROCEDURE:

1. SUBMIT THREE COPIES OF REQUEST FOR SUBSTITUTION FOR CONSIDERATION. LIMIT EACH REQUEST TO ONE PROPOSED SUBSTITUTION.

2. SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND CERTIFIED TEST RESULTS ATTESTING TO THE PROPOSED PRODUCT EQUIVALENCE, BURDEN OF PROOF IS ON PROPOSER. THE ARCHITECT WILL NOTIFY CONTRACTOR BY ADDENDUM OF DECISION TO ACCEPT.

END OF SECTION

SECTION 01 7000 EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 PROJECT CONDITIONS A. GRADE SITE TO DRAIN. MAINTAIN EXCAVATIONS FREE OF WATER. PROVIDE, OPERATE, AND MAINTAIN PUMPING EQUIPMENT.

B. VENTILATE ENCLOSED AREAS TO ASSIST CURE OF MATERIALS, TO DISSIPATE HUMIDITY, AND TO PREVENT ACCUMULATION OF DUST, FUMES, VAPORS, OR GASES. C. DUST CONTROL: EXECUTE WORK BY METHODS TO MINIMIZE RAISING DUST FROM CONSTRUCTION OPERATIONS. PROVIDE POSITIVE MEANS TO PREVENT AIR-BORNE DUST

FROM DISPERSING INTO ATMOSPHERE AND OVER ADJACENT PROPERTY. D. EROSION AND SEDIMENT CONTROL: PLAN AND EXECUTE WORK BY METHODS TO CONTROL SURFACE DRAINAGE FROM CUTS AND FILLS, FROM BORROW AND WASTE DISPOSAL AREAS PREVENT EROSION AND SEDIMENTATION.

PART 2 PRODUCTS - NOT USED

3.01 GENERAL INSTALLATION REQUIREMENTS

A. INSTALL PRODUCTS AS SPECIFIED IN INDIVIDUAL SECTIONS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AND SO AS TO AVOID WASTE DUE TO NECESSITY FOR REPLACEMENT.

C. INSTALL EQUIPMENT AND FITTINGS PLUMB AND LEVEL, NEATLY ALIGNED WITH ADJACENT VERTICAL AND HORIZONTAL LINES, UNLESS OTHERWISE INDICATED. D. MAKE CONSISTENT TEXTURE ON SURFACES, WITH SEAMLESS TRANSITIONS, UNLESS

B. MAKE VERTICAL ELEMENTS PLUMB AND HORIZONTAL ELEMENTS LEVEL, UNLESS

OTHERWISE INDICATED. E. MAKE NEAT TRANSITIONS BETWEEN DIFFERENT SURFACES, MAINTAINING TEXTURE AND APPEARANCE.

A. MAINTAIN AREAS FREE OF WASTE MATERIALS, DEBRIS, AND RUBBISH. MAINTAIN SITE IN A CLEAN AND ORDERLY CONDITION.

C. REMOVE PROTECTIVE COVERINGS WHEN NO LONGER NEEDED; REUSE OR RECYCLE PLASTIC

3.03 PROTECTION OF INSTALLED WORK A. PROTECT INSTALLED WORK FROM DAMAGE BY CONSTRUCTION OPERATIONS. B. PROVIDE SPECIAL PROTECTION WHERE SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS.

COVERINGS IF POSSIBLE.

3.02 PROGRESS CLEANING

3.04 FINAL CLEANING A. USE CLEANING MATERIALS THAT ARE NON-HAZARDOUS.

B. CLEAN INTERIOR AND EXTERIOR GLASS, SURFACES EXPOSED TO VIEW; REMOVE TEMPORARY LABELS, STAINS AND FOREIGN SUBSTANCES, POLISH TRANSPARENT AND GLOSSY SURFACES, VACUUM CARPETED AND SOFT SURFACES

C. REMOVE ALL LABELS THAT ARE NOT PERMANENT. DO NOT PAINT OR OTHERWISE COVER FIRE

TEST LABELS OR NAMEPLATES ON MECHANICAL AND ELECTRICAL EQUIPMENT. D. CLEAN EQUIPMENT AND FIXTURES TO A SANITARY CONDITION WITH CLEANING MATERIALS

APPROPRIATE TO THE SURFACE AND MATERIAL BEING CLEANED.

3.05 CLOSEOUT PROCEDURES A. MAKE SUBMITTALS THAT ARE REQUIRED BY GOVERNING OR OTHER AUTHORITIES.

B. NOTIFY ARCHITECT WHEN WORK IS CONSIDERED READY FOR SUBSTANTIAL COMPLETION. C. SUBMIT WRITTEN CERTIFICATION CONTAINING CONTRACTOR'S CORRECTION PUNCH LIST, THAT CONTRACT DOCUMENTS HAVE BEEN REVIEWED, WORK HAS BEEN INSPECTED, AND THAT WORK IS COMPLETE IN ACCORDANCE WITH CONTRACT DOCUMENTS AND READY FOR

ARCHITECT'S SUBSTANTIAL COMPLETION INSPECTION. D. NOTIFY ARCHITECT WHEN WORK IS CONSIDERED FINALLY COMPLETE AND READY FOR

ARCHITECT'S SUBSTANTIAL COMPLETION FINAL INSPECTION. E. COMPLETE ITEMS OF WORK DETERMINED BY ARCHITECT LISTED IN EXECUTED CERTIFICATE

OF SUBSTANTIAL COMPLETION. END OF SECTION

> **SECTION 01 7800 CLOSEOUT SUBMITTALS**

PART 1 GENERAL 1.01 SUBMITTALS

A. PROJECT RECORD DOCUMENTS: SUBMIT DOCUMENTS TO ARCHITECT FOR FINAL

IMPLEMENTATION OF CHANGES DURING THE CONSTRUCTION PROCESS TO CREATE "RECORD" OR "AS-BUILT" DOCUMENTS AS THEY ARE COMMONLY KNOWN.

B. OPERATION AND MAINTENANCE DATA:

C. WARRANTIES AND BONDS: 1. FOR EQUIPMENT OR COMPONENT PARTS OF EQUIPMENT PUT INTO SERVICE DURING CONSTRUCTION WITH OWNER'S PERMISSION, SUBMIT DOCUMENTS WITHIN 10 DAYS

PART 2 PRODUCTS (NOT APPLICABLE)

3.01 PROJECT RECORD DOCUMENTS A. MAINTAIN ON SITE ONE SET OF THE FOLLOWING RECORD DOCUMENTS; RECORD ACTUAL

REVISIONS TO THE WORK: DRAWINGS. ADDENDA

3. CHANGE ORDERS AND OTHER MODIFICATIONS TO THE CONTRACT. 3.02 OPERATION AND MAINTENANCE DATA A. SOURCE DATA: FOR EACH PRODUCT OR SYSTEM, LIST NAMES, ADDRESSES AND TELEPHONE

NUMBERS OF SUBCONTRACTORS AND SUPPLIERS, INCLUDING LOCAL SOURCE OF SUPPLIES AND REPLACEMENT PARTS. B. PRODUCT DATA: MARK EACH SHEET TO CLEARLY IDENTIFY SPECIFIC PRODUCTS AND

COMPONENT PARTS, AND DATA APPLICABLE TO INSTALLATION. DELETE INAPPLICABLE C. DRAWINGS: SUPPLEMENT PRODUCT DATA TO ILLUSTRATE RELATIONS OF COMPONENT PARTS OF EQUIPMENT AND SYSTEMS, TO SHOW CONTROL AND FLOW DIAGRAMS. DO NOT

USE PROJECT RECORD DOCUMENTS AS MAINTENANCE DRAWINGS. 3.03 WARRANTIES AND BONDS A. OBTAIN WARRANTIES AND BONDS, EXECUTED IN DUPLICATE BY RESPONSIBLE SUBCONTRACTORS, SUPPLIERS, AND MANUFACTURERS, WITHIN 10 DAYS AFTER COMPLETION OF THE APPLICABLE ITEM OF WORK. EXCEPT FOR ITEMS PUT INTO USE WITH

OWNER'S PERMISSION, LEAVE DATE OF BEGINNING OF TIME OF WARRANTY UNTIL THE DATE OF SUBSTANTIAL COMPLETION IS DETERMINED. **END OF SECTION**

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GENERAL

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SECTION 02 4119 SELECTIVE SITE DEMOLITION

- A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT. INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.02 SECTION INCLUDES A. DEMOLITION AND REMOVAL OF SELECTED SITE ELEMENTS.

- A. DIVISION 31 2300 "EARTHWORK" FOR SITE CLEARING AND REMOVAL OF ABOVE- AND BELOW-GRADE IMPROVEMENTS.
- A. REMOVE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE, UNLESS INDICATED TO BE REMOVED AND SALVAGED OR REMOVED AND REINSTALLED.
- B. REMOVE AND SALVAGE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND DELIVER THEM TO OWNER READY FOR REUSE.
- C. REMOVE AND REINSTALL: DETACH ITEMS FROM EXISTING CONSTRUCTION, PREPARE THEM FOR REUSE, AND REINSTALL THEM WHERE INDICATED
- D. EXISTING TO REMAIN: EXISTING ITEMS OF CONSTRUCTION THAT ARE NOT TO BE REMOVED AND THAT ARE NOT OTHERWISE INDICATED TO BE REMOVED. REMOVED AND SALVAGED, OR REMOVED AND REINSTALLED.
- A. QUALIFICATION DATA: FOR DEMOLITION FIRM.
- B. SCHEDULE OF SELECTIVE DEMOLITION ACTIVITIES: INDICATE THE
- 1. DETAILED SEQUENCE OF SELECTIVE DEMOLITION AND REMOVAL WORK, WITH STARTING AND ENDING DATES FOR EACH ACTIVITY. ENSURE OWNER'S OTHER TENANTS' ON-SITE OPERATIONS ARE UNINTERRUPTED.
- 2. INTERRUPTION OF UTILITY SERVICES. INDICATE HOW LONG UTILITY SERVICES WILL BE INTERRUPTED.
- 3. COORDINATION FOR SHUTOFF, CAPPING, AND CONTINUATION OF UTILITY
- 4. LOCATIONS OF PROPOSED DUST AND NOISE CONTROL, TEMPORARY PARTITIONS AND MEANS OF EGRESS, INCLUDING FOR OTHER TENANTS AFFECTED BY SELECTIVE DEMOLITION OPERATIONS.
- 5. COORDINATION OF OWNER'S CONTINUING OCCUPANCY OF PORTIONS OF EXISTING SITE AND OF OWNER'S PARTIAL OCCUPANCY OF COMPLETED
- 6. MEANS OF PROTECTION FOR ITEMS TO REMAIN AND ITEMS IN PATH OF WASTE REMOVAL FROM SITE.
- C. INVENTORY: AFTER SELECTIVE DEMOLITION IS COMPLETE, SUBMIT A LIST OF ITEMS THAT HAVE BEEN REMOVED AND SALVAGED.
- D. PREDEMOLITION PHOTOGRAPHS OR VIDEOTAPES: SHOW EXISTING CONDITIONS OF ADJOINING CONSTRUCTION AND SITE IMPROVEMENTS, INCLUDING FINISH SURFACES, THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY SELECTIVE DEMOLITION OPERATIONS.
- E. LANDFILL RECORDS: INDICATE RECEIPT AND ACCEPTANCE OF HAZARDOUS WASTES BY A LANDFILL FACILITY LICENSED TO ACCEPT HAZARDOUS

1.06 QUALITY ASSURANCE

- A. DEMOLITION FIRM QUALIFICATIONS: AN EXPERIENCED FIRM THAT HAS SPECIALIZED IN DEMOLITION WORK SIMILAR IN MATERIAL AND EXTENT TO THAT INDICATED FOR THIS PROJECT.
- B. REGULATORY REQUIREMENTS: COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE BEGINNING SELECTIVE DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING
- C. STANDARDS: COMPLY WITH ANSI A10.6 AND NFPA 241
- D. PREDEMOLITION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE. REVIEW METHODS AND PROCEDURES RELATED TO SELECTIVE DEMOLITION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
- 1. INSPECT AND DISCUSS CONDITION OF CONSTRUCTION TO BE SELECTIVELY DEMOLISHED.
- 2. REVIEW AND FINALIZE SELECTIVE DEMOLITION AND VERIFY AVAILABILITY OF MATERIALS, DEMOLITION PERSONNEL, EQUIPMENT, AND FACILITIES
- NEEDED TO MAKE PROGRESS AND AVOID DELAYS. 3. REVIEW REQUIREMENTS OF WORK PERFORMED BY OTHER TRADES THAT RELY ON SUBSTRATES EXPOSED BY SELECTIVE DEMOLITION
- 4. REVIEW AREAS WHERE EXISTING CONSTRUCTION IS TO REMAIN AND

1.07 PROJECT CONDITIONS

- A. CONDITIONS EXISTING AT TIME OF INSPECTION FOR BIDDING PURPOSE WILL BE MAINTAINED BY OWNER AS FAR AS PRACTICAL.
- 1. BEFORE SELECTIVE DEMOLITION, OWNER WILL REMOVE THE ITEMS TO BE SALVAGED BY THE OWNER. COORDINATE OTHER ITEMS WITH THE
- B. NOTIFY ARCHITECT OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DRAWINGS BEFORE PROCEEDING WITH SELECTIVE DEMOLITION.
- C. HAZARDOUS MATERIALS: IT IS NOT EXPECTED THAT HAZARDOUS
- MATERIALS WILL BE ENCOUNTERED IN THE WORK. 1. HAZARDOUS MATERIALS WILL BE REMOVED BY OWNER BEFORE START OF THE WORK OR HAVE BEEN REMOVED BY OWNER UNDER A SEPARATE
- 2. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; IMMEDIATELY NOTIFY ARCHITECT AND OWNER. OWNER WILL REMOVE HAZARDOUS MATERIALS UNDER A
- D. STORAGE OR SALE OF REMOVED ITEMS OR MATERIALS ON-SITE IS NOT
- E. UTILITY SERVICE: MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING SELECTIVE
- 1. MAINTAIN FIRE-PROTECTION FACILITIES IN SERVICE DURING SELECTIVE DEMOLITION OPERATIONS.

A. EXISTING WARRANTIES: REMOVE, REPLACE, PATCH, AND REPAIR MATERIALS AND SURFACES CUT OR DAMAGED DURING SELECTIVE DEMOLITION, BY METHODS AND WITH MATERIALS SO AS NOT TO VOID EXISTING WARRANTIES.

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PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

- 3.01 EXAMINATION A. VERIFY THAT UTILITIES HAVE BEEN SHUT OFF AND READY TO BE CAPPED.
- B. SURVEY EXISTING CONDITIONS AND CORRELATE WITH REQUIREMENTS INDICATED TO DETERMINE EXTENT OF SELECTIVE DEMOLITION REQUIRED.
 - C. INVENTORY AND RECORD THE CONDITION OF ITEMS TO BE REMOVED AND REINSTALLED AND ITEMS TO BE REMOVED AND SALVAGED. D. SURVEY OF EXISTING CONDITIONS: RECORD EXISTING CONDITIONS BY USE
- OF MEASURED DRAWINGS, PRECONSTRUCTION PHOTOGRAPHS, PRECONSTRUCTION VIDEOTAPES, AND TEMPLATES.
- E. PERFORM SURVEYS AS THE WORK PROGRESSES TO DETECT HAZARDS
- RESULTING FROM SELECTIVE DEMOLITION ACTIVITIES.

3.02 UTILITY SERVICES A. EXISTING SERVICES/SYSTEMS: MAINTAIN SERVICES/SYSTEMS INDICATED TO REMAIN AND PROTECT THEM AGAINST DAMAGE DURING SELECTIVE

- DEMOLITION OPERATIONS. A. SERVICE/SYSTEM REQUIREMENTS: LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF INDICATED UTILITY SERVICES AND OTHER SYSTEMS
- SERVING AREAS TO BE SELECTIVELY DEMOLISHED. 1. OWNER WILL ARRANGE TO SHUT OFF INDICATED SERVICES/SYSTEMS
- WHEN REQUESTED BY CONTRACTOR ARRANGE TO SHUT OFF INDICATED UTILITIES WITH THE OWNER.
- 3. IF SERVICES/SYSTEMS ARE REQUIRED TO BE REMOVED, RELOCATED, OR ABANDONED, BEFORE PROCEEDING WITH SELECTIVE DEMOLITION PROVIDE TEMPORARY SERVICES/SYSTEMS THAT BYPASS AREA OF SELECTIVE DEMOLITION AND THAT MAINTAIN CONTINUITY OF SERVICES/SYSTEMS.

3.03 PREPARATION

- A. SITE ACCESS AND TEMPORARY CONTROLS: CONDUCT SELECTIVE DEMOLITION AND DEBRIS-REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, WALKWAYS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
- B. TEMPORARY FACILITIES: PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN.
- 1. PROVIDE PROTECTION TO ENSURE SAFE PASSAGE OF PEOPLE AROUND SELECTIVE DEMOLITION AREA AND TO AND FROM OCCUPIED PORTIONS OF THE SITE.
- PROVIDE TEMPORARY WEATHER PROTECTION, DURING INTERVAL BETWEEN SELECTIVE DEMOLITION OF EXISTING CONSTRUCTION ON EXTERIOR SURFACES, TO PREVENT WATER DAMAGE TO CRITICAL AREAS.
- C. TEMPORARY SHORING: PROVIDE AND MAINTAIN SHORING, BRACING, AND STRUCTURAL SUPPORTS AS REQUIRED TO PRESERVE STABILITY AND PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF CONSTRUCTION AND ITEMS TO REMAIN, AND TO PREVENT UNEXPECTED OR UNCONTROLLED MOVEMENT OR COLLAPSE OF CONSTRUCTION BEING DEMOLISHED.
- 1. STRENGTHEN OR ADD NEW SUPPORTS WHEN REQUIRED DURING PROGRESS OF SELECTIVE DEMOLITION.
- D. NO CLEARING, DEMOLITION, OR REMOVAL OF ANY KIND SHALL PROCEED UNTIL ALL EXISTING TREES, IMPROVEMENTS, ETC. TO BE REMOVED HAVE BEEN ESTABLISHED AND ARE INSPECTED AND DOCUMENTED BY THE
- E. ESTABLISH NECESSARY CLEARING LIMITS WITHIN THE CONSTRUCTION LIMITS. MARK ALL TREES, SHRUBS, STRUCTURES, FENCES, CONCRETE, AND OTHER IMPROVEMENTS TO BE REMOVED.
- F. WITHIN 10 FEET OF CLEARING LIMITS, INSPECT, PHOTOGRAPH WITH VIDEO TAPE, AND RECORD CONDITION OF CONCRETE SLABS, STRUCTURES, LANDSCAPING AND OTHER FEATURES TO REMAIN WHICH MIGHT BE AFFECTED BY WORK. ALLOW OWNER TO VIEW TAPE AND APPROVE PRIOR TO PROCEEDING WITH THE WORK.
- G. TREES, SHRUBS AND LAWN, AREAS TO RECEIVE PLANTING, FENCES, SPRINKLERS AND OTHER IMPROVEMENTS THAT ARE NOT TO BE REMOVED SHALL BE PROTECTED FROM DAMAGE OR INJURY. IF DAMAGED OR REMOVED, THEY SHALL BE RESTORED OR REPLACED IN AS NEARLY THE ORIGINAL CONDITION AND LOCATION AS IS REASONABLY POSSIBLE. TREES, SHRUBS, AND IMPROVEMENTS NOT TO BE REMOVED SHALL BE MARKED IN FIELD BY OWNER AND/OR SHOWN ON THE DRAWINGS.
- H. GIVE REASONABLE NOTICE TO OWNER TO PERMIT HIM TO SALVAGE PLANTS, TREES, FENCES, SPRINKLERS AND OTHER IMPROVEMENTS WITHIN THE CONSTRUCTION LIMITS THAT MAY BE DESTROYED BECAUSE OF THE WORK.
- I. NOTIFY INTERESTED UTILITY COMPANIES TO BE PRESENT IF DISTURBING GROUND IN THE VICINITY OF UTILITIES.
- J. PROTECT ACTIVE UTILITY SYSTEMS ADJACENT TO OR UNCOVERED BY ANY EXCAVATION DURING SITE PREPARATION. K. MAINTAIN BENCHMARKS, MONUMENTS AND OTHER REFERENCE POINTS AND
- CONSTRUCTION STAKES. L. PROTECT ALL IMPROVEMENTS TO REMAIN OR OUTSIDE OF CONSTRUCTION FROM TREE REMOVAL AND/OR PRUNING WORK.

3.04 CLEARING AND GRUBBING

A. PRIOR TO ANY CONSTRUCTION, REMOVE UNSUITABLE SOILS AND VEGETATION FROM BELOW FOUNDATIONS, FLOOR SLABS, EXTERIOR CONCRETE FLATWORK, AND ASPHALT CONCRETE PAVEMENTS AND ROADS.

3.05 SELECTIVE DEMOLITION, GENERAL

- A. GENERAL: DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF
- **GOVERNING REGULATIONS AND AS FOLLOWS:** PROCEED WITH SELECTIVE DEMOLITION SYSTEMATICALLY.
- 2. NEATLY CUT OPENINGS AND HOLES PLUMB, SQUARE, AND TRUE TO DIMENSIONS REQUIRED. USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION. USE HAND TOOLS OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING AND CHOPPING, TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES. TEMPORARILY COVER OPENINGS TO REMAIN.
- 3. CUT OR DRILL FROM THE EXPOSED OR FINISHED SIDE INTO CONCEALED SURFACES TO AVOID MARRING EXISTING FINISHED SURFACES.
- 4. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS.
- 5. REMOVE STRUCTURAL FRAMING MEMBERS AND LOWER TO GROUND BY METHOD SUITABLE TO AVOID FREE FALL AND TO PREVENT GROUND IMPACT OR DUST GENERATION.
- 6. DISPOSE OF DEMOLISHED ITEMS AND MATERIALS PROMPTLY.
- B. REMOVED AND SALVAGED ITEMS: CLEAN SALVAGED ITEMS.
- 2. PACK OR CRATE ITEMS AFTER CLEANING. IDENTIFY CONTENTS OF
- 3. STORE ITEMS IN A SECURE AREA UNTIL DELIVERY TO OWNER.
- 4. TRANSPORT ITEMS TO OWNER'S STORAGE AREA ON-SITE.

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- PROTECT ITEMS FROM DAMAGE DURING TRANSPORT AND STORAGE.
- C. EXISTING ITEMS TO REMAIN: PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. WHEN PERMITTED BY ARCHITECT, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION DURING SELECTIVE DEMOLITION AND CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS AFTER SELECTIVE DEMOLITION OPERATIONS ARE COMPLETE.

3.06 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. TOPSOIL: 1. BEFORE ANY CONSTRUCTION ACTIVITY BEGINS, REMOVE TOPSOIL AND STOCKPILE FOR RE-USE.
 - 2. TOPSOIL SHALL BE PROTECTED FROM CONTAMINATION BY WEEDS. DEBRIS, ETC. AND SHALL BE REPLACED, GRADED AND LIGHTLY COMPACTED BY CONTRACTOR AT COMPLETION OF PROJECT.
- B. CONCRETE: 1. DEMOLISH IN SECTIONS. CUT CONCRETE FULL DEPTH AT JUNCTURES WITH CONSTRUCTION TO REMAIN AND AT REGULAR INTERVALS, USING
- POWER-DRIVEN SAW, THEN REMOVE CONCRETE BETWEEN SAW CUTS. 2. CONCRETE SLABS-ON-GRADE: SAW-CUT PERIMETER OF AREA TO BE
- DEMOLISHED, THEN BREAK UP AND REMOVE 3. CONCRETE SHALL BE REMOVED TO NEATLY SAWED EDGES WITH SAW CUTS MADE TO A MINIMUM DEPTH OF 4 INCHES.
- 4. CONCRETE SIDEWALK OR DRIVEWAY TO BE REMOVED SHALL BE NEATLY SAWED IN STRAIGHT LINES EITHER PARALLEL TO THE CURB OR AT RIGHT ANGLES TO THE ALIGNMENT OF THE SIDEWALK. NO SECTION TO BE REPLACED SHALL BE SMALLER THAN 30 INCHES IN EITHER LENGTH
- 5. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, IF THE SAWCUT WOULD FALL WITHIN 30 INCHES OF A CONSTRUCTION JOINT, EXPANSION JOINT, OR EDGE, THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE, EXCEPT THAT WHERE THE SAW CUT WOULD FALL WITHIN 12 INCHES OF A SCORE MARK, THE SAW CUT SHALL BE MADE IN AND ALONG THE SCORE MARK.
- 6. CURB AND GUTTER TO BE REMOVED SHALL BE SAWED TO A DEPTH OF 1-1/2 INCHES ON A NEAT LINE AT RIGHT ANGLES TO THE CURB FACE.

C. ASPHALTIC CONCRETE PAVEMENT:

- 1. SAWING SHALL BE USED TO ENSURE THE BREAKAGE OF PAVEMENT ALONG STRAIGHT LINES.
- 2. DISPOSE OF ASPHALT PAVEMENT TO BE REMOVED AT A SUITABLE OFFSITE LOCATION IN ACCORDANCE WITH APPLICABLE LAWS AND ORDINANCES.

D. FENCES AND MISCELLANEOUS OBSTRUCTIONS

1. NO DEMOLITION OR REMOVAL OF FENCES OR MISCELLANEOUS OBSTRUCTIONS SHALL PROCEED UNTIL CLEARANCE IS OBTAINED FROM THE OWNER.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. GENERAL: EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE RECYCLED, REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN OWNER'S PROPERTY, REMOVE DEMOLISHED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL.
 - DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON-SITE. 2. REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
- B. BURNING: DO NOT BURN DEMOLISHED MATERIALS.

C. DISPOSAL: TRANSPORT DEMOLISHED MATERIALS OFF OWNER'S PROPERTY AND LEGALLY DISPOSE OF THEM.

3.08 CLEANING A. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY SELECTIVE DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE SELECTIVE DEMOLITION OPERATIONS BEGAN.

END OF SECTION

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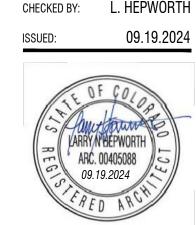
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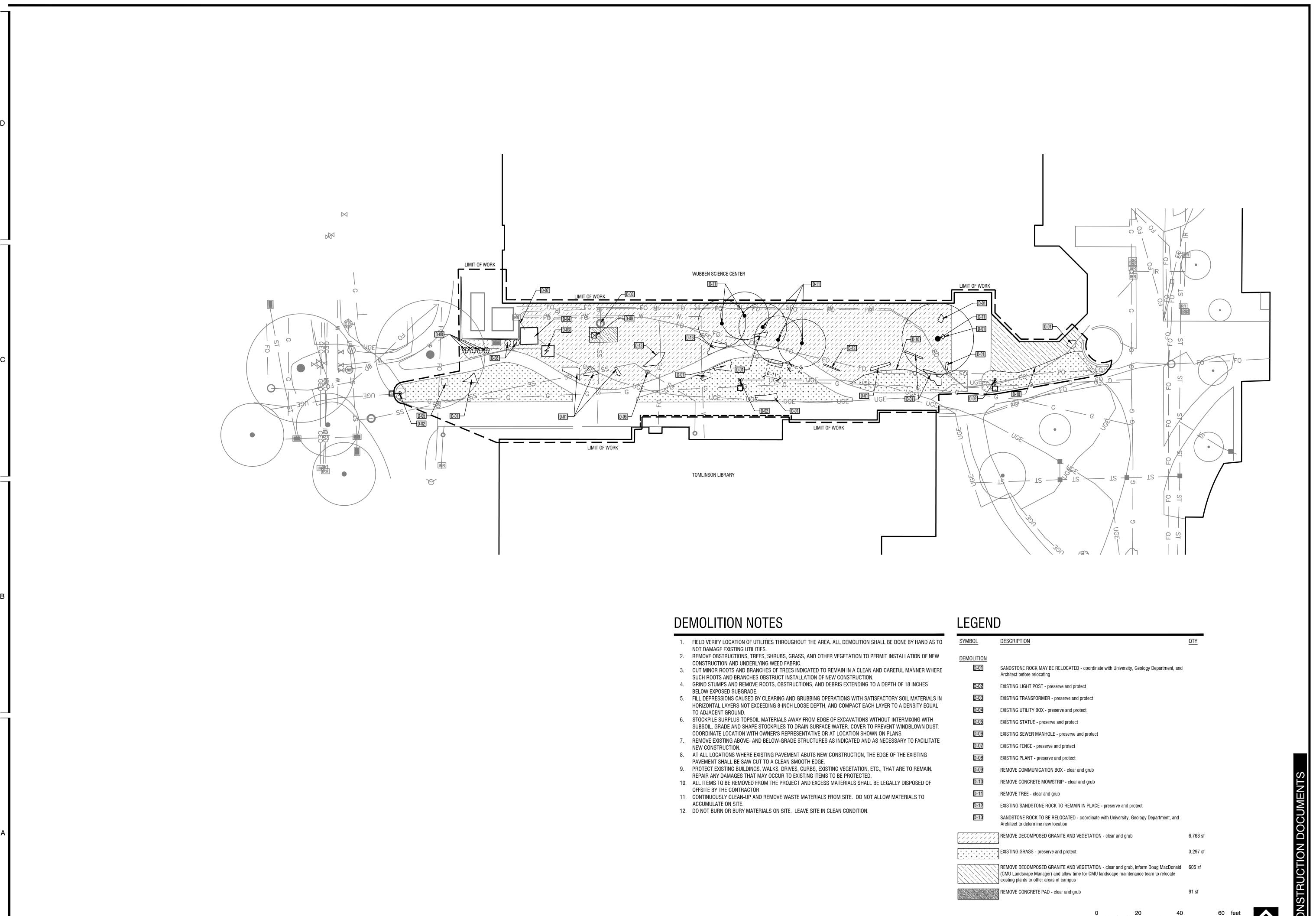
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J. CLEMENTS



GENERAL **SPECIFICATIONS**

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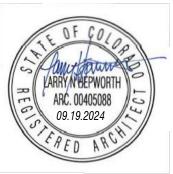
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DURING CONSTRUCTION.

B. PROTECT EXISTING SITE IMPROVEMENTS TO REMAIN FROM DAMAGE DURING

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

1. RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO

A. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT

OR REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, WHICHEVER IS MORE

B. INSPECT, REPAIR, AND MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES

SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO

HAVING JURISDICTION, SEDIMENT AND EROSION CONTROL DRAWINGS, A SEDIMENT AND

EROSION CONTROL PLAN, SPECIFIC TO THE SITE, THAT COMPLIES WITH EPA 832/R-92-005

ADJACENT PROPERTIES AND WALKWAYS, ACCORDING TO REQUIREMENTS OF AUTHORITIES

DURING CONSTRUCTION UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. C. REMOVE EROSION AND SEDIMENTATION CONTROLS AND RESTORE AND STABILIZE AREAS DISTURBED DURING REMOVAL. 3.03 SITE CLEARING AND GRUBBING A. REMOVE OBSTRUCTIONS, GRASS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION. B. FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SATISFACTORY SOIL MATERIAL UNLESS FURTHER EXCAVATION OR EARTHWORK IS INDICATED. 1. PLACE FILL MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING A LOOSE DEPTH OF 8 INCHES AND COMPACT EACH LAYER TO A DENSITY EQUAL TO ADJACENT ORIGINAL 3.04 EXISTING UTILITIES AND BUILT ELEMENTS A. COORDINATE WORK WITH UTILITY COMPANIES: NOTIFY BEFORE STARTING WORK AND COMPLY WITH THEIR REQUIREMENTS; OBTAIN REQUIRED PERMITS. 1. OWNER WILL ARRANGE TO SHUT OFF INDICATED UTILITIES WHEN REQUESTED BY CONTRACTOR. B. PROTECT EXISTING UTILITIES TO REMAIN FROM DAMAGE. DIG BY HAND ONLY. C. DO NOT DISRUPT PUBLIC UTILITIES WITHOUT PERMIT FROM AUTHORITY HAVING

1. NOTIFY ARCHITECT NOT LESS THAN TWO DAYS IN ADVANCE OF PROPOSED UTILITY

2. DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT ARCHITECT'S WRITTEN

1. REMOVE SUBSOIL AND NON-SOIL MATERIALS FROM TOPSOIL, INCLUDING TRASH, DEBRIS,

WITH SUBSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. COVER TO

OTHER THAN PERVIOUS PAVING, REMOVE VEGETATION WITH MINIMUM DISTURBANCE OF THE

1. CHIP, GRIND, CRUSH, OR SHRED VEGETATION FOR MULCHING, COMPOSTING, OR OTHER

2. TREES: SELL IF MARKETABLE; IF NOT, TREAT AS SPECIFIED FOR OTHER VEGETATION

REMOVED; REMOVE STUMPS AND ROOTS TO DEPTH OF 18 INCHES (450 MM).

3. SOD: RE-USE ON SITE IF POSSIBLE; OTHERWISE SELL IF MARKETABLE, AND IF NOT,

4. FILL HOLES LEFT BY REMOVAL OF STUMPS AND ROOTS, USING SUITABLE FILL MATERIAL,

FENCES IS DAMAGED OR DESTROYED DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS,

NECESSARY TO FACILITATE NEW CONSTRUCTION. REFER TO PROJECT PLANS FOR

1. UNLESS EXISTING FULL-DEPTH JOINTS COINCIDE WITH LINE OF DEMOLITION, NEATLY

2. PAINT CUT ENDS OF STEEL REINFORCEMENT IN CONCRETE TO REMAIN TO PREVENT

SAW-CUT LENGTH OF EXISTING PAVEMENT TO REMAIN BEFORE REMOVING EXISTING

MATERIALS, AND WASTE MATERIALS INCLUDING TRASH AND DEBRIS, AND LEGALLY DISPOSE

1. SEPARATE RECYCLABLE MATERIALS PRODUCED DURING SITE CLEARING FROM OTHER

END OF SECTION

SECTION 31 2300

EARTHWORK

1. PREPARING SUBGRADES FOR WALKS, PAVEMENTS, LAWNS, AND PLANTINGS.

CURBS, MECHANICAL AND ELECTRICAL APPURTENANCES, OR OTHER MAN-MADE

STATIONARY FEATURES CONSTRUCTED ABOVE OR BELOW THE GROUND SURFACE.

ASPHALT PAVING, OR LAYER PLACED BETWEEN THE SUBGRADE AND A CONCRETE

SURFACE OF A FILL OR BACKFILL IMMEDIATELY BELOW SUBBASE, DRAINAGE FILL, OR

INTERPRETING TEST RESULTS FOR COMPLIANCE OF THE FOLLOWING WITH REQUIREMENTS

2. LABORATORY COMPACTION CURVE ACCORDING TO ASTM D 1557 FOR EACH ON-SITE OR

CONTRACTOR WITH A TOPOGRAPHIC SURVEY PERFORMED BY MANUAL OR AERIAL

MEANS. SUCH SURVEY WAS PREPARED FOR PROJECT DESIGN PURPOSES AND IS PROVIDED TO THE CONTRACTOR AS A COURTESY. IT IS EXPRESSLY UNDERSTOOD THAT

THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL EXISTING CONDITIONS BY

SUCH SURVEY MAY NOT ACCURATELY REFLECT EXISTING TOPOGRAPHICAL CONDITIONS

AND TYPICALLY WILL VARY FROM ACTUAL CONDITIONS BY A SIGNIFICANT DEGREE. IT IS

WHATEVER MEANS THE CONTRACTOR DEEMS APPROPRIATE. THE CONTRACTOR SHALL

BE RESPONSIBLE FOR DETERMINING THEIR OWN EARTHWORK QUANTITIES AND NOT RELY

ON ANY ESTIMATE PREPARED BY THE OWNER, ITS AGENTS OR OUTSIDE PARTIES. THE

FOR IMPORTING OR EXPORTING SOILS TO ACHIEVE FINAL SUB-GRADES WITH SUITABLE

BEYOND THE CONTRACTOR'S LUMP SUM BID PRICE FOR THE PROJECT, FOR THE

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CONTRACTOR IS RESPONSIBLE AS PART OF ITS LUMP SUM BID PRICE FOR THE PROJECT.

SOILS PER THE PLANS AND SPECIFICATIONS. NO ADDITIONAL MONIES WILL BE ALLOWED

1. CLASSIFICATION ACCORDING TO ASTM D 2487 OF EACH ON-SITE OR BORROW SOIL

1. AS PART OF THE CONSTRUCTION DOCUMENTS, OWNER MAY HAVE PROVIDED

CABLES, AS WELL AS UNDERGROUND SERVICES WITHIN BUILDINGS.

BORROW SOIL MATERIAL PROPOSED FOR FILL AND BACKFILL.

MATERIAL PROPOSED FOR FILL AND BACKFILL.

EXPORTING OR IMPORTING OF SOILS.

SUBBASE COURSE FOR CONCRETE WALKS AND PAVEMENTS.

OTHER MATERIALS AND TRANSPORT THEM TO RECYCLING FACILITIES.

NON-RECYCLABLE MATERIALS. STORE OR STOCKPILE WITHOUT INTERMIXING WITH

WITH TOP SURFACE NEAT IN APPEARANCE AND SMOOTH ENOUGH NOT TO CONSTITUTE A

PURPOSES; PREFERENCE SHOULD BE GIVEN TO ON-SITE USES.

TREAT AS SPECIFIED FOR OTHER VEGETATION REMOVED.

INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS.

2. DISPOSE OF EXCESS TOPSOIL AS SPECIFIED FOR WASTE MATERIAL DISPOSAL. 3. STOCKPILE SURPLUS TOPSOIL TO ALLOW FOR RE-SPREADING DEEPER TOPSOIL.

WEEDS, ROOTS, AND OTHER WASTE MATERIALS.

1. LIMIT HEIGHT OF TOPSOIL STOCKPILES TO 120 INCHES.

JURISDICTION.

INTERRUPTIONS.

PREVENT WINDBLOWN DUST.

HAZARD TO PEDESTRIANS.

REPLACE AT NO COST TO OWNER.

OF THEM OFF OWNER'S PROPERTY.

CORROSION.

LAYING PIPE.

FLOW OF PORE WATER.

PAVEMENT OR WALK.

TOPSOIL MATERIALS.

IMPROVEMENTS TO BE ABANDONED IN PLACE.

PAVEMENT. SAW-CUT FACES VERTICALLY.

PERMISSION.

B. EXISTING UTILITIES: LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF WORK. IF UTILITIES ARE TO REMAIN IN PLACE, PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION DURING EARTHWORK OPERATIONS.

1. SHOULD UNCHARTED, OR INCORRECTLY CHARTED, PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING EXCAVATION, CONSULT UTILITY OWNER IMMEDIATELY FOR DIRECTIONS. COOPERATE WITH OWNER AND UTILITY COMPANIES IN KEEPING RESPECTIVE SERVICES AND FACILITIES IN OPERATION. REPAIR DAMAGED UTILITIES TO SATISFACTION OF UTILITY OWNER.

2. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED IN WRITING BY ARCHITECT AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY SERVICES ACCORDING TO REQUIREMENTS INDICATED: 3. NOTIFY ARCHITECT NOT LESS THAN SEVEN (7) DAYS IN ADVANCE OF PROPOSED UTILITY

4. DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT ARCHITECT'S WRITTEN

5. CONTACT UTILITY-LOCATOR SERVICE FOR AREA WHERE PROJECT IS LOCATED BEFORE EXCAVATING. 6. DIG BY HAND ONLY TO AVOID

C. PROTECTION OF PERSONS AND PROPERTY: BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND POST WITH WARNING LIGHTS.

1. OPERATE WARNING LIGHTS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION.

2.01 SOIL MATERIALS

A. GENERAL: PROVIDE BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS.

B. SATISFACTORY SOILS: ASTM D 2487 SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP, AND SM, OR A COMBINATION OF THESE GROUP SYMBOLS; FREE OF ROCK OR GRAVEL LARGER THAN 4 INCHES (100 MM) IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.

C. UNSATISFACTORY SOILS: ASTM D 2487 SOIL CLASSIFICATION GROUPS GC, SC, ML, MH, CL, CH, OL, OH, AND PT, OR A COMBINATION OF THESE GROUP SYMBOLS. 1. UNSATISFACTORY SOILS ALSO INCLUDE SATISFACTORY SOILS NOT MAINTAINED WITHIN 2

PERCENT OF OPTIMUM MOISTURE CONTENT AT TIME OF COMPACTION. D. BACKFILL AND FILL: SATISFACTORY SOIL MATERIALS.

E. SUBBASE: NATURALLY OR ARTIFICIALLY WELL GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; WITH AT LEAST 70 PERCENT PASSING A 3/4- INCH (18-MM) SIEVE AND NOT MORE THAN 25 PERCENT PASSING A NO. 200 (0.075-MM) SIEVE.

F. BASE COURSE: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; CONFORMING TO THE 1 INCH GRADATION REQUIREMENTS OF SECTION 301 OF THE UDOT STANDARD

SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION. G. BEDDING: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; EXCEPT WITH 100 PERCENT PASSING A 1-INCH (25-MM) SIEVE AND NOT MORE THAN 8 PERCENT PASSING A NO. 200 (0.075-MM) SIEVE.

H. DRAINAGE FILL: WASHED, NARROWLY GRADED MIXTURE OF CRUSHED STONE, OR CRUSHED OR UNCRUSHED GRAVEL; ASTM D 448; COARSE-AGGREGATE GRADING SIZE 57; WITH 100 PERCENT PASSING A 1-1/2- INCH (38-MM) SIEVE AND 0 TO 5 PERCENT PASSING A NO. 8 (2.36-MM) SIEVE.

I. FILTER MATERIAL: NARROWLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, OR CRUSHED STONE AND NATURAL SAND; ASTM D 448; COARSE-AGGREGATE GRADING SIZE 67; WITH 100 PERCENT PASSING A 1-INCH (25-MM) SIEVE AND 0 TO 5 PERCENT PASSING A NO. 4 (4.75-MM) SIEVE.

PART 3 - EXECUTION 3.01 PREPARATION

> A. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY EARTHWORK OPERATIONS.

B. PROTECT SUBGRADES AND FOUNDATION SOILS AGAINST FREEZING TEMPERATURES OR FROST. PROVIDE PROTECTIVE INSULATING MATERIALS AS NECESSARY.

C. PROVIDE EROSION-CONTROL MEASURES TO PREVENT EROSION OR DISPLACEMENT OF SOILS AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS.

A. PREVENT SURFACE WATER AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING PROJECT SITE AND

B. PROTECT SUBGRADES FROM SOFTENING, UNDERMINING, WASHOUT, AND DAMAGE BY RAIN OR WATER ACCUMULATION

1. REROUTE SURFACE WATER RUNOFF AWAY FROM EXCAVATED AREAS. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS. DO NOT USE EXCAVATED TRENCHES AS TEMPORARY DRAINAGE DITCHES.

2. INSTALL A DEWATERING SYSTEM TO KEEP SUBGRADES DRY AND CONVEY GROUND WATER AWAY FROM EXCAVATIONS. MAINTAIN UNTIL DEWATERING IS NO LONGER REQUIRED.

3.03 EXPLOSIVES - NOT ALLOWED 3.04 EXCAVATION, GENERAL

A. UNCLASSIFIED EXCAVATION: EXCAVATION TO SUBGRADE ELEVATIONS REGARDLESS OF THE CHARACTER OF SURFACE AND SUBSURFACE CONDITIONS ENCOUNTERED, INCLUDING ROCK, SOIL MATERIALS, AND OBSTRUCTIONS.

1. IF EXCAVATED MATERIALS INTENDED FOR FILL AND BACKFILL INCLUDE UNSATISFACTORY SOIL MATERIALS AND ROCK, REPLACE WITH SATISFACTORY SOIL MATERIALS. 3.05 EXCAVATION FOR WALKS AND PAVEMENTS

A. EXCAVATE SURFACES UNDER WALKS AND PAVEMENTS TO INDICATED CROSS SECTIONS, ELEVATIONS, AND GRADES.

3.06 STORAGE OF SOIL MATERIALS

A. STOCKPILE BORROW MATERIALS AND SATISFACTORY EXCAVATED SOIL MATERIALS. STOCKPILE SOIL MATERIALS WITHOUT INTERMIXING. PLACE, GRADE, AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. COVER TO PREVENT WINDBLOWN DUST. 1. STOCKPILE SOIL MATERIALS AWAY FROM EDGE OF EXCAVATIONS. DO NOT STORE WITHIN DRIP LINE OF REMAINING TREES.

A. PLACE AND COMPACT BACKFILL IN EXCAVATIONS PROMPTLY, BUT NOT BEFORE COMPLETING THE FOLLOWING:

 CONSTRUCTION BELOW FINISH GRADE INCLUDING, WHERE APPLICABLE, DAMPPROOFING, WATERPROOFING, AND PERIMETER INSULATION. 2. SURVEYING LOCATIONS OF UNDERGROUND UTILITIES FOR RECORD DOCUMENTS.

3. INSPECTING AND TESTING UNDERGROUND UTILITIES.

REMOVING CONCRETE FORMWORK. REMOVING TRASH AND DEBRIS.

6. REMOVING TEMPORARY SHORING AND BRACING, AND SHEETING.

7. INSTALLING PERMANENT OR TEMPORARY HORIZONTAL BRACING ON HORIZONTALLY SUPPORTED WALLS.

A. PREPARATION: REMOVE VEGETATION, TOPSOIL, DEBRIS, UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE BEFORE PLACING FILLS.

B. PLOW, SCARIFY, BENCH, OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SO FILL MATERIAL WILL BOND WITH EXISTING MATERIAL. C. PLACE AND COMPACT FILL MATERIAL IN LAYERS TO REQUIRED ELEVATIONS AS FOLLOWS:

LAYER BEFORE COMPACTION TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT

1. DO NOT PLACE BACKFILL OR FILL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN,

2. UNDER WALKS AND PAVEMENTS, USE SATISFACTORY SOIL MATERIAL. 3.09 MOISTURE CONTROL A. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL

UNDER GRASS AND PLANTED AREAS, USE SATISFACTORY SOIL MATERIAL.

OR CONTAIN FROST OR ICE. 2. REMOVE AND REPLACE, OR SCARIFY AND AIR-DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT EXCEEDS OPTIMUM MOISTURE CONTENT BY 2 PERCENT AND IS TOO WET

TO COMPACT TO SPECIFIED DRY UNIT WEIGHT. 3.10 COMPACTION OF BACKFILLS AND FILLS

A. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8 INCHES (200 MM) IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES (100 MM) IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.

B. PLACE BACKFILL AND FILL MATERIALS EVENLY ON ALL SIDES OF STRUCTURES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. C. COMPACT SOIL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DRY UNIT

4

WEIGHT ACCORDING TO ASTM D 1557: 1. UNDER WALKWAYS, SCARIFY AND RECOMPACT TOP 6 INCHES (150 MM) BELOW

SUBGRADE AND COMPACT EACH LAYER OF BACKFILL OR FILL MATERIAL AT 95 PERCENT. 2. UNDER LAWN OR UNPAVED AREAS, SCARIFY AND RECOMPACT TOP 6 INCHES (150 MM) BELOW SUBGRADE AND COMPACT EACH LAYER OF BACKFILL OR FILL MATERIAL AT 90

3.11 GRADING A. GENERAL: UNIFORMLY GRADE AREAS TO A SMOOTH SURFACE, FREE FROM IRREGULAR

SURFACE CHANGES. COMPLY WITH COMPACTION REQUIREMENTS AND GRADE TO CROSS SECTIONS, LINES, AND ELEVATIONS INDICATED.

1. PROVIDE A SMOOTH TRANSITION BETWEEN ADJACENT EXISTING GRADES AND NEW

2. CUT OUT SOFT SPOTS, FILL LOW SPOTS, AND TRIM HIGH SPOTS TO COMPLY WITH REQUIRED SURFACE TOLERANCES.

B. SITE GRADING: SLOPE GRADES TO DIRECT WATER AWAY FROM BUILDINGS AND TO

PREVENT PONDING. FINISH SUBGRADES TO REQUIRED ELEVATIONS WITHIN THE FOLLOWING 1. LAWN OR UNPAVED AREAS: PLUS OR MINUS 0.2 FT (25 MM).

WALKS AND PAVEMENTS: PLUS OR MINUS 0.1 FT (13 MM). 3.12 SUBBASE AND BASE COURSES

A. UNDER PAVEMENTS AND WALKS, PLACE SUBBASE COURSE ON PREPARED SUBGRADE AND AS FOLLOWS:

1. PLACE BASE COURSE MATERIAL OVER SUBBASE.

2. COMPACT SUBBASE AND BASE COURSES AT OPTIMUM MOISTURE CONTENT TO REQUIRED GRADES, LINES, CROSS SECTIONS, AND THICKNESS TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 1557.

3. SHAPE SUBBASE AND BASE TO REQUIRED CROWN ELEVATIONS AND CROSS-SLOPE

4. WHEN THICKNESS OF COMPACTED SUBBASE OR BASE COURSE IS 6 INCHES (150 MM) OR

LESS, PLACE MATERIALS IN A SINGLE LAYER. 3.13 FIELD QUALITY CONTROL

A. TESTING AGENCY: OWNER WILL ENGAGE A QUALIFIED INDEPENDENT GEOTECHNICAL

ENGINEERING TESTING AGENCY TO PERFORM FIELD QUALITY-CONTROL TESTING. B. ALLOW TESTING AGENCY TO INSPECT AND TEST SUBGRADES AND EACH FILL OR BACKFILL LAYER. PROCEED WITH SUBSEQUENT EARTHWORK ONLY AFTER TEST RESULTS FOR PREVIOUSLY COMPLETED WORK COMPLY WITH REQUIREMENTS.

C. FOOTING SUBGRADE: AT FOOTING SUBGRADES, AT LEAST ONE TEST OF EACH SOIL STRATUM WILL BE PERFORMED TO VERIFY DESIGN BEARING CAPACITIES. SUBSEQUENT VERIFICATION AND APPROVAL OF OTHER FOOTING SUBGRADES MAY BE BASED ON A VISUAL COMPARISON OF SUBGRADE WITH TESTED SUBGRADE WHEN APPROVED BY ARCHITECT.

D. TESTING AGENCY WILL TEST COMPACTION OF SOILS IN PLACE ACCORDING TO ASTM D 1556, ASTM D 2167, ASTM D 2922, AND ASTM D 2937, AS APPLICABLE. TESTS WILL BE PERFORMED AT THE FOLLOWING LOCATIONS AND FREQUENCIES:

1. PAVED AND BUILDING SLAB AREAS: AT SUBGRADE AND AT EACH COMPACTED FILL AND BACKFILL LAYER, AT LEAST ONE TEST FOR EVERY 1000 SQ. FT. (186 SQ. M) OR LESS OF PAVED AREA OR BUILDING SLAB, BUT IN NO CASE FEWER THAN THREE TESTS.

2. FOUNDATION WALL/CONTINUOUS FOOTING BACKFILL: AT EACH COMPACTED BACKFILL LAYER, AT LEAST ONE TEST FOR EACH 15 LINEAR FEET OR LESS OF WALL LENGTH, BUT NO FEWER THAN TWO TESTS.

3. TRENCH BACKFILL: AT EACH COMPACTED INITIAL AND FINAL BACKFILL LAYER, AT LEAST ONE TEST FOR EACH 40 FEET OR LESS OF TRENCH LENGTH, BUT NO FEWER THAN TWO

4. SPOT FOOTINGS: MINIMUM OF 1 COMPACTION TEST FOR EACH LIFT FOR EACH SPOT

5. SIDEWALKS, CURBS, GUTTERS, PADS: MINIMUM OF 1 TEST FOR EACH LIFT FOR EACH 40 LINEAL FEET OR 1 TEST FOR EVERY 1000 SQ. FT. OR LESS OF PAVED AREA OR BUILDING SLAB, BUT IN NO CASE FEWER THAN THREE TESTS. E. WHEN TESTING AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS HAVE NOT

ACHIEVED DEGREE OF COMPACTION SPECIFIED, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL TO DEPTH REQUIRED; RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION IS OBTAINED.

A. PROTECTING GRADED AREAS: PROTECT NEWLY GRADED AREAS FROM TRAFFIC, FREEZING,

AND EROSION. KEEP FREE OF TRASH AND DEBRIS B. REPAIR AND REESTABLISH GRADES TO SPECIFIED TOLERANCES WHERE COMPLETED OR PARTIALLY COMPLETED SURFACES BECOME ERODED, RUTTED, SETTLED, OR WHERE THEY LOSE COMPACTION DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS OR WEATHER

1. SCARIFY OR REMOVE AND REPLACE SOIL MATERIAL TO DEPTH AS DIRECTED BY ARCHITECT: RESHAPE AND RECOMPACT. C. WHERE SETTLING OCCURS BEFORE PROJECT CORRECTION PERIOD ELAPSES, REMOVE FINISHED SURFACING, BACKFILL WITH ADDITIONAL SOIL MATERIAL, COMPACT, AND

RECONSTRUCT SURFACING. 1. RESTORE APPEARANCE, QUALITY, AND CONDITION OF FINISHED SURFACING TO MATCH ADJACENT WORK, AND ELIMINATE EVIDENCE OF RESTORATION TO THE GREATEST EXTENT

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. DISPOSAL: REMOVE SURPLUS SATISFACTORY SOIL AND WASTE MATERIAL, INCLUDING UNSATISFACTORY SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF IT OFF OWNER'S

END OF SECTION

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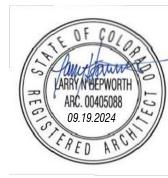
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SALT LAKE CITY, UTAH



1.1 RELATED DOCUMENTS

A. THIS SECTION INCLUDES THE FOLLOWING:

A. THE MOST CURRENT VERSION OF THE PUBLICATIONS LISTED BELOW FORM A PART

OF THIS SPECIFICATION TO THE EXTENT REFERENCED. THE PUBLICATIONS ARE

1. CITY OF GRAND JUNCTION - STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE

CONSTRUCTION. PROVISIONS OF THE GRAND JUNCTION SPECIFICATIONS TAKE

2. COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR

STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) REFERENCES

c. ACI 304R: GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING

e. ACI 306.1: STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING

h. ACI 350R: CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING

a. ASTM A 185: STANDARD SPECIFICATION FOR STEEL WELDED WIRE

g. ACI 311.5R: BATCH PLANT INSPECTION AND FIELD TESTING OF READY-MIXED

ASTM A 615: STANDARD SPECIFICATION FOR DEFORMED AND PLAIN BILLET-STEEL

c. ASTM C 31: STANDARD PRACTICE FOR MAKING AND CURING CONCRETE TEST

f. ASTM C 42: STANDARD TEST METHOD FOR OBTAINING AND TESTING DRILLED

ASTM C 94: STANDARD SPECIFICATION FOR READY-MIXED CONCRETE

ASTM C 150: STANDARD SPECIFICATION FOR PORTLAND CEMENT

h. ASTM C 143: STANDARD TEST METHOD FOR SLUMP OF HYDRAULIC CEMENT

ASTM C 171: STANDARD SPECIFICATION FOR SHEET MATERIALS FOR CURING

ASTM C 231: STANDARD TEST METHOD FOR AIR CONTENT OF FRESHLY MIXED

k. ASTM C 172: STANDARD PRACTICE FOR SAMPLING FRESHLY MIXED CONCRETE

m. ASTM C 260: STANDARD SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR

n. ASTM C 309: STANDARD SPECIFICATION FOR LIQUID MEMBRANE-FORMING

o. ASTM C 494: STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR

FILLER FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION

(NONEXTRUDING AND RESILIENT BITUMINOUS TYPES)

A. GENERAL: SUBMIT EACH ITEM IN ACCORDANCE WITH THE GENERAL REQUIREMENTS

ALTERNATE MIX DESIGNS WHEN CHARACTERISTICS OF MATERIALS, PROJECT

1. THE CONCRETE MIX DESIGNS SHALL BE IN CONFORMANCE WITH CITY OF

CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT

SUPPORTING TEST DOCUMENTATION SHALL BE CURRENT, WITH COMPRESSIVE

D. JOINT LAYOUT: SUBMIT A SKETCH SHOWING THE LOCATION OF ALL EXPANSION AND

E. LABORATORY TEST REPORTS: FROM A TESTING LABORATORY MEETING THE

F. MATERIAL CERTIFICATES: SIGNED BY MANUFACTURERS AND THE CONTRACTOR

A. INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO HAS COMPLETED

B. CONCRETE MANUFACTURER QUALIFICATIONS: MANUFACTURER OF READY-MIXED

CONCRETE PRODUCTS COMPLYING WITH ASTM C 94 REQUIREMENTS FOR

CONCRETE ASSOCIATION'S PLANT CERTIFICATION PROGRAM.

c. TESTING AGENCY QUALIFICATIONS: THE OWNER WILL PROVIDE TESTING.

PAVEMENT WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT REQUIRED

FOR THIS PROJECT AND WHOSE WORK HAS RESULTED IN CONSTRUCTION WITH A

1. MANUFACTURER MUST BE CERTIFIED ACCORDING TO THE NATIONAL READY MIX

D. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF CLASS OF CEMENTITIOUS MATERIAL OF

E. ACI PUBLICATIONS: COMPLY WITH ACI 301, UNLESS MODIFIED BY THE REQUIREMENTS

A. CEMENTITIOUS MATERIALS: PORTLAND CEMENT ALONE OR IN COMBINATION WITH

A. TRAFFIC CONTROL: MAINTAIN ACCESS OF AND PROTECTION FOR VEHICULAR AND

B. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM THE COLLEGE AND THE

PEDESTRIAN TRAFFIC AS REQUIRED FOR CONSTRUCTION ACTIVITIES.

CITY OF GRAND JUNCTION PRIOR TO PROCEEDING WITH THE WORK.

ONE OR MORE OF BLENDED HYDRAULIC CEMENT, EXPANSIVE HYDRAULIC CEMENT,

THE SAME BRAND FROM THE SAME MANUFACTURER'S PLANT AND EACH AGGREGATE

STRENGTH DATA PRESENTED WITHIN PREVIOUS 1 YEAR OF THE SUBMISSION.

CONTROL JOINTS AND SCORING PRIOR TO PLACING CONCRETE. INDICATE METHOD OF

REQUIREMENTS OF PARAGRAPH 1.6.C BELOW, INDICATING AND INTERPRETING TEST

SPECIFICATIONS AND BASED ON COMPREHENSIVE TESTING OF CURRENT MATERIALS

CERTIFYING THAT EACH OF THE FOLLOWING MATERIALS COMPLIES WITH OR EXCEEDS

RESULTS FOR COMPLIANCE WITH THE REQUIREMENTS INDICATED WITHIN THESE

C. DESIGN MIXES: FOR EACH CONCRETE PAVEMENT MIX AND CLASS, INCLUDE

GRAND JUNCTION REQUIREMENTS IN SECTION 608.

1. CEMENTITIOUS MATERIALS AND AGGREGATES.

RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.

PRODUCTION FACILITIES AND EQUIPMENT.

B. PRODUCT DATA: FOR EACH TYPE OF MANUFACTURED MATERIAL AND PRODUCT INDICATED.

ASTM C 618: STANDARD SPECIFICATION FOR COAL FLY ASH AND RAW OR

CALCINED NATURAL POZZOLAN FOR USE AS A MINERAL ADMIXTURE IN CONCRETE

ASTM C 1064: STANDARD TEST METHOD FOR TEMPERATURE OF FRESHLY MIXED

ASTM D 1752: STANDARD SPECIFICATION FOR PREFORMED SPONGE RUBBER AND

ASTM D 1751: STANDARD SPECIFICATION FOR PREFORMED EXPANSION JOINT

CORK EXPANSION JOINT FILLERS FOR CONCRETE PAVING AND STRUCTURAL

d. ASTM C 33: STANDARD SPECIFICATION FOR CONCRETE AGGREGATES

e. ASTM C 39: STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF

a. ACI 301: SPECIFICATION FOR STRUCTURAL CONCRETE

d. ACI 309R: GUIDE FOR CONSOLIDATION OF CONCRETE

f. ACI 311.4R: GUIDE FOR CONCRETE INSPECTION

5. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

REINFORCEMENT, PLAIN, FOR CONCRETE

BARS FOR CONCRETE REINFORCEMENT

CYLINDRICAL CONCRETE SPECIMENS

CORES AND SAWED BEAMS OF CONCRETE

CONCRETE BY THE PRESSURE METHOD

COMPOUNDS FOR CURING CONCRETE

CONSTRUCTION

AND CONDITIONS OF THE CONTRACT DOCUMENTS.

1.4 SUBMITTALS

ADJUSTMENTS.

INSTALLING SCORE LINES.

AND MIX DESIGNS.

REQUIREMENTS:

ADMIXTURES.

1.5 QUALITY ASSURANCE

FROM ONE SOURCE.

OF THE CONTRACT DOCUMENTS.

FLY ASH AND OTHER POZZOLANS.

1.7 REGULATORY REQUIREMENTS

3. CURING COMPOUNDS.

7. FORMING ACCESSORIES.

STEEL REINFORCEMENT.

4. APPLIED FINISH MATERIALS.

BONDING AGENT OR ADHESIVE.

6. JOINT FILLERS AND SEALERS.

b. ACI 347: GUIDE TO FORMWORK FOR CONCRETE

ROAD AND BRIDGE CONSTRUCTION (CDOT) AND THE AMERICAN ASSOCIATION OF

REFERRED TO IN THE TEXT BY BASIC DESIGNATION ONLY.

PRECEDENCE OVER CDOT SPECIFICATIONS.

3. CDOT STANDARD PLANS M & S STANDARDS

4. AMERICAN CONCRETE INSTITUTE (ACI)

CONCRETE STRUCTURES

SPECIMENS IN THE FIELD

i. ACI SP 66: ACI DETAILING MANUAL

CONCRETE SIDEWALKS

A. FORM MATERIALS: PLYWOOD, METAL, METAL-FRAMED PLYWOOD, OR OTHER APPROVED PANEL-TYPE MATERIALS TO PROVIDE FULL-DEPTH, CONTINUOUS, A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND STRAIGHT, SMOOTH EXPOSED SURFACES. USE FLEXIBLE OR CURVED FORMS FOR SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO CURVES OF A RADIUS 100 FEET OR LESS.

B. FORM RELEASE AGENT: PROVIDE COMMERCIALLY FORMULATED FORM-RELEASE AGENT WITH A MAXIMUM OF 350 G/L VOLATILE ORGANIC COMPOUND (VOCS) THAT WILL NOT BOND WITH, STAIN, OR ADVERSELY AFFECT CONCRETE SURFACES AND WILL NOT IMPAIR SUBSEQUENT TREATMENTS OF CONCRETE SURFACES.

2.2 CONCRETE MATERIALS A. GENERAL: USE THE SAME BRAND AND TYPE OF CEMENTITIOUS MATERIAL FROM THE SAME MANUFACTURER THROUGHOUT THE PROJECT. B. PORTLAND CEMENT: ASTM C 150, TYPE II SULFATE RESISTANT OR TYPE V.

C. FLY ASH: ASTM C 618, CLASS C OR F INCLUDING SUPPLEMENTARY OPTIONAL REQUIREMENTS RELATING TO REACTIVE AGGREGATES AND ALKALIS, AND LOSS ON IGNITION (LOI) NOT TO EXCEED 3 PERCENT. CLASS C FLY ASH WILL NOT BE ALLOWED WHERE TYPE V PORTLAND CEMENT IS REQUIRED.

D. NORMAL-WEIGHT AGGREGATES: AASHTO M43, UNIFORMLY GRADED, FROM A SINGLE SOURCE, WITH COARSE AGGREGATE AS FOLLOWS: 1. SIZE NO. 57 (1" TO #4) OR 67 (3/4" TO #4).

MAXIMUM SIZE OF COARSE AGGREGATES NOT MORE THAN ONE-FIFTH OF NARROWEST DIMENSION BETWEEN SIDES OF FORMS, ONE-THIRD OF DEPTH OF SLABS, NOR THREE-FOURTH OF MINIMUM CLEAR SPACING BETWEEN REINFORCING BARS. 3. PERCENTAGE OF WEAR SHALL NOT EXCEED 45 WHEN TESTED IN ACCORDANCE WITH

4. COARSE AGGREGATE FOR CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M80.

5. DO NOT USE FINE OR COARSE AGGREGATE CONTAINING SUBSTANCES THAT CAUSE

E. FINE AGGREGATE: ASTM C33. FINE AGGREGATE FOR APPLIED CONCRETE FLOOR TOPPING SHALL PASS A NO. 4 SIEVE, 10 PERCENT MAXIMUM SHALL PASS A NO. 100

F. WATER: POTABLE, ASTM C 94. 2.3 STEEL REINFORCEMENT

A. CDOT SPECIFICATIONS, SECTION 709.01

2.4 ADMIXTURES

A. GENERAL: ADMIXTURES CERTIFIED BY MANUFACTURER TO CONTAIN NOT MORE THAN 0.1 PERCENT WATER- SOLUBLE CHLORIDE IONS BY MASS OF CEMENT AND TO BE COMPATIBLE WITH OTHER ADMIXTURES. USE ONLY ONE MANUFACTURER AS A SOURCE FOR ALL ADMIXTURES. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ANY AND ALL ADMIXTURES, WHEN USED IN COMBINATION, ARE COMPATIBLE WITH ANY OTHER ADMIXTURE USED IN MIX DESIGN. VERIFICATION TO BE PROVIDED WITH MIX DESIGN AND PRODUCT DATA SUBMITTALS, FOR REVIEW BY THE OWNER. PREVIOUSLY FROZEN ADMIXTURES WILL BE REJECTED.

B. AIR-ENTRAINING ADMIXTURES: ASTM C 260 / AASHTO M154, CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER REQUIRED ADMIXTURES AND NOT CONTAINING MORE CHLORIDE IONS THAN ARE PRESENT IN MUNICIPAL DRINKING WATER.

c. CHEMICAL ADMIXTURES: 1. WATER-REDUCING ADMIXTURE: ASTM C 494, TYPE A, CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER REQUIRED ADMIXTURES AND NOT CONTAINING MORE CHLORIDE IONS THAN ARE PRESENT IN MUNICIPAL DRINKING WATER.2. HIGH-RANGE WATER-REDUCING ADMIXTURE: ASTM C 494, TYPE F OR G, AND NOT CONTAINING MORE CHLORIDE IONS THAN ARE PRESENT IN MUNICIPAL DRINKING WATER.3. WATER-REDUCING AND ACCELERATING ADMIXTURE: ASTM C 494, TYPE E.4. WATER-REDUCING AND RETARDING ADMIXTURE: ASTM C 494, TYPE D.D.PROHIBITED ADMIXTURES: CALCIUM CHLORIDE, THIOCYANATE OR ADMIXTURES CONTAINING MORE THAN 0.05 PERCENT CHLORIDE IONS ARE NOT PERMITTED.2.5CURING MATERIALSA.CDOT SECTION 610.022.6RELATED

MATERIALSA.EXPANSION-AND-ISOLATION-JOINT-FILLER-STRIPS: CDOT SECTION 705.01. PREFORMED 1/2" THICK EXPANSION JOINT FILLERB.JOINT SEALER: IN ACCORDANCE WITH CDOT SECTION 705.012.7CONCRETE MIXESA.PREPARE DESIGN MIXES. PROPORTIONED ACCORDING TO CDOT SPECIFICATIONS, SECTION 601, FOR EACH TYPE AND STRENGTH OF CONCRETE.B.USE AN INDEPENDENT TESTING AGENCY MEETING THE REQUIREMENTS OF PARAGRAPH 1.5.C FOR PREPARING AND REPORTING PROPOSED MIX DESIGNS FOR THE TRIAL BATCH METHOD. DO NOT USE THE OWNER'S FIELD QUALITY-CONTROL TESTING AGENCY AS THE INDEPENDENT TESTING AGENCY.C.PROPORTION MIXES TO PROVIDE CONCRETE WITH THE FOLLOWING PROPERTIES.1. COMPRESSIVE STRENGTH: CLASS GV-B - 4000 PSI (28 DAY)2 SLUMP LIMIT: 4 INCHES, IN ACCORDANCE WITH ASTM C143.D.CEMENTITIOUS MATERIALS: LIMIT PERCENTAGE, BY WEIGHT, OF CEMENTITIOUS MATERIALS OTHER THAN PORTLAND CEMENT IN CONCRETE AS FOLLOWS:1. FLY ASH: 5 PERCENT. FLY ASH FOR CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C618, CLASS C OR F. TYPE C FLY ASH WILL NOT BE PERMITTED WHERE SULFATE RESISTANT CONCRETE

IS REQUIRED. FLY ASH SHALL BE FROM AN APPROVED SOURCE IN ACCORDANCE WITH

THE TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP) DESCRIBED IN 40 CFR 261, APPENDIX II.2.8CONCRETE MIXING A. READY-MIXED CONCRETE: COMPLY WITH REQUIREMENTS AND WITH CDOT SECTION 601. 1. THE CONCRETE SHALL BE DEPOSITED IN PLACE WITHIN 90 MINUTES OF BATCHING, WHEN CONCRETE IS DELIVERED IN AGITATING MIXER TRUCKS. CONCRETE IN NON-AGITATING MIXER TRUCKS SHALL BE PLACED WITHIN 60 MINUTES.

2. THE CONCRETE SHALL BE MIXED BETWEEN 50 AND 100 REVOLUTIONS OF THE MIXER

DRUM AT MIXING SPEED UPON ARRIVAL ON SITE, PRIOR TO DISHARGE

3. WHEN AIR TEMPERATURE IS BETWEEN 85 DEGREES F AND 90 DEGREES F, REDUCE MIXING AND DELIVERY TIME FROM 1-1/2 HOURS TO 75 MINUTES; WHEN AIR TEMPERATURE IS ABOVE 90 DEGREES F, REDUCE MIXING AND DELIVERY TIME TO 60 MINUTES.

3.1 PREPARATION A. REFER TO SECTION 02300 EARTHWORK FOR SUBGRADE PREPARATION. B. PROCEED WITH INSTALLATION ONLY AFTER NONCONFORMING CONDITIONS HAVE BEEN CORRECTED AND SUBGRADE AND BASE COURSE ARE STABLE AND READY TO RECEIVE PAVEMENT. SUBGRADE SHALL BE IN A MOIST CONDITION WHEN CONCRETE

c. REMOVE LOOSE MATERIAL FROM COMPACTED BASE COURSE SURFACE IMMEDIATELY

BEFORE PLACING CONCRETE.

3.2 FORMWORK, EDGE FORMS AND SCREED CONSTRUCTION A. SET, BRACE, AND SECURE FORMWORK, INCLUDING EDGE FORMS, BULKHEADS, AND INTERMEDIATE SCREED GUIDES FOR PAVEMENT TO REQUIRED LINES, GRADES, AND ELEVATIONS. INSTALL FORMS TO ALLOW CONTINUOUS PROGRESS OF WORK AND SO FORMS CAN REMAIN IN PLACE AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT. FORM WORK SHALL BE IN ACCORDANCE WITH ACI 347.

B. CLEAN FORMS AFTER EACH USE AND COAT WITH FORM RELEASE AGENT TO ENSURE SEPARATION FROM CONCRETE WITHOUT DAMAGE.

c. Curbs, Gutter & Sidewalks: In accordance with city of Grand Junction STANDARDS, 608.03

3.3 STEEL REINFORCEMENT

A. COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATING REINFORCEMENT AND WITH RECOMMENDATION IN CRSI'S "PLACING REINFORCING BARS" FOR PLACING AND SUPPORTING REINFORCEMENT.

B. CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, DIRT, ICE OR OTHER BOND REDUCING MATERIALS. DAMAGED EPOXY COATED REINFORCING STEEL SHALL BE PAINTED WITH A LIKE EPOXY MATERIAL.

C. ARRANGE, SPACE, AND SECURELY TIE BAR SUPPORTS TO HOLD REINFORCEMENT IN POSITION DURING CONCRETE PLACEMENT. MAINTAIN MINIMUM COVER TO REINFORCEMENT.

3.4 CONCRETE PLACEMENT

A. PLACE CAST-IN-PLACE CONCRETE ACCORDING TO CITY OF GRAND JUNCTION STANDARDS, 608.03, CDOT SECTION 601, ACI 318 OR ACI 350R AND AS INDICATED ON THE DRAWINGS

B. INSPECTION: BEFORE PLACING CONCRETE, INSPECT AND COMPLETE FORMWORK INSTALLATION, AND INSTALLATION OF ALL ITEMS TO BE EMBEDDED OR CAST IN. NOTIFY OTHER TRADES SO THAT THEY MAY INSTALL ANY EMBEDDED OR CAST IN ITEMS REQUIRED FOR THEIR WORK PRIOR TO CONTRACTOR'S INSPECTION. c. REMOVE SNOW, ICE, OR FROST FROM SUBBASE OR BASE COURSE SURFACE BEFORE PLACING CONCRETE. DO NOT PLACE CONCRETE ON SURFACES THAT ARE FROZEN, OR

WITH UNSUITABLE SUBGRADE MOISTURE CONDITIONS. D. MOISTEN BASE COURSE TO PROVIDE A UNIFORM DAMPENED CONDITION AT THE TIME CONCRETE IS PLACED. DO NOT PLACE CONCRETE AROUND MANHOLES OR OTHER STRUCTURES UNTIL THEY ARE AT THE REQUIRED FINISH ELEVATION AND ALIGNMENT, AND UNTIL THE REQUIRED EXPANSION MATERIAL IS INSTALLED.

E. COMPLY WITH REQUIREMENTS AND WITH RECOMMENDATIONS IN CDOT SECTION 601 AND ACI 304R FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE. F. DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT, OR DURING

G. DEPOSIT AND SPREAD CONCRETE IN A CONTINUOUS OPERATION BETWEEN TRANSVERSE JOINTS. DO NOT PUSH OR DRAG CONCRETE INTO PLACE OR USE VIBRATORS TO MOVE CONCRETE INTO PLACE.

H. CONSOLIDATE CONCRETE BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND-SPADING, RODDING, OR TAMPING. USE EQUIPMENT AND PROCEDURES TO CONSOLIDATE CONCRETE ACCORDING TO RECOMMENDATIONS IN ACI 309R. 1. CONSOLIDATE CONCRETE ALONG FACE OF FORMS AND ADJACENT TO TRANSVERSE

JOINTS WITH AN INTERNAL VIBRATOR. KEEP VIBRATOR AWAY FROM JOINT ASSEMBLIES, REINFORCEMENT, OR SIDE FORMS. USE ONLY SQUARE-FACED SHOVELS FOR HAND SPREADING AND CONSOLIDATION. CONSOLIDATE WITH CARE TO PREVENT DISLOCATING REINFORCEMENT, DOWELS, AND JOINT DEVICES.

I. PLACE CONCRETE IN TWO OPERATIONS; STRIKE OFF INITIAL POUR FOR ENTIRE WIDTH OF PLACEMENT AND TO THE REQUIRED DEPTH BELOW FINISH SURFACE. IMMEDIATELY LAY WELDED WIRE FABRIC OR BAR MATS IN FINAL POSITION. PLACE TOP LAYER OF CONCRETE, STRIKE OFF, AND SCREED.

1. REMOVE AND REPLACE PORTIONS OF BOTTOM LAYER OF CONCRETE THAT HAVE BEEN PLACED MORE THAN 15 MINUTES WITHOUT BEING COVERED BY TOP LAYER, OR USE BONDING AGENT IF APPROVED BY THE ENGINEER.

J. SCREED PAVEMENT SURFACES WITH A STRAIGHTEDGE AND STRIKE OFF. COMMENCE INITIAL FLOATING USING BULL FLOATS OR DARBIES TO FORM AN OPEN TEXTURE AND UNIFORM SURFACE PLANE BEFORE EXCESS MOISTURE OR BLEED WATER APPEARS ON THE SURFACE. DO NOT FURTHER DISTURB CONCRETE SURFACES BEFORE BEGINNING

K. COLD-WEATHER PLACEMENT: COMPLY WITH CDOT SECTION 601 AND ACI 306.1 AND AS FOLLOWS: PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED

1. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40 DEGREES F, UNIFORMLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50 DEGREES F AND NOT MORE THAN 80 DEGREES F AT POINT OF PLACEMENT.

3. DO NOT USE CALCIUM CHLORIDE, SALT, OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS OTHERWISE SPECIFIED

L. HOT-WEATHER PLACEMENT: PLACE CONCRETE ACCORDING TO RECOMMENDATIONS IN CDOT SECTION 601 AND ACI 305R AND AS SPECIFIED WHEN HOT WEATHER

1. COOL INGREDIENTS BEFORE MIXING TO MAINTAIN CONCRETE TEMPERATURE AT TIME OF PLACEMENT TO BELOW 90 DEGREES F. CHILLED MIXING WATER OR CHOPPED ICE MAY BE USED TO CONTROL TEMPERATURE, PROVIDED WATER EQUIVALENT OF ICE IS CALCULATED TO TOTAL AMOUNT OF MIXING WATER. USING LIQUID NITROGEN TO

2. COVER REINFORCEMENT STEEL WITH WATER-SOAKED BURLAP SO STEEL TEMPERATURE WILL NOT EXCEED AMBIENT AIR TEMPERATURE IMMEDIATELY BEFORE

3. FOG SPRAY FORMS AND SUBGRADE JUST BEFORE PLACING CONCRETE. KEEP SUBGRADE MOISTURE UNIFORM WITHOUT STANDING WATER, SOFT SPOTS, OR DRY

A. GENERAL: CONSTRUCT CONSTRUCTION, ISOLATION, AND CONTRACTION JOINTS AND CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO THE CENTERLINE, UNLESS OTHERWISE INDICATED ON THE DRAWINGS

 WHEN JOINING EXISTING PAVEMENT, PLACE TRANSVERSE JOINTS TO ALIGN WITH PREVIOUSLY PLACED JOINTS, UNLESS INDICATED OTHERWISE ON THE DRAWINGS. ISOLATION JOINTS: FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING CONCRETE CURBS, MANHOLES, INLETS, STRUCTURES, SIDEWALKS, OTHER

FIXED OBJECTS, AND WHERE OTHERWISE INDICATED ON THE DRAWINGS. 1. LOCATE EXPANSION JOINTS AT MAXIMUM INTERVALS OF 150 FEET, UNLESS SHORTER INTERVALS ARE OTHERWISE INDICATED ON THE DRAWINGS. EXPANSION JOINTS SHALL ABUT ALL FIXED STRUCTURES, MANHOLES, INLETS, AND LIGHT

EXTEND JOINT FILLERS FULL WIDTH AND DEPTH OF JOINT.

3. TERMINATE JOINT FILLER NOT LESS THAN ½ INCH OR MORE THAN 1 INCH BELOW FINISHED SURFACE IF JOINT SEALANT IS INDICATED TO BE USED ABOVE JOINT

4. FURNISH JOINT FILLERS IN ONE-PIECE LENGTHS. WHERE MORE THAN ONE LENGTH IS REQUIRED, LACE OR CLIP JOINT-FILLER SECTIONS TOGETHER.

5. PROTECT TOP EDGE OF JOINT FILLER DURING CONCRETE PLACEMENT WITH METAL, PLASTIC, OR OTHER TEMPORARY PREFORMED CAP. REMOVE PROTECTIVE CAP AFTER CONCRETE HAS BEEN PLACED ON BOTH SIDES OF JOINT.

C. TRANSVERSE CONTROL JOINTS: FORM WEAKENED-PLANE TRANSVERSE CONTROL JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED ON THE DRAWINGS. DESCRIBED WITHIN THIS SECTION, CONSTRUCT TRANSVERSE CONTROL JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS, AS

GROOVING AND FINISHING EACH EDGE OF JOINT WITH GROOVER TOOL TO A 3/8-INCH RADIUS UNLESS SHOWN OTHERWISE ON THE DRAWINGS. REPEAT GROOVING OF CONTRACTION JOINTS AFTER APPLYING SURFACE FINISHES. ELIMINATE GROOVER MARKS ON CONCRETE SURFACES.

1. IN ACCORDANCE WITH CITY OF GRAND JUNCTION STANDARDS, 608.03(E) EDGING: TOOL EDGES OF PAVEMENT, CURBS, AND JOINTS FORMED IN CONCRETE AFTER INITIAL FLOATING WITH AN EDGING TOOL TO A 3/8-INCH RADIUS UNLESS SHOWN OTHERWISE ON THE DRAWINGS. REPEAT TOOLING OF EDGES AFTER APPLYING SURFACE

1. SEALANT: PROVIDE JOINT SEALANT AT ALL ISOLATION JOINTS IN ACCORDANCE WITH SEALANT MANUFACTURER'S WRITTEN INSTRUCTIONS.

A. IN ACCORDANCE WITH CITY OF GRAND JUNCTION STANDARDS, 608.03 (D)

OVERWORKING OF SLAB SURFACES DURING FINISHING OPERATIONS; IN SUCH CASES

D. FLOAT FINISH: BEGIN THE SECOND FLOATING OPERATION WHEN BLEED WATER SHEEN HAS DISAPPEARED AND THE CONCRETE SURFACE HAS STIFFENED SUFFICIENTLY TO PERMIT OPERATIONS. FLOAT SURFACE WITH POWER- DRIVEN FLOATS, OR BY HAND FLOATING IF AREA IS SMALL OR INACCESSIBLE TO POWER UNITS. FINISH SURFACES TO TRUE PLANES. CUT DOWN HIGH SPOTS AND FILL LOW SPOTS. RE-FLOAT SURFACE IMMEDIATELY TO A UNIFORM GRANUI AR TEXTURE.

CONCRETE HARDENS, THE SURFACE OF THE PAVEMENT SHALL BE GIVEN A TEXTURE AS DESCRIBED HEREIN. AFTER CURING IS COMPLETE, ALL TEXTURED SURFACES SHALL BE THOROUGHLY POWER BROOMED TO REMOVE ALL DEBRIS. ANY TYPE OF TRANSVERSE TEXTURING SHALL PRODUCE GROOVES IN STRAIGHT LINES ACROSS EACH LANE WITHIN A TOLERANCE OF PLUS OR MINUS 1/2 INCH OF A TRUE LINE.

1. PRODUCE A SURFACE WHICH IS FREE FROM POROUS SPOTS, IRREGULARITIES, DEPRESSIONS, AND SMALL POCKETS OR ROUGH SPOTS WHICH MAY RESULT FROM ACCIDENTALLY DISTURBING PARTICLES OF COARSE AGGREGATE EMBEDDED NEAR

SHALL BE APPLIED USING AN APPROVED MECHANICAL STIFF BRISTLE BROOM DRAG OF A TYPE THAT WILL UNIFORMLY SCORE THE SURFACE. THE BROOM SHALL BE OPERATED TO SCORE THE SURFACE TRANSVERSE TO THE PAVEMENT CENTER LINE. THE BROOM SHALL BE CAPABLE OF TRAVERSING THE FULL WIDTH OF THE PAVEMENT IN A SINGLE PASS AT A UNIFORM SPEED AND WITH A UNIFORM PRESSURE. SUCCESSIVE PASSES OF THE BROOM SHALL BE OVERLAPPED THE MINIMUM NECESSARY TO OBTAIN A UNIFORMLY TEXTURED SURFACE. BROOMS SHALL BE WASHED THOROUGHLY AT FREQUENT INTERVALS DURING USE. WORN OR DAMAGED BROOMS SHALL BE REMOVED FROM THE JOB SITE. BROOMING SHOULD BE COMPLETED BEFORE THE CONCRETE HAS HARDENED TO THE POINT WHERE THE

SURFACE WILL BE UNDULY TORN OR ROUGHENED, BUT AFTER HARDENING HAS PROGRESSED ENOUGH SO THAT THE MORTAR WILL NOT FLOW AND REDUCE THE SHARPNESS OF THE SCORES. THE SCORES SHALL BE UNIFORM IN APPEARANCE AND APPROXIMATELY 1/16 INCH IN DEPTH BUT NOT MORE THAN 1/8 INCH IN DEPTH. FOR HAND BROOMING, THE BROOMS SHALL HAVE HANDLES LONGER THAN HALF THE WIDTH OF SLAB TO BE FINISHED. THE HAND BROOMS SHALL BE DRAWN TRANSVERSELY ACROSS THE SURFACE FROM THE CENTERLINE TO EACH EDGE WITH

SLIGHT OVERLAPPING STROKES. 3. ON INCLINED SLAB SURFACES INCLUDING SIDEWALK RAMPS, PROVIDE A COARSE, NON-SLIP FINISH BY SCORING SURFACE WITH A STIFF-BRISTLED BROOM,

PERPENDICULAR TO LINE OF TRAFFIC. 3.7 CONCRETE PROTECTION AND CURING

A. IN ACCORDANCE WITH CITY OF GRAND JUNCTION STANDARDS, 608.03(F)

3.8 PAVEMENT TOLERANCES

A. COMPLY WITH TOLERANCES OF ACI 117 AND AS FOLLOWS: 1. ELEVATION: 1/4 INCH.

2. THICKNESS: PLUS 3/8 INCH, MINUS 1/4 INCH. 3. SURFACE: GAP BELOW 10-FOOT-LONG, UNLEVELED STRAIGHTEDGE NOT TO EXCEED 1/4

4. JOINT SPACING: 3 INCHES. 5. CONTRACTION: JOINT DEPTH: PLUS 1/4 INCH, NO MINUS.

6. JOINT WIDTH: PLUS 1/8 INCH, NO MINUS.

B. AREAS OF PONDING ON SIDEWALK OR PAVEMENT SHALL BE REMOVED AND

REPLACED AT THE CONTRACTOR'S EXPENSE. 3.9 FIELD QUALITY CONTROL TESTING

A. TESTING SERVICES: OWNER WILL PROVIDE TESTING SERVICES. B. APPEARANCE: EXPOSED SURFACES OF THE FINISHED WORK WILL BE INSPECTED BY THE OWNER AND ANY DEFICIENCIES IN APPEARANCE WILL BE IDENTIFIED. AREAS WHICH EXHIBIT EXCESSIVE CRACKING, DISCOLORATION, FORM MARKS, OR TOOL MARKS OR WHICH ARE OTHERWISE INCONSISTENT WITH THE OVERALL APPEARANCES OF THE WORKS SHALL BE REMOVED AND REPLACED AT THE

CONTRACTOR'S SOLE EXPENSE. 3.10 REPAIRS AND PROTECTION

A. REMOVE AND REPLACE CONCRETE PAVEMENT THAT IS BROKEN, DAMAGED, OR DEFECTIVE, OR DOES NOT MEET THE REQUIREMENTS IN THIS SECTION. CONCRETE SECTIONS SHALL BE REMOVED TO THE NEAREST REGULARLY SPACED JOINT

B. DRILL TEST CORES WHERE DIRECTED BY THE OWNER WHEN NECESSARY TO DETERMINE MAGNITUDE OF CRACKS OR DEFECTIVE AREAS. FILL DRILLED CORE HOLES IN SATISFACTORY PAVEMENT AREAS WITH PORTLAND CEMENT CONCRETE BONDED TO PAVEMENT WITH EPOXY ADHESIVE.

C. PROTECT CONCRETE FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVEMENT FOR AT LEAST 14 DAYS AFTER PLACEMENT. WHEN CONSTRUCTION TRAFFIC IS PERMITTED, MAINTAIN PAVEMENT AS CLEAN AS POSSIBLE BY REMOVING SURFACE STAINS AND SPILLAGE OF MATERIALS AS THEY OCCUR.

D. MAINTAIN CONCRETE PAVEMENT FREE OF STAINS, DISCOLORATION, DIRT AND OTHER FOREIGN MATERIAL. SWEEP CONCRETE PAVEMENT NOT MORE THAN 2 DAYS BEFORE DATE SCHEDULED FOR SUBSTANTIAL COMPLETION INSPECTIONS.

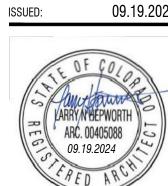
E. REPAIR SURFACE DEFECTS IN ACCORDANCE WITH ACI 301.

END OF SECTION 32 1212

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323218 PROJECT #: J. CLEMENTS L. HEPWORTH CHECKED BY:



3

FINISHING OPERATIONS.

STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW

DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. MANAGEMENT OF MATERIAL MOISTURE CONTENT IS INTEGRAL IN CONSISTENT

AND APPROVED IN MIX DESIGNS.

COOL CONCRETE IS CONTRACTOR'S OPTION.

TOOL EDGINGS TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF

6. INSTALL JOINT SEALER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. WHERE NOT SECTIONING IS NOT INDICATED ON THE DRAWINGS. SPACE JOINTS AS

1. GROOVED JOINTS: FORM CONTRACTION JOINTS AFTER INITIAL FLOATING BY

D. SIDEWALK JOINTS:

FINISHES. ELIMINATE TOOL MARKS ON CONCRETE SURFACES. 3.6 CONCRETE FINISHING

B. GENERAL: WETTING OF CONCRETE SURFACES DURING SCREEDING, INITIAL FLOATING OR FINISHING OPERATIONS IS PROHIBITED. C. COMPLY WITH ACI-302-1R, REGARDING SLAB CONSTRUCTION, REGARDING

WHERE THE AIR ENTRAINMENT EXCEEDS 3%.

SURFACE TEXTURE: BEFORE THE SURFACE SHEEN HAS DISAPPEARED AND BEFORE THE

BROOM TEXTURING - CONCRETE PAVEMENT AND SIDEWALKS. SURFACE TEXTURE

A. POSTS, RAILS, AND FRAMES. B. WIRE FABRIC.

C. CONCRETE.

D. MANUAL GATES WITH RELATED HARDWARE. E. ACCESSORIES.

1.02 RELATED REQUIREMENTS A. SECTION 03 3000 - CAST-IN-PLACE CONCRETE: CONCRETE ANCHORAGE FOR POSTS.

1.03 REFERENCE STANDARDS A. ACI 301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE; 2016.

B. ASTM A491 - STANDARD SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN-LINK FENCE FABRIC; 2011 (REAPPROVED 2017).

C. ASTM C33/C33M - STANDARD SPECIFICATION FOR CONCRETE AGGREGATES; 2016, WITH EDITORIAL REVISION (2016).

D. ASTM C150/C150M - STANDARD SPECIFICATION FOR PORTLAND CEMENT; 2017. E. ASTM F567 - STANDARD PRACTICE FOR INSTALLATION OF CHAIN-LINK FENCE; 2014A. F. ASTM F1043 - STANDARD SPECIFICATION FOR STRENGTH AND PROTECTIVE COATINGS ON

STEEL INDUSTRIAL FENCE FRAMEWORK; 2017A. G. ASTM F1083 - STANDARD SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED ZINC-COATED

(GALVANIZED) WELDED, FOR FENCE STRUCTURES; 2016. H. CLFMI CLF-PM0610 - PRODUCT MANUAL; 2017.

I. CLFMI CLF-SFR0111 - SECURITY FENCING RECOMMENDATIONS; 2014.

1.04 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA ON FABRIC, POSTS, ACCESSORIES, FITTINGS AND

B. SHOP DRAWINGS: SHOW LOCATIONS, DETAILS, MATERIALS, DIMENSIONS, SIZES, WEIGHTS, FINISHES, OPERATIONAL CLEARANCES, AND INSTALLATION OF COMPONENTS. SEE CLFMI CLF-SFR0111 FOR PLANNING AND DESIGN RECOMMENDATIONS.

PART 2 PRODUCTS 2.01 MATERIALS

A. POSTS, RAILS, AND FRAMES: COMPLY WITH THE FOLLOWING: 1. LINE, TERMINAL, CORNER, RAIL, BRACE, AND GATE POSTS: TYPE I ROUND. POWDER

COATED BLACK. A. TYPE I ROUND: LG 40 OR SCHEDULE 40 GALVANIZED STEEL PIPE COMPLYING WITH ASTM F1083. COMPLY WITH ASTM F1043, MATERIAL DESIGN GROUP IA, EXTERNAL AND INTERNAL COATING TYPE A, CONSISTING OF NOT LESS THAN 1.8-OZ./SQ. FT. ZINC; AND LINE, END, CORNER, AND PULL POSTS AND TOP RAIL PER REQUIREMENTS.

B. POST BRACE RAILS: MATCH TOP RAIL FOR COATING AND STRENGTH AND STIFFNESS REQUIREMENTS. PROVIDE BRACE RAIL WITH TRUSS ROD ASSEMBLY FOR EACH GATE, END, AND PULL POST. PROVIDE TWO BRACE RAILS EXTENDING IN OPPOSING DIRECTIONS, EACH WITH TRUSS ROD ASSEMBLY FOR EACH CORNER POST AND FOR PULL POSTS. PROVIDE RAIL ENDS AND CLAMPS FOR ATTACHING RAILS TO POSTS.

COMPLY WITH CLFMI CLF-PM0610. B. WIRE FABRIC: COMPLY WITH CLFMI'S "PRODUCT MANUAL":

1. NINE GAUGE CORE, MINIMUM WALL THICKNESS OF .015 INCHES OVER A GALVANIZED SUBSTRATE. THE BASE METAL SHALL HAVE A MINIMUM BREAKING STRENGTH OF FIVE HUNDRED FIFTY POUNDS (550 LBS.) AND A ZINC COAT WEIGHT OF .1503 POUNDS PER SQUARE FOOT OF UN-COATED WIRE SURFACE. TOP AND BOTTOM SELVAGE OF THE FABRIC SHALL BE KNUCKLED.

2. ASTM A491 ALUMINUM COATED APPLIED TO STEEL WIRE MESH FABRIC AFTER WEAVING WITH CLASS 1. 1.2-OZ./SQ. FT. MINIMUM COATING WEIGHT.

3. THE TENSIONING STRANDS SHALL CONSIST OF ONE-HALF INCH (1/2") DIAMETER, 7-WIRE. STRESS RELIEVED STRANDS, HAVING A GUARANTEED ULTIMATE TENSILE STRENGTH OF 270,000 PSI (270 KIPS). STRANDS SHALL CONFORM TO ASTM-416. CABLES SHALL BE FABRICATED TO PROPER LENGTH FOR EACH SLAB, COATED WITH A PERMANENT RUST PREVENTATIVE LUBRICANT AND ENCASED IN SLIP-AGE SHEATHING AND SHALL BE REPAIRED WITH TAPE PRIOR TO CONCRETE PLACEMENT AS NECESSARY. A MAXIMUM OF SIX INCHES (6") EXPOSED STRANDS IS PERMITTED AT THE DEAD-END ANCHOR.

4. FENCE FABRIC SHALL BE VINYL-COATED TO MEET REQUIREMENTS OF ASTM F668 FOR CLASS 2B CHAIN LINK FABRIC. THICKNESS OF THE FUSION BONDED COATING SHALL BE 7-10 MILS, COLOR TO BE BLACK.

5. THE VINYL COATING SHALL BE EVENLY APPLIED AND FREE OF BLISTERS. THE BOND BETWEEN THE VINYL COATING AND THE STEEL FABRIC TO BE EQUAL OR GREATER THAN THE COHESIVE STRENGTH OF THE VINYL.

COMPLY WITH CLFMI CLF-PM0610. C. CAST-IN-PLACE CONCRETE: NORMAL-WEIGHT CONCRETE AIR ENTRAINED WITH NOT LESS THAN 3,000-PSI COMPRESSIVE STRENGTH (28 DAYS), 3-INCH SLUMP, AND 1-INCH MAXIMUM

SIZE AGGREGATE: 1. CAST-IN-PLACE CONCRETE COMPLYING WITH ACI 301. MATERIALS CONSISTING OF PORTLAND CEMENT COMPLYING WITH ASTM C150/C150M.

4. POTABLE WATER. 2.02 COMPONENTS

A. LINE POSTS: 1.9 INCH (48 MM) DIAMETER SPACED AT 8 FEET. B. CORNER AND TERMINAL POSTS: 2.38 INCH (60 MM) DIAMETER.

3. AGGREGATES COMPLYING WITH ASTM C33/C33M.

C. GATE POSTS: 3-1/2 INCH (89 MM) DIAMETER.

D. TOP AND BRACE RAIL: 1.66 INCH (42 MM) DIAMETER, PLAIN END, SLEEVE COUPLED. SWEDGED-END OR FABRICATED FOR EXPANSION-TYPE COUPLING.

E. GATE FRAME: 1.66 INCH (42 MM) DIAMETER FOR WELDED FABRICATION. F. FABRIC: 2 INCH (51 MM) DIAMOND MESH INTERWOVEN WIRE, 7 GUAGE THICK, TOP SELVAGE

KNUCKLE END CLOSED, BOTTOM SELVAGE KNUCKLE END CLOSED. G. TENSION WIRE: 7 GUAGE THICK STEEL, SINGLE STRAND, METALLIC-COATED. MATCH

COATING AND COLOR ON CHAIN LINK FENCE FABRIC.

H. TIE WIRE: ALUMINUM ALLOY STEEL WIRE.

2.03 MANUAL GATES AND RELATED HARDWARE

A. COMPLY WITH ASTM F900 FOR SINGLE GATES, MADE FROM GALVANIZED STEEL PIPE AND TUBING COMPLYING WITH ASTM F1043, COMPLETE WITH HARDWARE. 1. HARDWARE FOR SINGLE SWINGING GATES: 180 DEGREE HINGES, 2 FOR GATES UP TO 60 INCHES (1,525 MM) HIGH, 3 FOR TALLER GATES; FORK LATCH WITH GRAVITY DROP AND

PADLOCK HASP. 2. FRAMES AND BRACING: FOR GATE FABRIC HEIGHT 6 FEET OR LESS WITH WELDED

3. GATE POSTS: FABRICATE MEMBERS FROM ROUND GALVANIZED STEEL PIPE FOR THE FOLLOWING GATE FABRIC HEIGHTS BY LEAF WIDTHS: 6 FEET OR LESS BY 4 FEET OR LESS. B. HINGES: FINISHED TO MATCH FENCE COMPONENTS.

BRACKETS: ROUND.

2. MOUNTING: CENTER 3. CLOSING: MANUAL

C. LATCHES: FINISHED TO MATCH FENCE COMPONENTS. 1. BRACKETS: ROUND.

2.04 ACCESSORIES

A. CAPS: CAST STEEL GALVANIZED; SIZED TO POST DIAMETER, SET SCREW RETAINER.

A. COMPONENTS (OTHER THAN FABRIC): GALVANIZED IN ACCORDANCE WITH ASTM

A123/A123M, AT 1.7 OUNCES PER SQUARE FOOT (530 G/SQ M).

B. HARDWARE: HOT-DIP GALVANIZED TO WEIGHT REQUIRED BY ASTM A153/A153M.

C. ACCESSORIES: SAME FINISH AS FRAMING.

PART 3 EXECUTION 3.01 INSTALLATION

A. GENERAL INSTALLATION: INSTALL FRAMEWORK, FABRIC, ACCESSORIES AND GATES IN ACCORDANCE WITH ASTM F567. DO NOT BEGIN INSTALLATION BEFORE FINAL GRADING IS

COMPLETED, UNLESS OTHERWISE PERMITTED BY ARCHITECT B. CORNER, GATE AND TERMINAL POST FOOTING DEPTH BELOW FINISH GRADE: ASTM F567. C. POST EXCAVATION: DRILL OR HAND-EXCAVATE HOLES FOR POSTS TO DIAMETERS AND

SPACINGS INDICATED, IN FIRM, UNDISTURBED OR COMPACTED SOIL

POSITION DURING PLACEMENT AND FINISHING OPERATIONS UNTIL CONCRETE IS

D. POST SETTING: HAND-EXCAVATE HOLES FOR POST FOUNDATIONS IN FIRM, UNDISTURBED OR COMPACTED SOIL. SET TERMINAL AND GATE POSTS PLUMB, IN CONCRETE FOOTINGS WITH TOP OF FOOTING 2 INCHES ABOVE FINISH GRADE. SLOPE TOP OF CONCRETE FOR WATER RUNOFF. PROTECT PORTION OF POSTS ABOVE GROUND FROM CONCRETE SPLATTER. PLACE CONCRETE AROUND POSTS AND VIBRATE OR TAMP FOR CONSOLIDATION. USING MECHANICAL DEVICES TO SET POSTS PER ASTM F567 IS NOT PREMITTED. VERIFY THAT POSTS ARE SET PLUMB, ALIGNED, AND AT CORRECT HEIGHT AND SPACING, AND HOLD IN

SUFFICIENTLY CURED E. TERMINAL POSTS: LOCATE TERMINAL END, CORNER, AND GATE POSTS PER ASTM F567 AND

TERMINAL PULL POSTS AT CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENT. F. LINE POSTS: SPACE LINE POSTS UNIFORMLY AT 8 FEET O.C.

G. INTERMEDIATE RAILS: INSTALL IN ONE PIECE AT POST-HEIGHT CENTER SPAN, SPANNING BETWEEN POSTS, USING FITTINGS, SPECIAL OFFSET FITTINGS, AND ACCESSORIES. H. CHAIN-LINK FABRIC: PLACE FABRIC ON OUTSIDE OF POSTS AND RAILS.

1. POSITION BOTTOM OF FABRIC 2 INCHES (50 MM) ABOVE CONCRETE. 2. FASTEN FABRIC TO TOP RAIL, LINE POSTS, BRACES, AND BOTTOM TENSION WIRE WITH

TIE WIRE AT MAXIMUM 15 INCHES (380 MM) ON CENTERS. 3. DO NOT STRETCH FABRIC UNTIL CONCRETE FOUNDATION HAS CURED 28 DAYS. INSTALL BOTTOM TENSION WIRE STRETCHED TAUT BETWEEN TERMINAL POSTS.

I. PROVIDE A MINIMUM OF SIX (6) TIES FOR EACH TEN FEET (10') OF RAIL AND ONE (1) TIE TO EACH FOOT OF POST HEIGHT. TIES TO TENSION WIRE SHALL BE MADE WITH HEAVY GALVANIZED HOG RINGS AT SIX (6) PER TEN FEET (10') OF TENSION WIRE. J. TENSION BANDS: PROVIDE ONE (1) FASTENER FOR EACH ONE FOOT (1') OF FABRIC HEIGHT

(MINIMUM OF 8 BANDS FOR 10 FT., 3 BANDS FOR 42"). K. SET TERMINAL AND GATE POSTS PLUMB, IN CONCRETE FOOTINGS WITH TOP OF FOOTING 2

INCHES ABOVE FINISH GRADE, SLOPE TOP OF CONCRETE FOR WATER RUNOFF. L. LINE POST FOOTING DEPTH BELOW FINISH GRADE: ASTM F567. M. CORNER, GATE AND TERMINAL POST FOOTING DEPTH BELOW FINISH GRADE: ASTM F567.

N. BRACE EACH GATE AND CORNER POST TO ADJACENT LINE POST WITH HORIZONTAL CENTER BRACE RAIL. INSTALL BRACE RAIL ONE BAY FROM END AND GATE POSTS. O. DO NOT STRETCH FABRIC UNTIL CONCRETE FOUNDATION HAS CURED 28 DAYS.

P. POSITION BOTTOM OF FABRIC 2 INCHES (50 MM) ABOVE CONCRETE MOWSTRIP.

Q. ATTACH FABRIC TO END, CORNER, AND GATE POSTS WITH TENSION BARS AND TENSION BAR

R. DO NOT ATTACH THE HINGED SIDE OF GATE TO BUILDING WALL; PROVIDE GATE POSTS. 3.02 TOLERANCES

A. MAXIMUM VARIATION FROM PLUMB: 1/4 INCH (6 MM).

B. MAXIMUM OFFSET FROM TRUE POSITION: 1 INCH (25 MM). 3.03 FIELD QUALITY CONTROL

A. LAYOUT: VERIFY THAT FENCE INSTALLATION MARKINGS ARE ACCURATE TO DESIGN, PAYING ATTENTION TO GATE LOCATIONS, UNDERGROUND UTILITIES, AND PROPERTY LINES.

B. GATES: INSPECT FOR LEVEL, PLUMB, AND ALIGNMENT.

3.04 CLEANING A. CLEAN JOBSITE OF EXCESS MATERIALS; SCATTER EXCESS MATERIAL FROM POST HOLE EXCAVATIONS UNIFORMLY AWAY FROM POSTS. REMOVE EXCESS MATERIAL IF REQUIRED.

B. CLEAN FENCE WITH MILD HOUSEHOLD DETERGENT AND CLEAN WATER RINSE WELL. C. REMOVE MORTAR FROM EXPOSED POSTS AND OTHER FENCING MATERIAL USING A 10 PERCENT SOLUTION OF MURIATIC ACID FOLLOWED IMMEDIATELY BY SEVERAL RINSES WITH CLEAN WATER.

D. TOUCH UP SCRATCHED SURFACES USING MATERIALS RECOMMENDED BY MANUFACTURER. MATCH TOUCHED-UP PAINT COLOR TO FACTORY-APPLIED FINISH.

A. DEMONSTRATE PROPER OPERATION OF EQUIPMENT TO OWNER'S DESIGNATED REPRESENTATIVE.

END OF SECTION

SECTION 32 3300 SITE FURNISHINGS

PART 1 GENERAL 1.01 SECTION INCLUDES

A. BICYCLE RACKS B. ALLOWANCE FOR BENCHES, TABLES, & TRASH RECEPTACLES.

C. SHADE SAILS 1.02 REFERENCE STANDARDS

A. ASTM A500/A500M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES; 2013.

B. ASTM A780/A780M - STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS; 2009 (REAPPROVED 2015).

A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES. B. SHOP DRAWINGS: INDICATE PLANS FOR EACH UNIT OR GROUP OF UNITS, ELEVATIONS WITH MODEL NUMBER, OVERALL DIMENSIONS, CONSTRUCTION, AND ANCHORAGE DETAILS. C. SAMPLES: SUBMIT TWO SETS OF MANUFACTURER'S AVAILABLE COLORS FOR METAL

FURNISHINGS. 1.04 WARRANTY

PART 2 PRODUCTS

A. SEE SECTION 01 7800 - CLOSEOUT SUBMITTALS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

B. PROVIDE MANUFACTURER'S WARRANTY AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR DUCTILE IRON CASTINGS FOR A PERIOD OF 10 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

2.01 MANUFACTURERS

A. BICYCLE RACKS: MADRAX, INC. WWW.MADRAX.COM B. BENCHES, TABLES, & TRASH RECEPTACLES: BOTTON & GARDINER, PUBLIC SPACE FURINTURE, WWW.BOTTONGARDINER.COM

C. SHADE SAILS: CANVAS PRODUCTS, WWW.CANVAS-PRODUCTS.COM

2.02 BICYCLE RACKS A. STAINLESS STEEL BICYCLE RACKS: PER PLANS SHAPE: ROUND

2. DIAMETER: 2-3/8" 3. MATERIALS: STAINLESS STEEL 4. MOUNTING: IN-GROUND

5. PRODUCTS: MADRAX, WWW. MADRAX.COM 2.03 BENCHES, TABLES, & TRASH RECEPTACLES A. STYLE, FINISH, & COLORS TO BE DETERMINED BY OWNER.

B. PLACE ALLOWANCE IN BID OF \$160,000.00 2.04 SHADE SAILS

A. FABRIC: POLYFAB COMTEX KNITTED SHADE CLOTH 1. COLOR TO BE DETERMINED BY OWNER.

B. THREAD: SOLARFIX CLEAR THREAD

C. CONNECTIONS: NYLON STRAPS & PUSH BUTTON BUCKLES.

PART 3 EXECUTION 3.01 PREPARATION

A. DURING CONSTRUCTION AND STORAGE, PROTECT MATERIALS FROM DAMAGE. B. WORK DAMAGED DURING COURSE OF WORK OF THIS SECTION SHALL BE REPLACED OR

REPAIRED AT NO ADDITIONAL COST TO OWNER. IF DAMAGED WORK IS NEW, REPAIR OR REPLACEMENT SHALL BE PERFORMED BY INSTALLER OF ORIGINAL WORK.

A. VERIFY PROPER INSTALLATION OF MOUNTING SURFACES, PRE-NSTALLED ANCHOR BOLTS, AND OTHER MOUNTING DEVICES; AND READY TO RECEIVE SITE FURNISHING ITEMS. B. DO NOT BEGIN INSTALLATION UNTIL UNACCEPTABLE CONDITIONS ARE CORRECTED.

3.03 INSTALLATION A. INSTALL SITE FURNISHINGS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. 3.04 ADJUSTING AND CLEANING

A. GALVANIZED SURFACES: CLEAN ABRADED AREAS AND REPAIR GALVANIZING TO COMPLY WITH ASTM A780/A780M.

END OF SECTION

SECTION 32 3113 CHAIN LINK FENCES AND GATES

1.01 SECTION INCLUDES A. POSTS, RAILS, AND FRAMES.

B. WIRE FABRIC.

PART 1 GENERAL

C. CONCRETE. D. MANUAL GATES WITH RELATED HARDWARE. E. ACCESSORIES.

1.02 RELATED REQUIREMENTS A. SECTION 03 3000 - CAST-IN-PLACE CONCRETE: CONCRETE ANCHORAGE FOR POSTS. 1.03 REFERENCE STANDARDS

3

A. ACI 301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE; 2016.

B. ASTM A491 - STANDARD SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN-LINK FENCE

FABRIC; 2011 (REAPPROVED 2017). C. ASTM C33/C33M - STANDARD SPECIFICATION FOR CONCRETE AGGREGATES; 2016, WITH EDITORIAL REVISION (2016).

D. ASTM C150/C150M - STANDARD SPECIFICATION FOR PORTLAND CEMENT; 2017.

E. ASTM F567 - STANDARD PRACTICE FOR INSTALLATION OF CHAIN-LINK FENCE; 2014A. F. ASTM F1043 - STANDARD SPECIFICATION FOR STRENGTH AND PROTECTIVE COATINGS ON

STEEL INDUSTRIAL FENCE FRAMEWORK; 2017A. G. ASTM F1083 - STANDARD SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED ZINC-COATED

(GALVANIZED) WELDED, FOR FENCE STRUCTURES; 2016. H. CLFMI CLF-PM0610 - PRODUCT MANUAL; 2017.

I. CLFMI CLF-SFR0111 - SECURITY FENCING RECOMMENDATIONS; 2014. 1.04 SUBMITTALS A. PRODUCT DATA: PROVIDE DATA ON FABRIC, POSTS, ACCESSORIES, FITTINGS AND

HARDWARE. B. SHOP DRAWINGS: SHOW LOCATIONS, DETAILS, MATERIALS, DIMENSIONS, SIZES, WEIGHTS, FINISHES, OPERATIONAL CLEARANCES, AND INSTALLATION OF COMPONENTS. SEE CLFMI CLF-SFR0111 FOR PLANNING AND DESIGN RECOMMENDATIONS.

PART 2 PRODUCTS 2.01 MATERIALS

A. POSTS, RAILS, AND FRAMES: COMPLY WITH THE FOLLOWING: 1. LINE, TERMINAL, CORNER, RAIL, BRACE, AND GATE POSTS: TYPE I ROUND. POWDER

COATED BLACK. A. TYPE I ROUND: LG 40 OR SCHEDULE 40 GALVANIZED STEEL PIPE COMPLYING WITH ASTM F1083. COMPLY WITH ASTM F1043, MATERIAL DESIGN GROUP IA, EXTERNAL AND INTERNAL COATING TYPE A, CONSISTING OF NOT LESS THAN 1.8-OZ./SQ. FT. ZINC; AND LINE, END,

CORNER, AND PULL POSTS AND TOP RAIL PER REQUIREMENTS B. POST BRACE RAILS: MATCH TOP RAIL FOR COATING AND STRENGTH AND STIFFNESS REQUIREMENTS. PROVIDE BRACE RAIL WITH TRUSS ROD ASSEMBLY FOR EACH GATE, END, AND PULL POST. PROVIDE TWO BRACE RAILS EXTENDING IN OPPOSING DIRECTIONS, EACH WITH TRUSS ROD ASSEMBLY FOR EACH CORNER POST AND FOR PULL POSTS. PROVIDE RAIL ENDS AND CLAMPS FOR ATTACHING RAILS TO POSTS.

COMPLY WITH CLFMI CLF-PM0610. B. WIRE FABRIC: COMPLY WITH CLFMI'S "PRODUCT MANUAL":

1. NINE GAUGE CORE, MINIMUM WALL THICKNESS OF .015 INCHES OVER A GALVANIZED SUBSTRATE. THE BASE METAL SHALL HAVE A MINIMUM BREAKING STRENGTH OF FIVE HUNDRED FIFTY POUNDS (550 LBS.) AND A ZINC COAT WEIGHT OF .1503 POUNDS PER SQUARE FOOT OF UN-COATED WIRE SURFACE. TOP AND BOTTOM SELVAGE OF THE FABRIC

SHALL BE KNUCKLED. 2. ASTM A491 ALUMINUM COATED APPLIED TO STEEL WIRE MESH FABRIC AFTER WEAVING

WITH CLASS 1. 1.2-OZ./SQ. FT. MINIMUM COATING WEIGHT. THE TENSIONING STRANDS SHALL CONSIST OF ONE-HALF INCH (1/2") DIAMETER, 7-WIRE, STRESS RELIEVED STRANDS, HAVING A GUARANTEED ULTIMATE TENSILE STRENGTH OF 270,000 PSI (270 KIPS). STRANDS SHALL CONFORM TO ASTM-416. CABLES SHALL BE FABRICATED TO PROPER LENGTH FOR EACH SLAB, COATED WITH A PERMANENT RUST PREVENTATIVE LUBRICANT AND ENCASED IN SLIP-AGE SHEATHING AND SHALL BE REPAIRED WITH TAPE PRIOR TO CONCRETE PLACEMENT AS NECESSARY. A MAXIMUM OF

SIX INCHES (6") EXPOSED STRANDS IS PERMITTED AT THE DEAD-END ANCHOR. 4. FENCE FABRIC SHALL BE VINYL-COATED TO MEET REQUIREMENTS OF ASTM F668 FOR CLASS 2B CHAIN LINK FABRIC. THICKNESS OF THE FUSION BONDED COATING SHALL BE 7-10 MILS, COLOR TO BE BLACK.

5. THE VINYL COATING SHALL BE EVENLY APPLIED AND FREE OF BLISTERS. THE BOND BETWEEN THE VINYL COATING AND THE STEEL FABRIC TO BE EQUAL OR GREATER THAN THE COHESIVE STRENGTH OF THE VINYL. COMPLY WITH CLFMI CLF-PM0610.

C. CAST-IN-PLACE CONCRETE: NORMAL-WEIGHT CONCRETE AIR ENTRAINED WITH NOT LESS THAN 3,000-PSI COMPRESSIVE STRENGTH (28 DAYS), 3-INCH SLUMP, AND 1-INCH MAXIMUM SIZE AGGREGATE:

1. CAST-IN-PLACE CONCRETE COMPLYING WITH ACI 301. 2. MATERIALS CONSISTING OF PORTLAND CEMENT COMPLYING WITH ASTM C150/C150M.

3. AGGREGATES COMPLYING WITH ASTM C33/C33M. 4. POTABLE WATER.

2.02 COMPONENTS A. LINE POSTS: 1.9 INCH (48 MM) DIAMETER SPACED AT 8 FEET B. CORNER AND TERMINAL POSTS: 2.38 INCH (60 MM) DIAMETER.

C. GATE POSTS: 3-1/2 INCH (89 MM) DIAMETER. D. TOP AND BRACE RAIL: 1.66 INCH (42 MM) DIAMETER, PLAIN END, SLEEVE COUPLED.

SWEDGED-END OR FABRICATED FOR EXPANSION-TYPE COUPLING. E. GATE FRAME: 1.66 INCH (42 MM) DIAMETER FOR WELDED FABRICATION. F. FABRIC: 2 INCH (51 MM) DIAMOND MESH INTERWOVEN WIRE, 7 GUAGE THICK, TOP SELVAGE

G. TENSION WIRE: 7 GUAGE THICK STEEL, SINGLE STRAND, METALLIC-COATED. MATCH COATING AND COLOR ON CHAIN LINK FENCE FABRIC.

KNUCKLE END CLOSED, BOTTOM SELVAGE KNUCKLE END CLOSED.

H. TIE WIRE: ALUMINUM ALLOY STEEL WIRE.

2.03 MANUAL GATES AND RELATED HARDWARE A. COMPLY WITH ASTM F900 FOR SINGLE GATES, MADE FROM GALVANIZED STEEL PIPE AND TUBING COMPLYING WITH ASTM F1043, COMPLETE WITH HARDWARE. 1. HARDWARE FOR SINGLE SWINGING GATES: 180 DEGREE HINGES, 2 FOR GATES UP TO 60

PADLOCK HASP. 2. FRAMES AND BRACING: FOR GATE FABRIC HEIGHT 6 FEET OR LESS WITH WELDED CORNERS.

INCHES (1,525 MM) HIGH, 3 FOR TALLER GATES; FORK LATCH WITH GRAVITY DROP AND

3. GATE POSTS: FABRICATE MEMBERS FROM ROUND GALVANIZED STEEL PIPE FOR THE FOLLOWING GATE FABRIC HEIGHTS BY LEAF WIDTHS: 6 FEET OR LESS BY 4 FEET OR LESS. B. HINGES: FINISHED TO MATCH FENCE COMPONENTS.

2. MOUNTING: CENTER. CLOSING: MANUAL. C. LATCHES: FINISHED TO MATCH FENCE COMPONENTS.

BRACKETS: ROUND.

 BRACKETS: ROUND. 2.04 ACCESSORIES A. CAPS: CAST STEEL GALVANIZED; SIZED TO POST DIAMETER, SET SCREW RETAINER.

2.05 FINISHES A. COMPONENTS (OTHER THAN FABRIC): GALVANIZED IN ACCORDANCE WITH ASTM

A123/A123M, AT 1.7 OUNCES PER SQUARE FOOT (530 G/SQ M). B. HARDWARE: HOT-DIP GALVANIZED TO WEIGHT REQUIRED BY ASTM A153/A153M. C. ACCESSORIES: SAME FINISH AS FRAMING.

PART 3 EXECUTION

3.01 INSTALLATION A. GENERAL INSTALLATION: INSTALL FRAMEWORK, FABRIC, ACCESSORIES AND GATES IN ACCORDANCE WITH ASTM F567. DO NOT BEGIN INSTALLATION BEFORE FINAL GRADING IS COMPLETED, UNLESS OTHERWISE PERMITTED BY ARCHITECT.

B. CORNER, GATE AND TERMINAL POST FOOTING DEPTH BELOW FINISH GRADE: ASTM F567. C. POST EXCAVATION: DRILL OR HAND-EXCAVATE HOLES FOR POSTS TO DIAMETERS AND SPACINGS INDICATED, IN FIRM, UNDISTURBED OR COMPACTED SOIL. D. POST SETTING: HAND-EXCAVATE HOLES FOR POST FOUNDATIONS IN FIRM, UNDISTURBED OR

COMPACTED SOIL. SET TERMINAL AND GATE POSTS PLUMB, IN CONCRETE FOOTINGS WITH TOP OF FOOTING 2 INCHES ABOVE FINISH GRADE. SLOPE TOP OF CONCRETE FOR WATER RUNOFF. PROTECT PORTION OF POSTS ABOVE GROUND FROM CONCRETE SPLATTER. PLACE CONCRETE AROUND POSTS AND VIBRATE OR TAMP FOR CONSOLIDATION. USING MECHANICAL DEVICES TO SET POSTS PER ASTM F567 IS NOT PREMITTED. VERIFY THAT POSTS ARE SET PLUMB, ALIGNED, AND AT CORRECT HEIGHT AND SPACING, AND HOLD IN POSITION DURING PLACEMENT AND FINISHING OPERATIONS UNTIL CONCRETE IS

SUFFICIENTLY CURED. E. TERMINAL POSTS: LOCATE TERMINAL END, CORNER, AND GATE POSTS PER ASTM F567 AND TERMINAL PULL POSTS AT CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENT.

F. LINE POSTS: SPACE LINE POSTS UNIFORMLY AT 8 FEET O.C. G. INTERMEDIATE RAILS: INSTALL IN ONE PIECE AT POST-HEIGHT CENTER SPAN, SPANNING BETWEEN POSTS, USING FITTINGS, SPECIAL OFFSET FITTINGS, AND ACCESSORIES. H. CHAIN-LINK FABRIC: PLACE FABRIC ON OUTSIDE OF POSTS AND RAILS. 1. POSITION BOTTOM OF FABRIC 2 INCHES (50 MM) ABOVE CONCRETE.

TIE WIRE AT MAXIMUM 15 INCHES (380 MM) ON CENTERS. 3. DO NOT STRETCH FABRIC UNTIL CONCRETE FOUNDATION HAS CURED 28 DAYS. 4. INSTALL BOTTOM TENSION WIRE STRETCHED TAUT BETWEEN TERMINAL POSTS.

2. FASTEN FABRIC TO TOP RAIL, LINE POSTS, BRACES, AND BOTTOM TENSION WIRE WITH

I. PROVIDE A MINIMUM OF SIX (6) TIES FOR EACH TEN FEET (10') OF RAIL AND ONE (1) TIE TO EACH FOOT OF POST HEIGHT. TIES TO TENSION WIRE SHALL BE MADE WITH HEAVY

GALVANIZED HOG RINGS AT SIX (6) PER TEN FEET (10') OF TENSION WIRE. J. TENSION BANDS: PROVIDE ONE (1) FASTENER FOR EACH ONE FOOT (1') OF FABRIC HEIGHT

(MINIMUM OF 8 BANDS FOR 10 FT., 3 BANDS FOR 42"). K. SET TERMINAL AND GATE POSTS PLUMB, IN CONCRETE FOOTINGS WITH TOP OF FOOTING 2 INCHES ABOVE FINISH GRADE. SLOPE TOP OF CONCRETE FOR WATER RUNOFF.

L. LINE POST FOOTING DEPTH BELOW FINISH GRADE: ASTM F567. M. CORNER, GATE AND TERMINAL POST FOOTING DEPTH BELOW FINISH GRADE: ASTM F567.

N. BRACE EACH GATE AND CORNER POST TO ADJACENT LINE POST WITH HORIZONTAL CENTER BRACE RAIL. INSTALL BRACE RAIL ONE BAY FROM END AND GATE POSTS. O. DO NOT STRETCH FABRIC UNTIL CONCRETE FOUNDATION HAS CURED 28 DAYS. P. POSITION BOTTOM OF FABRIC 2 INCHES (50 MM) ABOVE CONCRETE MOWSTRIP.

Q. ATTACH FABRIC TO END, CORNER, AND GATE POSTS WITH TENSION BARS AND TENSION BAR

R. DO NOT ATTACH THE HINGED SIDE OF GATE TO BUILDING WALL; PROVIDE GATE POSTS. 3.02 TOLERANCES

A. MAXIMUM VARIATION FROM PLUMB: 1/4 INCH (6 MM).

B. MAXIMUM OFFSET FROM TRUE POSITION: 1 INCH (25 MM). 3.03 FIELD QUALITY CONTROL

A. LAYOUT: VERIFY THAT FENCE INSTALLATION MARKINGS ARE ACCURATE TO DESIGN, PAYING ATTENTION TO GATE LOCATIONS, UNDERGROUND UTILITIES, AND PROPERTY LINES.

B. GATES: INSPECT FOR LEVEL, PLUMB, AND ALIGNMENT. 3.04 CLEANING A. CLEAN JOBSITE OF EXCESS MATERIALS; SCATTER EXCESS MATERIAL FROM POST HOLE

EXCAVATIONS UNIFORMLY AWAY FROM POSTS. REMOVE EXCESS MATERIAL IF REQUIRED. B. CLEAN FENCE WITH MILD HOUSEHOLD DETERGENT AND CLEAN WATER RINSE WELL. C. REMOVE MORTAR FROM EXPOSED POSTS AND OTHER FENCING MATERIAL USING A 10 PERCENT SOLUTION OF MURIATIC ACID FOLLOWED IMMEDIATELY BY SEVERAL RINSES WITH

D. TOUCH UP SCRATCHED SURFACES USING MATERIALS RECOMMENDED BY MANUFACTURER. MATCH TOUCHED-UP PAINT COLOR TO FACTORY-APPLIED FINISH.

END OF SECTION

A. DEMONSTRATE PROPER OPERATION OF EQUIPMENT TO OWNER'S DESIGNATED REPRESENTATIVE.

> **SECTION 32 3300** SITE FURNISHINGS

B. ALLOWANCE FOR BENCHES, TABLES, & TRASH RECEPTACLES.

1.01 SECTION INCLUDES A. BICYCLE RACKS

C. SHADE SAILS 1.02 REFERENCE STANDARDS

PART 1 GENERAL

3.05 CLOSEOUT ACTIVITIES

A. ASTM A500/A500M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES; 2013.

B. ASTM A780/A780M - STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS

B. SHOP DRAWINGS: INDICATE PLANS FOR EACH UNIT OR GROUP OF UNITS, ELEVATIONS WITH

OF HOT-DIP GALVANIZED COATINGS; 2009 (REAPPROVED 2015). 1.03 SUBMITTALS A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

MODEL NUMBER, OVERALL DIMENSIONS, CONSTRUCTION, AND ANCHORAGE DETAILS. C. SAMPLES: SUBMIT TWO SETS OF MANUFACTURER'S AVAILABLE COLORS FOR METAL FURNISHINGS

1.04 WARRANTY A. SEE SECTION 01 7800 - CLOSEOUT SUBMITTALS, FOR ADDITIONAL WARRANTY

REQUIREMENTS B. PROVIDE MANUFACTURER'S WARRANTY AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR DUCTILE IRON CASTINGS FOR A PERIOD OF 10 YEARS FROM DATE OF

PART 2 PRODUCTS 2.01 MANUFACTURERS

SUBSTANTIAL COMPLETION.

B. BENCHES, TABLES, & TRASH RECEPTACLES: BOTTON & GARDINER, PUBLIC SPACE FURINTURE, WWW.BOTTONGARDINER.COM C. SHADE SAILS: CANVAS PRODUCTS, WWW.CANVAS-PRODUCTS.COM

A. BICYCLE RACKS: MADRAX, INC. WWW.MADRAX.COM

2.02 BICYCLE RACKS A. STAINLESS STEEL BICYCLE RACKS: PER PLANS SHAPE: ROUND

2. DIAMETER: 2-3/8" 3. MATERIALS: STAINLESS STEEL 4. MOUNTING: IN-GROUND 5. PRODUCTS: MADRAX, WWW. MADRAX.COM

2.03 BENCHES, TABLES, & TRASH RECEPTACLES A. STYLE, FINISH, & COLORS TO BE DETERMINED BY OWNER. B. PLACE ALLOWANCE IN BID OF \$160,000.00

2.04 SHADE SAILS A. FABRIC: POLYFAB COMTEX KNITTED SHADE CLOTH

1. COLOR TO BE DETERMINED BY OWNER. B. THREAD: SOLARFIX CLEAR THREAD C. CONNECTIONS: NYLON STRAPS & PUSH BUTTON BUCKLES.

PART 3 EXECUTION 3.01 PREPARATION A. DURING CONSTRUCTION AND STORAGE, PROTECT MATERIALS FROM DAMAGE. B. WORK DAMAGED DURING COURSE OF WORK OF THIS SECTION SHALL BE REPLACED OR

REPAIRED AT NO ADDITIONAL COST TO OWNER. IF DAMAGED WORK IS NEW, REPAIR OR

REPLACEMENT SHALL BE PERFORMED BY INSTALLER OF ORIGINAL WORK.

A. VERIFY PROPER INSTALLATION OF MOUNTING SURFACES, PRE-NSTALLED ANCHOR BOLTS, AND OTHER MOUNTING DEVICES; AND READY TO RECEIVE SITE FURNISHING ITEMS.

B. DO NOT BEGIN INSTALLATION UNTIL UNACCEPTABLE CONDITIONS ARE CORRECTED. 3.03 INSTALLATION A. INSTALL SITE FURNISHINGS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, AND

MANUFACTURER'S INSTALLATION INSTRUCTIONS.

3.04 ADJUSTING AND CLEANING A. GALVANIZED SURFACES: CLEAN ABRADED AREAS AND REPAIR GALVANIZING TO COMPLY WITH ASTM A780/A780M.

END OF SECTION

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(435) 752-7031

(801) 539-8221

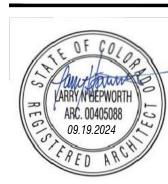
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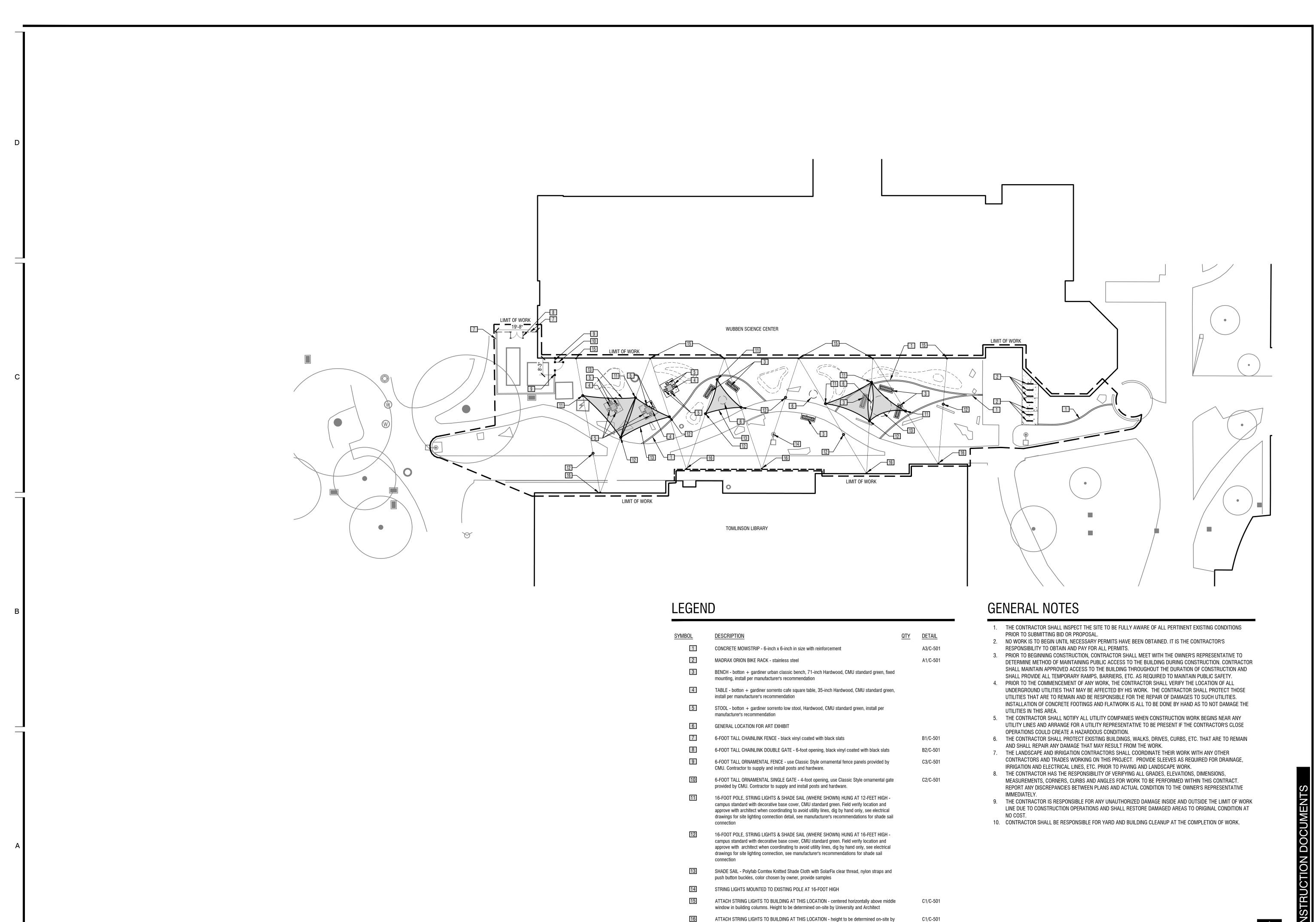
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SALT LAKE CITY, UTAH

323218 PROJECT #: J. CLEMENTS L. HEPWORTH CHECKED BY:





University and Architect

CONCRETE SURFACE

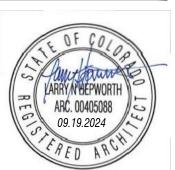
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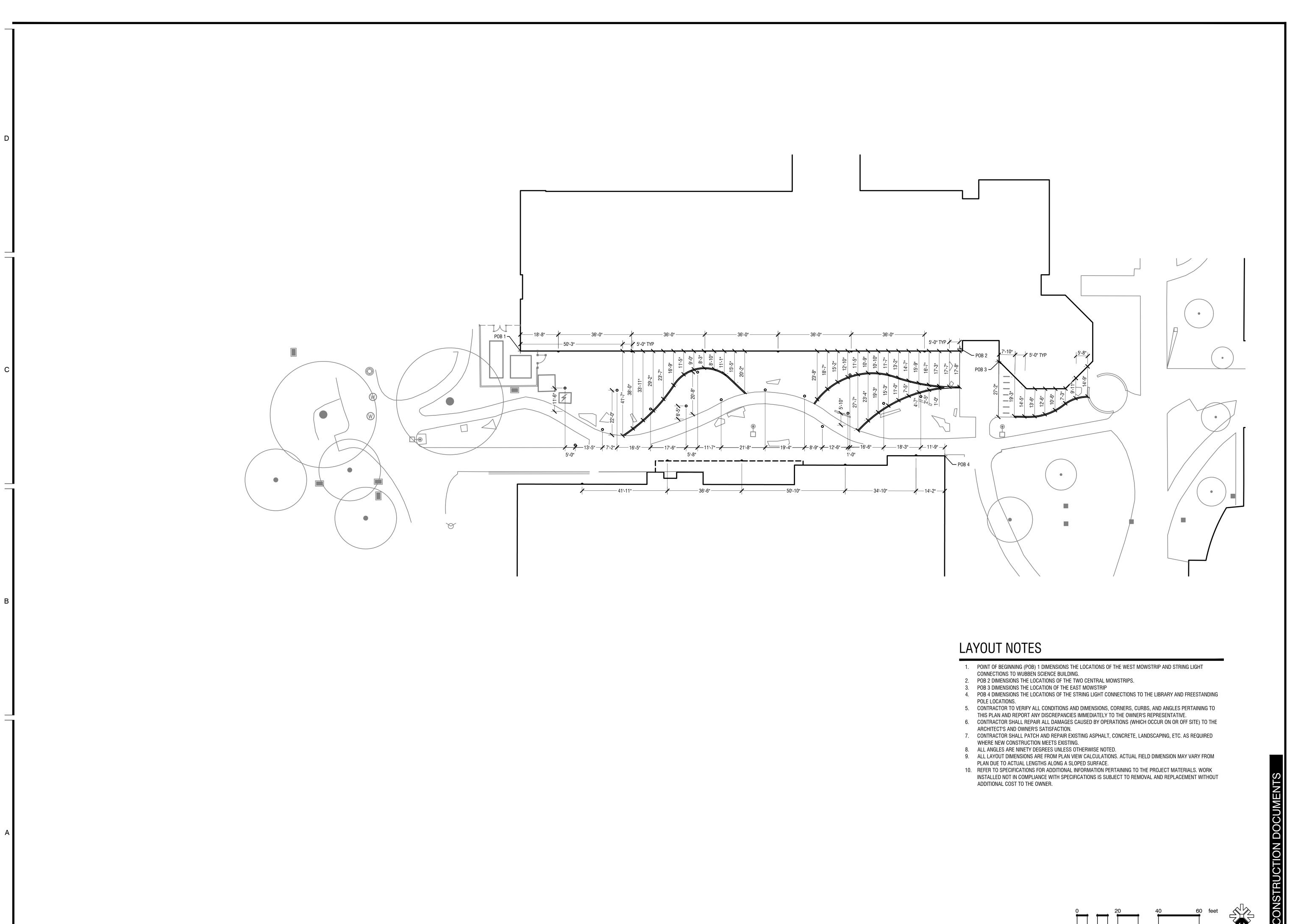
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323218 PROJECT #: J. CLEMENTS DRAWN BY: L. HEPWORTH

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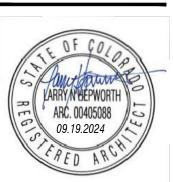
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ART WALK CENTER

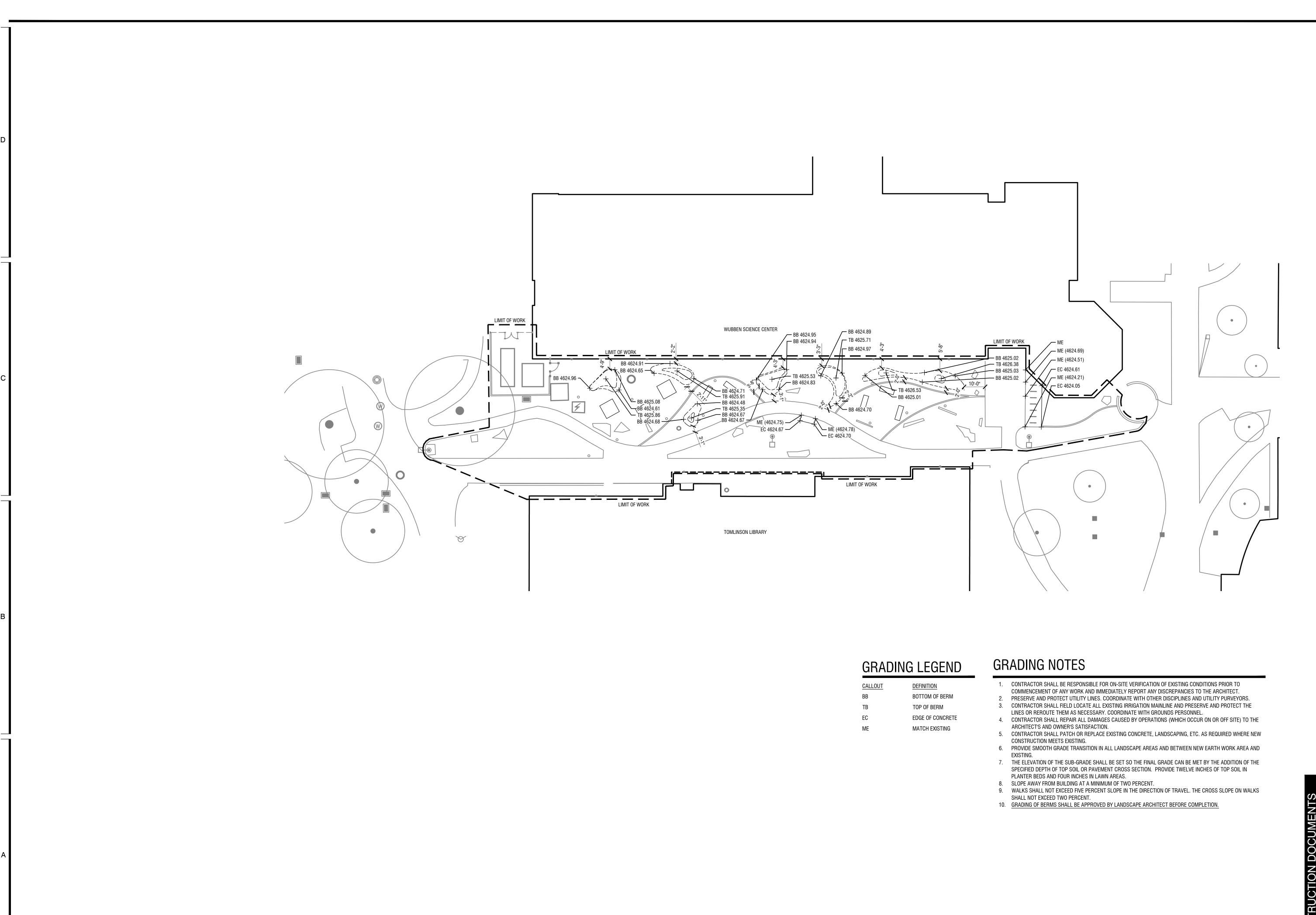
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CHECKED BY: L. HEPWORTH



SCALE: 1" = 20'



LOGAN, UTAH (435) 752-7031

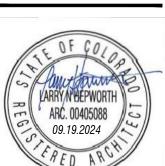
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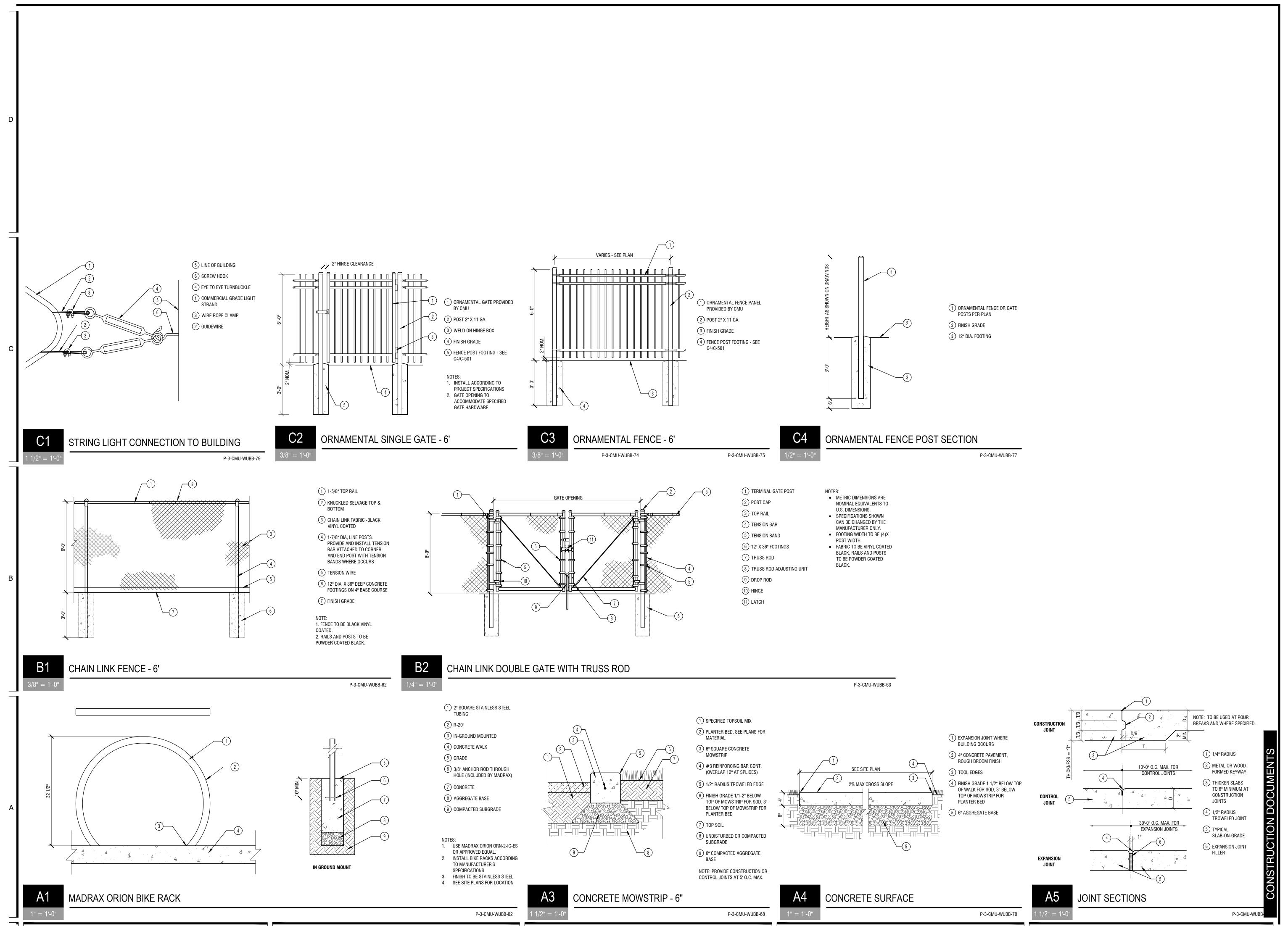
ART WALK CENTER SCIENCE

WUBBEN

323218 PROJECT #: J. CLEMENTS

L. HEPWORTH CHECKED BY:





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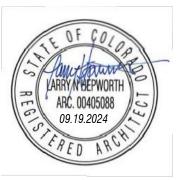
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ART WALK CENTER SCIENCE WUBBEN

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323218 PROJECT #: J. CLEMENTS

L. HEPWORTH CHECKED BY: 09.19.2024



SITE DETAILS

C-501

- A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, MATERIAL, EQUIPMENT AND SUPPLIES IN PERFORMING ALL OPERATIONS IN CONNECTION WITH PROVIDING AN IRRIGATION SYSTEM AND ALL SITE WORK IN STRICT ACCORDANCE WITH PROVIDED SPECIFICATIONS, DETAILS, AND DRAWINGS.
- B. ANY MINOR ITEMS OF LABOR AND/OR MATERIALS NOT SPECIFICALLY NOTED ON THE DRAWINGS OR SPECIFICATIONS; BUT OBVIOUSLY NECESSARY FOR THE PROPER COMPLETION OF THE WORK, ARE TO BE CONSIDERED AS INCIDENTAL TO AND ARE TO BE INCLUDED IN THE CONTRACT. CONTRACTOR SHALL NOTE SUCH ITEMS AND PRESENT THEM TO OWNER BEFORE
- C. CONTRACTOR SHOULD SUBMIT CONSTRUCTION SCHEDULE OF ANTICIPATED WORK TIME TO FACILITATE TIMELY VISITS FOR REVIEW OF WORK. SUCH PROPOSAL SHALL INCLUDE A PROJECTED TIME FRAME FOR INSTALLING THE SYSTEM. IT SHOULD REFLECT, IN CALENDAR DAYS, THE ANTICIPATED TIME REQUIRED FROM THE DAY OF THE AWARD TO COMPLETION OF THE SYSTEM IN A FULLY OPERATIONAL MODE. THIS SCHEDULE SHOULD REFLECT ANTICIPATED TIME FOR ORDERING AND RECEIVING ALL COMPONENTS, STARTING AND ENDING TIMES FOR INSTALLATION, SYSTEM START-UP, ETC.

1.02 SECTION INCLUDES

A. PIPE AND FITTINGS, VALVES, SPRINKLER HEADS, BUBBLERS, AND ACCESSORIES.

- A. CIRCUIT PIPING: DOWNSTREAM FROM CONTROL VALVES TO SPRINKLERS, SPECIALTIES, AND DRAIN VALVES. PIPING IS UNDER PRESSURE DURING FLOW.
- B. DRAIN PIPING: DOWNSTREAM FROM CIRCUIT-PIPING DRAIN VALVES. PIPING IS NOT UNDER PRESSURE
- C. MAINLINE PIPING: DOWNSTREAM FROM POINT OF CONNECTION TO WATER DISTRIBUTION PIPING TO AND INCLUDING CONTROL VALVES. PIPING IS UNDER WATER DISTRIBUTION SYSTEM PRESSURE.

1.04 PROJECT CONDITIONS

- A. IRRIGATION WATER SHALL BE PROVIDED BY THE FOLLOWING:
- WATER SYSTEM TO BE CONNECTED TO EXISTING MAINLINE.
- DESIGN PRESSURE OF THE IRRIGATION DESIGN IS 65 PSI.
- 3. STATIC PRESSURE IN MAINLINE SHALL BE VERIFIED BY THE CONTRACTOR. IF PRESSURE IS 5 PSI HIGHER OR LOWER AS SPECFIED, THE INSTALLER SHALL NOTIFY THE PROJECT REPRESENTATIVE.

1.05 SYSTEM PERFORMANCE REQUIREMENTS

- A. MINIMUM WATER COVERAGE
- 1. IRRIGATION HEADS IN LAWN AREAS SHALL BE SPACED 90% OF THE RADIUS FOR SPRAY
- 2. SHRUBS, AND PERENNIALS SHALL HAVE ADEQUATE WATER APPLIED TO THE ROOT ZONES TO ENSURE PLANT HEALTH AND DEVELOPMENT.
- B. THE IRRIGATION SYSTEM SHALL PROVIDE THE MANUFACTURER'S RECOMMENDED MINIMUM OPERATION PRESSURE TO EVERY IRRIGATION HEAD.
- C. MINIMUM WORKING PRESSURES: THE FOLLOWING ARE MINIMUM PRESSURE REQUIREMENTS
- PRESSURE PIPING: 200 PSIG.
- 2. CIRCUIT PIPING: 150 PSIG.
- 3. DRAIN PIPING: 100 PSIG.
- 1.06 REFERENCE STANDARDS
- A. ASTM D2241 STANDARD SPECIFICATION FOR POLY (VINYL CHLORIDE) (PVC) PRESSURE-RATED PIPE (SDR SERIES); 2015.

FOR PIPING, VALVES, AND SPECIALTIES, UNLESS OTHERWISE INDICATED:

1.07 SUBMITTALS

- A. SEE SECTION 01 3000 ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.
- B. PRODUCT DATA: SUBMIT TECHNICAL PRODUCT DATA AND INSTALLATION INSTRUCTIONS FOR IRRIGATION SYSTEM MATERIALS AND PRODUCTS. C. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS OR "AS BUILT" DRAWINGS FOR IRRIGATION
- SYSTEMS SHOWING PIPING MATERIALS, SIZES, LOCATIONS, AND ELEVATIONS. INCLUDE DETAILS OF UNDERGROUND STRUCTURES, CONNECTIONS, THRUST BLOCKS, AND ANCHORING. SHOW INTERFACE AND SPATIAL RELATIONSHIP BETWEEN PIPING AND PROXIMATE STRUCTURES.
- D. OPERATION AND MAINTENANCE DATA: INCLUDE IN MAINTANENCE MANUALS SPECIFIED IN DIVISION 1. INCLUDE DATA FOR THE FOLLOWING:
- 1. PROVIDE TYPEWRITTEN INSTRUCTIONS FOR OPERATION AND MAINTENANCE OF SYSTEM AND CONTROLS, SEASONAL ACTIVATION AND SHUTDOWN, AND MANUFACTURER'S PARTS
- 2. PROVIDE SCHEDULE INDICATING LENGTH OF TIME EACH VALVE IS REQUIRED TO BE OPEN TO PROVIDE A DETERMINED AMOUNT OF WATER.
- 3. SUBMIT MANUALS WITH RECORD DRAWINGS. THE MANUAL SHALL ALSO CONTAIN:
- a. IDENTIFICATION READABLE FROM THE OUTSIDE OF THE COVER STATING BY WHOM THE INFORMATION WAS COMPILED.
- b. NEATLY TYPE-WRITTEN INDEX NEAR THE FRONT OF THE MANUAL, FURNISHING IMMEDIATE INFORMATION AS TO THE LOCATION IN THE MANUAL OF ALL EMERGENCY DATA REGARDING THE INSTALLATION. c. COMPLETE NOMENCLATURE OF ALL REPLACEABLE PARTS, THEIR PART NUMBERS,
- CURRENT COST, AND NAME AND ADDRESS OF THE NEAREST VENDOR OF REPLACEMENT PARTS.
- d. COMPLETE OUTLINE OF FUTURE WATERING SCHEDULES AND WHEN THEY SHOULD BE CHANGED FROM THE INITIAL INSTALLATION SCHEDULE. THE INITIAL SCHEDULE IS CALCULATED FOR A WATERING RATE TO ESTABLISH LAWN.
- e. COPY OF ALL GUARANTEES AND WARRANTIES ISSUED ON THE INSTALLATION SHOWING ALL DATES OF EXPIRATION.
- E. RECORD DRAWINGS: AS INSTALLATION OCCURS, PREPARE ACCURATE RECORD DRAWINGS
- OF PIPING SYSTEM TO BE SUBMITTED PRIOR TO FINAL INSPECTION THAT ALSO INCLUDES:
- 1. DETAIL AND DIMENSION CHANGES MADE DURING CONSTRUCTION 2. SIGNIFICANT DETAILS AND DIMENSIONS NOT SHOWN IN THE APPROVED CONTRACT
- DOCUMENTS.
- 3. FIELD DIMENSIONED LOCATIONS OF VALVE BOXES, MANUAL DRAINS, CONTROL WIRE RUNS NOT IN MAINLINE DITCH, AND BOTH ENDS OF SLEEVES.
- 4. TAKE DIMENSIONS FROM PERMANENT CONSTRUCTED SURFACES OR EDGES LOCATED AT
- 5. TAKE AND RECORD DIMENSIONS AT TIME OF INSTALLATION.
- F. PROVIDE REDUCED COPY OF RECORD DRAWINGS AT HALF-SIZE WITH COLOR KEY CIRCUITS AND LAMINATE BOTH SIDES WITH 5 MIL THICK OR HEAVIER PLASTIC. MOUNT ON 1/4 INCH PLYWOOD BOARD. DRILL TWO 1/2 INCH HOLES AT TOP OF BOARD AND HANG ON HOOKS IN
- G. MAINTENANCE MATERIALS: PROVIDE THE FOLLOWING FOR OWNER'S USE IN MAINTENANCE OF PROJECT.
- 1. EXTRA SPRINKLER HEADS: ONE OF EACH TYPE AND SIZE.

CUSTODIAL ROOM OR AS DIRECTED BY PROJECT REPRESENTATIVE.

2. EXTRA VALVE BOX KEYS: ONE.

OR ABOVE FINISH GRADE.

- 3. WRENCHES: ONE FOR EACH TYPE HEAD CORE AND FOR REMOVING AND INSTALLING EACH TYPE HEAD.
- H. WARRANTY DOCUMENTS: WARRANTY DOCUMENTS SHALL BE SUBMITTED TO OWNER AT THE TIME OF FINAL INSPECTION.

1.08 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS: LICENSED FIRMS REGULARLY ENGAGED IN MANUFACTURE OF IRRIGATION SYSTEM PRODUCTS OF TYPES, MATERIALS AND SIZES SPECIFIED, WHOSE PRODUCTS HAVE BEEN IN USE IN SIMILAR SERVICE.

- B. WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH LATEST RULES AND REGULATIONS, AND OTHER APPLICABLE STATE OR LOCAL LAWS. NOTHING IN APPROVED CONTRACT DOCUMENTS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
- C. PRE-INSTALLATION MEETING: SCHEDULE MEETING AFTER EXCAVATION OF TRENCHES AND INSTALLATION OF SLEEVES, BUT PRIOR TO INSTALLATION OF PIPE.
- D. INSTALLER QUALIFICATIONS: LICENSED CONTRACTING FIRM REGULARLY ENGAGED IN SUCCESSFUL INSTALLATION OF IRRIGATION SYSTEMS SIMILAR IN SIZE AND SCOPE OF THIS CONTRACT. OWNER RESERVES THE RIGHT TO ASK FOR AND VERIFY REFERENCES FROM CONTRACTORS PAST PORTFOLIO OF WORK BEFORE AWARD OF CONTRACT.

1.09 CODES AND STANDARDS

- A. PLUMBING CODE COMPLIANCE: COMPLY WITH ANY APPLICABLE PORTIONS OF THE UTAH STATE PLUMBING CODE PERTAINING TO THE SELECTION OF MATERIALS AND THE INSTALLATION OF IRRIGATION SYSTEMS.
- B. WATER PURVEYOR COMPLIANCE: COMPLY WITH REQUIREMENTS OF PURVEYOR SUPPLYING WATER TO THE PROJECT.
- C. ANY PERMITS THAT ARE NEEDED FOR THE INSTALLATION OF CONSTRUCTION OF ANY WORK INCLUDED UNDER THIS CONTRACT, WHICH ARE REQUIRED BY THE AUTHORITIES OF JURISDICTION, SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR FOLLOWING WHATEVER ORDINANCES, REGULATIONS AND CODES REQUIRING THE PERMITS. IF THE AUTHORITIES OF THE JURISDICTION REQUIRE INSPECTION AT SAID POINTS OF THE INSTALLATION, THE CONTRACTOR SHALL ARRANGE FOR, AND BE PRESENT AT, ANY SUCH
- D. ADDITIONAL WORK OR FURNISHING OF MATERIALS REQUIRED DUE TO INSPECTION BY THE AUTHORITIES OF JURISDICTION SHALL BE FURNISHED AT NO COST TO THE OWNER. IN THE EVENT THAT THE SPECIFICATIONS FOR THIS PROJECT AND EXISTING ORDINANCES, REGULATIONS OR CODES ARE IN CONFLICT, THE CONFLICT SHALL BE NOTED IN WRITING BY THE CONTRACTOR TO THE OWNER'S AUTHORIZED REPRESENTATIVE, AND ANY NECESSARY CHANGES IN WORK SHALL FOLLOW AN ESTABLISHED PROCEDURE FOR CLAIMS FOR EXTRA COMPENSATION.

1.10 CONTRACTORS USE OF PREMISES

- A. CONTRACTOR IS RESPONSIBLE FOR DAMAGES AND INTERRUPTION OF ALL EXISTING
- B. CONTRACTOR SHALL NOT UNREASONABLY ENCUMBER SITE WITH MATERIALS AND
- C. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR PROTECTION AND SECURITY OF MATERIALS AND EQUIPMENT STORED ON JOB SITE.
- D. CONTRACTOR SHALL CONFINE OPERATIONS TO AREAS WITHIN HIS CONTRACT LIMITS.
- E. ANY DAMAGES TO EXISTING STRUCTURES, SURFACES, OR UTILITIES CAUSED BY CONTRACTOR OR CONTRACTOR'S EMPLOYEES SHALL BE CONSIDERED CONTRACTOR'S RESPONSIBILITY AND WILL BE PART OF THIS CONTRACT TO BE CORRECTED TO SATISFACTION
- F. CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITY LOCATING SERVICES AND KEEPING UTILITIES CLEARLY MARKED ON THE JOB SITE. SCHOOL-OWNED UTILITIES AND PIPING WILL BE MARKED BY UNIVERSITY PERSONNEL; HOWEVER, CONTRACTOR IS RESPONSIBLE TO CONTACT THE UNIVERSITY MAINTENANCE DEPARTMENT TO SCHEDULE LOCATING AND MUST GIVE ADEQUATE TIME FOR LOCATING TO BE DONE. ANY UTILITIES, WIRING, OR PIPING DAMAGED BY CONTRACTOR WITHOUT FOLLOWING THESE GUIDELINES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.
- G. CONTRACTOR IS RESPONSIBLE FOR SAFETY ON JOB SITE. BARRICADING OR COVERING OPEN TRENCHES, ELIMINATING TRIP HAZARDS, AND OTHER SAFETY ISSUES ARE A PRIORITY. RENTAL OR SUPPLYING OF BARRICADES IS CONTRACTOR'S RESPONSIBILITY.

1.11 PERFORMANCE BOND/BID BOND/INSURANCE

- A. THE OWNER SHALL HAVE THE RIGHT TO REQUIRE THE CONTRACTOR TO FURNISH BONDS COVERING FAITHFUL PERFORMANCE OF THE CONTRACT AND PAYMENT OF OBLIGATIONS ARISING THEREUNDER AS STIPULATED IN BIDDING REQUIREMENTS. A BID BOND, CERTIFIED CHECK, OR CASHIERS CHECK EXECUTED IN FAVOR OF COLORADO MESA UNIVERSITY IN THE AMOUNT OF FIVE PERCENT (5%) OF THE TOTAL BID PRICE MUST BE SUBMITTED WITH THE PROPOSAL AS GUARANTEE THAT BIDDER IS WILLING TO ENTER INTO A CONTRACT. BIDDER MUST ALSO BE ABLE TO PROVIDE A ONE HUNDRED PERCENT (100%) PERFORMANCE AND PAYMENT BOND AT TIME OF AWARD OF CONTRACT.
- B. SUCCESSFUL CONTRACTOR MUST MEET FEDERAL. STATE. COUNTY AND CITY CODES AND REGULATIONS. PROOF OF LIABILITY INSURANCE AND WORKMEN'S COMPENSATION MUST BE SUBMITTED WITH BID.

1.12 SUPERVISION

- A. THE CONTRACTOR SHALL PROVIDE A COMPETENT SUPERINTENDENT AND ANY NECESSARY ASSISTANTS ON THE PROJECT WHEN WORK IS IN PROGRESS. THE SUPERINTENDENT SHALL NOT BE CHANGED DURING THE PROJECT WITHOUT THE CONSENT OF THE OWNER'S REPRESENTATIVE UNLESS THE SUPERINTENDENT CEASES HIS STATUS AS AN EMPLOYEE OF THE CONTRACTOR. THE SUPERINTENDENT SHALL REPRESENT THE CONTRACTOR IN THE CONTRACTOR'S ABSENCE, AND ALL DIRECTIONS GIVEN TO HIM BY THE OWNER'S REPRESENTATIVE SHALL BE BINDING AS IF THEY WERE GIVEN TO THE CONTRACTOR.
- B. THE CONTRACTOR'S SUPERINTENDENT SHALL SUPERVISE THE CONTRACTOR'S EMPLOYEES ON THE JOB SITE AND BE RESPONSIBLE FOR THEIR ACTIONS AND CONDUCT ON THE JOB SITE.

1.13 GUARANTEE

- A. SUBMIT ONE-YEAR WRITTEN GUARANTEE SIGNED BY UNDERGROUND SPRINKLER CONTRACTOR, AGREEING TO REPAIR OR REPLACE ALL DEFECTS IN MATERIAL, EQUIPMENT,
- B. 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 OWNER. REPAIRS IF REQUIRED, SHALL BE DONE PROMPTLY AT NO COST TO THE OWNER.

1.14 SEQUENCING AND SCHEDULING

- A. MAINTAIN UNINTERRUPTED WATER SERVICE TO BUILDING DURING NORMAL WORKING HOURS. ARRANGE FOR TEMPORARY WATER SHUTOFF WITH OWNER.
- B. COORDINATE LAWN IRRIGATION PIPING WITH WORK SPECIFIED IN DIVISION 32 9223 "SODDING" AND 32 9300 "PLANTS".
- C. COORDINATE LAWN IRRIGATION PIPING WITH UTILITY WORK.

PART 2 PRODUCTS 2.01 IRRIGATION SYSTEM

A. MANUFACTURERS:

1. HUNTER INDUSTRIES: WWW.HUNTERINDUSTRIES.COM/#SLE.

2.02 FILL MATERIAL

- A. BACKFILL MATERIAL
- BACKFILL MATERIAL FOR IRRIGATION PIPE SHALL CONSIST OF SAND, NATIVE MATERIAL OR TOPSOIL WITH NO ROCKS LARGER THAN 1/4 INCH IN ANY DIMENSION FOR PIPE BEDDING HAUNCHES AND INITIAL BACKFILL ABOVE THE PIPE. ABOVE THE INITIAL BACKFILL, THE TRENCH SHALL BE FILLED WITH SOIL WITH NO DEBRIS OR ROCKS GREATER THAN 1-1/2 INCH IN ANY DIRECTION. LANDSCAPE ARCHITECT SHALL APPROVE ON-STIE MATERIAL FOR BACKFILL OPERATION.
- 2. BACKFILL FOR IRRIGATION SLEEVES UNDER PAVEMENT SHALL CONSIST OF GRANULAR MATERIAL WITH NO ROCK SIZE LARGER THAN 1/4 INCH IN ANY DIMENSION UP TO THE BASE FOR THE PAVING ABOVE THE PIPE.
- 3. IMPORTED BACKFILL MATERIAL SHALL BE CLEAN SOIL, FREE FROM ORGANIC MATERIAL, TRASH, DEBRIS, RUBBISH, BROKEN CEMENT, ASPHALT MATERIAL, OR OTHER OBJECTIONABLE SUBSTANCES AND APPROVED BY THE LANDSCAPE ARCHITECT.

B. DRAINAGE FILL MATERIAL

1. WASHED, EVENLY GRADED MIXTURE OF CRUSHED STONE, OR CRUSHED OR UNCRUSHED GRAVEL, WITH 100% PASSING A 1-1/2 INCH SIEVE AND NOT MORE THAN 5% PASSING A NO. 4 SIEVE.

2.03 PIPE MATERIALS A. PVC PIPE: ASTM D2241; 200 PSI (1.38 MPA) PRESSURE RATED UPSTREAM FROM CONTROLS, 160 PSI (1.10 MPA) DOWNSTREAM; SOLVENT WELDED SOCKETS.

- 1. ALL LATERAL PIPING SMALLER THAN 3", SHALL BE SCHEDULE 40 PRESSURE RATED PVC GLUE JOINT PIPE WITH RATINGS PRINTED ON OUTSIDE OF PIPE.
- 2. ALL LATERAL PIPE AND FITTINGS SHALL BE SCHEDULE 40 PRESSURE RATED PVC UNLESS SPECIFICALLY NOTED ON DRAWINGS.
- 3. ALL MAIN PRESSURE SIDE VALVE MANIFOLD PIPING SHALL BE DOMESTIC GALVANIZED IRON PIPE AND FITTINGS. ALL GALVANIZED IRON PIPE AND FITTING CONFIGURATIONS SHALL MATCH DETAIL DRAWINGS EXACTLY.

- 1. MAINLINES SHALL HAVE PVC SCH. 40 FITTINGS FOR PIPE SIZES 3/4 INCH THROUGH 1-1/2 INCH, PVC SCH. 80 FOR PIPE SIZES 2 INCH THROUGH 3 INCH AND PUSH ON DUCTILE OR
- MECHANICAL CAST IRON FITTINGS ON PVC MAINLINE 4 INCH AND LARGER. 2. MAIN LINE PRESSURE FITTINGS SHALL BE CAST IRON MANUFACTURED BY HARCO OR
- APPROVED EQUAL. 3. ALL POLYETHELENE PIPE FITTINGS SHALL BE COMPRESSION FITTINGS OR INSERT BARBED
- 4. REMOTE CONTROL VALVE CONNECTION TO MAINLINE SHALL BE PVC SST TEE, EPOXY COATED DOUBLE STRAP SADDLE, M.J. TEE, OR HARCO DUCTILE IRONS SERVICE TEES. JOINT RESTRAINT SHALL BE LEEMCO OR APPROVED EQUAL.

FITTINGS SECURED WITH STAINLESS STEEL CLAMPS.

- 1. SLEEVE DIAMETER SHALL BE TWO TIMES LARGER THAN PIPE THAT IS TO BE INSTALLED IN SLEEVE. SLEEVES 4" AND SMALLER DIAMETER SHALL BE PVC SCHEDULE 40. SLEEVES 4 INCH AND LARGER SHALL BE CLASS 200 PVC OR PVC SEWER PIPE.
- 2. PIPING AND CONTROL WIRES UNDER WALKS, ROADS, OR OTHER HARD SURFACES SHALL BE INSTALLED IN CLASS 200 PVC SLEEVES OF ADEQUATE SIZE OR AS NOTED ON
- 3. SLEEVES FOR ELECTRICAL CONDUIT SHALL BE ADEQUATE TO ACCOMMODATE MINIMUM CONDUIT SIZES AS REQUIRED BY UNIFORM ELECTRICAL CODE.
- 4. WIRE SLEEVES SHALL BE PVC PIPE OR ELECTRICAL TUBING. MAZIMUM NUMBER OF 14-GAUGE WIRE IN SLEEVE SHALL BE AS FOLLOWS:
- a. 1-10 WIRES IN A 1 INCH SLEEVE
- b. 11-18 WIRES IN A 1-1/4 INCH SLEEVE
- c. 19-25 WIRES IN A 1-1/2" SLEEVE
- d. 26-40 WIRES IN A 2" SLEEVE e. 41-56 WIRES IN A 2-1/2" SLEEVE
- f. 57-88 WIRES IN A 3" SLEEVE
- D. PIPE CONNECTION MATERIAL
- P-70 PRIMER

2. 711 SOLVENT/GLUE TEFLON TAPE

2.04 OUTLETS

- A. MANUFACTURERS:
- B. ALL SPRINKLER HEADS SHALL BE THE BRAND, MODEL, SIZE, AND TYPE SHOWN ON
- C. ALL SPRINKLER HEADS SHALL BE INSTALLED ON A "SWING JOINT" ASSEMBLY. LAWN SPRAY HEADS AND SMALL ROTORS WITH AN INLET SIZE 3/4" AND SMALLER SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS WITH "FUNNY PIPE" AND "SWING ELLS" AS MANUFACTURED BY HUNTER OR APPROVED EQUAL. ALL LARGE STREAM ROTOR AND IMPACT HEADS SHALL BE INSTALLED WITH THREE 1" SCHEDULE 40 MARLEX STREET ELLS AND ONE SCHEDULE 80 1"X12" NIPPLE. PREFABRICATED SWING JOINT ASSEMBLIES BY SPEARS MANUFACTURING OR OTHER APPROVED EQUAL CAN BE SUBSTITUTED IF DESIRED. ALL "SWING JOINT" CONFIGURATIONS SHALL MATCH DETAIL DRAWINGS EXACTLY.
- D. ROTARY TYPE SPRINKLER HEAD: POP-UP TYPE WITH SCREENS; FULLY ADJUSTABLE FOR FLOW AND PRESSURE; SIZE AS INDICATED; WITH LETTER OR SYMBOL DESIGNATING DEGREE OF ARC AND ARROW INDICATING CENTER OF SPRAY PATTERN.
- 1. HUNTER ROTARY HEADS: MP ROTATOR ON PRS 40 BODY, I-20, I-25, I-40, AND I-90.
- E. DRIP BUBBLER: ADJUSTABLE OUTLET AND HUNTER PBC AND RZWS-SLEEVE.
- F. QUICK COUPLER & HOSE BIBS HUNTER HQ-44LRC-AW G. QUICK COUPLER & HOSE BIBS:

HUNTER HQ-5RC

- A. MANUFACTURERS:
- HUNTER.
- CARSON 3. SUBSTITUTIONS: SEE SECTION 01 6000 - PRODUCT REQUIREMENTS.
- B. ALL CONTROL/MASTER VALVE/QUICK COUPLER VALVES
- C. GATE VALVES: BRONZE CONSTRUCTION NON-RISING STEM.
- 1. MATCO-NORCA NON-RISING STEM, RESILIENT WEDGE, GATE VALVE, OR APPROVED EQUAL. BRONZE CONSTRUCTION, DESIGNED FOR WORKING PRESSURE OF 150 PSI

- D. REMOTE CONTROL VALVES:
- 1. ALL CONTROL VALVES USED SHALL BE SCRUBBER VALVES. 2. HUNTER ICV-FS-AS FILTER SENTRY WITH PRESSURE REGULATION.
- E. VALVE BOX AND COVER: ALL BOXES TO HAVE LOCKING LIDS. 1. CONTROL VALVE BOXES SHALL BE APPROPRIATE SIZE, MADE OF HDPE PLASTIC, GREEN OR TAN IN COLOR DEPENDING ON SURROUNDING SURFACE MATERIAL, WITH BOLT DOWN LID. VALVE BOXES SHALL BE MADE BY CARSON INDUSTRIES OR APPROVED EQUAL. NO
- MORE THAN ONE VALVE SHALL BE LOCATED IN EACH PLASTIC BOX. 2. CIRCUIT OR ISOLATION VALVE: CARSON 1220 JUMBO BOX OR APPROVED EQUAL.

3. VALVE BOX SUPPORTS: STANDARD SIZE FIRED CLAY PAVING BRICKS WITHOUT HOLES.

2.06 CONTROLS A. CONTROLLER: CONNECT INTO EXISTING CONTROLLER.

- B. WIRE CONDUCTORS:
- 6. ELECTRICAL WIRE:

a. ALL WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE. ALL WIRE CONNECTIONS TO BE 3M DBRY ONLY.

- TRADITIONAL WIRING: a. CONTROL WIRE SHALL BE UL LISTED DIRECT BURIAL CABLE NOT SMALLER THAN 14
- GAUGE. IN SOME CASES 18-GAUGE MULTI-STRAND WIRE IS USED IN SPECIAL SITUATIONS AS SHOWN ON DRAWINGS AND APPROVED BY OWNER. b. COLORS OF WIRE SHALL BE AS FOLLOWS: RED
- 1) CONTROL WIRE FOR TURF AREAS: 2) CONTROL WIRE FOR SHRUB AREAS: YELLOW BLUE CONTROL WIRE TO MASTER VALVE: 4) CONTROL WIRE TO FILTER BLOWOUT VALVE:
- 6) EXTRA WIRES 3. 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 36" OF WIRE AROUND A ROD OR PIPE 1" OR MORE IN DIAMETER, THEN WITHDRAWING THE ROD FOR SINGLE STRAND

WHITE

WIRE AND LOOSELY COILED FOR TWO WIRE CABLE). 2.07 OTHER COMPONENTS

5) COMMON WIRE:

- A. MIXES: CONCRETE FOR THRUST BLOCKS ON IRRIGATION PIPE 3" OR LARGER.
- 1. ONE CU. FT. CEMENT, 2 CU. FT. SAND, 4 CU. FT. GRAVEL, AND 5 GALLONS MINIMUM TO 6 GALLONS MAXIMUM WATER.
- 2. MIX THOROUGHLY BEFORE PLACING.

- B. SUBMIT OTHER COMPONENTS RECOMMENDED BY MANUFACTURER FOR ARCHITECT'S
- REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION. C. PROVIDE COMPONENTS NECESSARY TO COMPLETE AND MAKE SYSTEM OPERATIONAL.
- D. FURNISH EXTRA MATERIALS DESCRIBED BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS. DELIVER EXTRA MATERIALS TO OWNER.
- TWO VALVE BOX COVER KEYS.
- TWO QUICK COUPLER KEYS WITH BRASS HOSE SWIVEL.
- 3. TWO MANUAL DRAIN VALVE KEYS.
- 4. TWO SETS OF SPRINKLER WRENCHES FOR ADJUSTING, CLEANING OR DISASSEMBLY OF EACH TYPE OF SPRINKLER.
- 5. TWO EACH OF ANY OTHER TOOLS REQUIRED FOR ANY OTHER EQUIPMENT.

PART 3 EXECUTION

3.01 OWNERS SALVAGE RIGHTS

A. ANY ITEMS REMOVED AND NOT REUSED IN CONTRACT WILL REMAIN OWNER'S PROPERTY AND WILL BE RETURNED TO OWNER AT HIS DISCRETION.

3.02 EXAMINATION

- A. VERIFY LOCATION OF EXISTING UTILITIES.
- B. VERIFY THAT REQUIRED UTILITIES ARE AVAILABLE, IN PROPER LOCATION, AND READY FOR
- C. PRIOR TO INSTALLATION OF IRRIGATION SYSTEM, THE CONTRACTOR MUST VERIFY THE SUPPLY PRESSURE AT THE WORK SITE. IF THERE IS A FAILURE TO OBTAIN THE NEEDED PRESSURE OR IF AN EXCESS PRESSURE SITUATION EXISTS FOR NORMAL OPERATION, THE CONTRACTOR MUST CONTACT THE OWNER FOR ANY ADJUSTMENTS TO THE SUPPLY OR IRRIGATION SYSTEM DESIGN. FAILURE TO REPORT ANY DISCREPANCIES IN PRESSURE DUE TO ANY REASON, AND ANY INSTALLATION DONE PRIOR TO NOTIFICATION OF OWNER SHALL

BE DONE AT THE EXPENSE OF THE CONTRACTOR.

- 3.03 PREPARATION A. DURING CONSTRUCTION AND STORAGE, PROTECT MATERIALS FROM DAMAGE AND
- PROLONGED EXPOSURE TO SUNLIGHT. B. WORK DAMAGED DURING COURSE OF WORK IN THIS SECTION SHALL BE REPLACED OR REPAIRED AT NO ADDITIONAL COST TO OWNER. IF DAMAGED WORK IS NEW, REPAIR OR
- REPLACEMENT SHALL BE PERFORMED BY INSTALLER OF ORIGINAL WORK. C. MAINTAIN FUNCTIONING IRRIGATION TO THE OTHER AREAS SERVED BY THE WATER SOURCE.
- D. A MINIMUM OF 2 WORKING DAYS IS REQUIRED TO SHUT OFF THE MAINLINE.
- E. LAYOUT AND STAKE LOCATIONS OF SYSTEM COMPONENTS.
- OF SLEEVES UNDER PAVING TO ACCOMMODATE SYSTEM. G. ALL LATERAL LINES SHALL RUN PARALLEL WITH PLANTING AREAS AND AVOID CONFLICT WITH THE LOCATION OF PLANT MATERIALS. WHERE TRENCHING IS REQUIRED IN PROXIMITY TO PLANT MATERIALS CARE SHALL BE TAKEN TO AVOID DAMAGE TO ROOTS. DO NOT CUT

F. REVIEW LAYOUT REQUIREMENTS WITH OTHER AFFECTED WORK. COORDINATE LOCATIONS

EXISTING TREE ROOTS MEASURING OVER 2 INCHES IN DIAMETER. 3.04 TRENCHING

D. PULLING OF PIPE IS NOT PERMITTED.

- 1. MINIMUM COVER OVER INSTALLED SUPPLY PIPING: 18 INCHES (457 MM).
- 2. MINIMUM COVER OVER INSTALLED BRANCH PIPING: 12 INCHES (305 MM). B. TRENCH TO ACCOMMODATE GRADE CHANGES AND SLOPE TO DRAINS.

ONLY AS WIDE AS IS NECESSARY TO ACCOMPLISH THE WORK.

- C. MAINTAIN TRENCHES FREE OF DEBRIS, MATERIAL, OR OBSTRUCTIONS THAT MAY DAMAGE
- E. WHEN DIGGING ON PROJECT SITE, THE AREA SHALL BE STAKED TO IDENTIFY THE APPROXIMATE LCOATION OF ALL KNOWN UNDERGROUND UTILITIES AND STRUCTURES. F. EXCAVATION WORK SHALL BE AS DEEP AND AS WIDE AS REQUIRED TO SAFELY PERFORM THE WORK, SUCH AS MAKING MAINLINE CONNECTIONS OR FORMING VAULTS. WHERE

FRENCHING IS DONE IN ESTABLISHED LAWN, CARE MUST BE TAKEN TO KEEP THE TRENCHES

- G. IF MORE THAN ONE LINE IS REQUIRED IN A SINGLE TRENCH, THAT TRENCH SHALL BE DEEP AND WIDE ENOUGH TO ALLOW FOR AT LEAST 3 INCHES OF SEPERATION BETWEEN PIPES. INSTALL THE PIPING IN A MANNER FOR EASY REPAIR IN THE FUTURE. H. OVER-EXCAVATE TRENCHES 2 INCHES AND BRING BACK TO INDICATED DEPTH BY FILLING
- WITH BACKFILL MATERIAL AS SPECIFIED UNDER PART 2 PRODUCTS. SEPARATE OUT ROCKS LARGER THAN 1-1/2 INCH IN ANY DIRECTION UNCOVERED IN TRENCHING OPERATION FROM EXCAVATED MATERIAL AND REMOVE FROM AREAS TO RECEIVE LANDSCAPING. I. WHERE IS BECOMES NECESSARY TO EXCAVATE BEYOND THE LIMITS OF NORMAL EXCAVATION LINES TO REMOVE ROCK OR OTHER INTERFERING OBJECTS, THE VOID REMAINING AFTER THE REMOVAL OF THE OBJECT SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED AS PER THE "EARTHWORK" SECTION. THE REMOVAL OF ALL ROCK OR OTHER
- INTERFERING OBJECTS AND THE BACKFILLING OF VOIDS LEFT BY SUCH REMOVALS SHALL BE AT THE EXPENSE OF THE CONTRACTOR. J. ANY EXISTING UTILITY LINES DAMAGED DURING EXCAVATING OR TRENCHING SHALL BE REPAIRED IMMEDIATELY AFTER NOTIFICATION OF THE UTILITY OWNER AND TO HIS/HER SATISFACTION. SHOULD UTILITY LINES BE ENCOUNTERED, WHICH ARE NOT INDICATED ON PLANS, THE PROJECT REPRESENTATIVE SHALL BE NOTIFIED. THE REPAIR OF ANY DAMAGE SHALL BE DONE AS SOON AS POSSIBLE BY THE CONTRACTOR OR THE UTILITY OWNER AND PROPER COMPENSATION WILL BE NEGOTIATED BY THE OWNER. SUCH UTILITY LOCATIONS

SHALL BE NOTED ON THE "AS-BUILT" DRAWINGS.

- 3.05 INSTALLATION
- 1. INSTALL PIPE, VALVES, CONTROLS, AND OUTLETS IN ACCORDANCE WITH
- MANUFACTURER'S INSTRUCTIONS. 2. CONNECT TO UTILITIES.
- 3. SET OUTLETS AND BOX COVERS AT FINISH GRADE ELEVATIONS.
- 4. PROVIDE FOR THERMAL MOVEMENT OF COMPONENTS IN SYSTEM. 1. INSTALL PIPE IN MANNER TO PROVIDE FOR EXPANSION AND CONTRACTIONS AS
- RECOMMENDED BY MANUFACTURER. 2. UNLESS OTHERWISE INDICATED ON APPROVED DRAWINGS, INSTALL MAIN LINES AND LATERAL LINES CONNECTING ROTOR POP-UP SPRINKLERS WITH MINIMUM COVER OF 18 INCHES BASED ON FINISHED GRADE. INSTALL REMAINING LATERAL LINES WITH MINIMUM
- OF 12 INCHES OF COVER BASED ON FINISH GRADE. 3. INSTALL PIPE AND WIRES UNDER DRIVEWAYS OR PARKING AREAS IN SPECIFIED SLEEVES

HEADS IMMEDIATELY ADJACENT TO MOW STRIPS, WALKS, OR CURBS SHALL BE ONE

INCH BELOW TOP OF MOW STRIP, WALK, OR CURB AND HAVE 1 TO 3 INCHES CLEARANCE

- 18 INCHES MINIMUM BELOW FINISH GRADE OR AS SHOWN ON APPROVED DRAWINGS. 4. SLOPE PIPES UNDER PARKING AREAS OR DRIVEWAYS TO DRAIN OUTSIDE THESE AREAS 5. LOCATE SPRINKLER HEADS NO CLOSER THAN 12 INCHES FROM BUILDING FOUNDATION.
- BETWEEN HEAD AND MOW STRIP, WALK, OR CURB. SLOPE PIPING FOR SELF DRAINAGE TO CONTROL BOX WHERE POSSIBLE.

UNOBSTRUCTED FLOW WILL RESULT.

9. MAKE SOLVENT WELD JOINTS AS FOLLOWS:

INSTALL AT THESE LOW POINTS: a. 3/4 INCH MANUAL DRAIN b. INSTALL 2 INCH CLASS 200 PVC PIPE OVER TOP OF MANUAL DRAIN AND CUT AT FINISH

8. CUT PLASTIC PIPE SQUARE. REMOVE BURRS AT CUT ENDS PRIOR TO INSTALLATION SO

7. WHERE THIS IS NOT POSSIBLE, SLOPE PIPE TO A MINIMUM NUMBER OF LOW POINTS.

c. INSTALL RUBBER VALVE CAP MARKER FLUSH WITH FINISHED GRADE. d. DO NOT USE AUTOMATIC DRAIN VALVES.

- a. DO NOT MAKE SOLVENT WELD JOINTS IF AMBIENT TEMPERATURE IS BELOW 40
- b. CLEAN MATING PIPE AND FITTING WITH CLEAN, DRY CLOTH AND APPLY ONE COAT OF
- P-70 PRIMER TO EACH.
- c. APPLY UNIFORM COAT OF 711 SOLVENT TO OUTSIDE OF PIPE.
- e. RE-APPLY LIGHT COAT OF SOLVENT TO PIPE AND QUICKLY INSERT INTO FITTING.
- f. GIVE PIPE OR FITTING A QUARTER TURN TO ENSURE EVEN DISTRIBUTION OF SOLVENT
- g. HOLD IN POSITION FOR 15 SECONDS MINIMUM OR LONG ENOUGH TO SECURE JOINT.
- i. DO NOT USE EXCESSIVE AMOUNT OF SOLVENT THEREBY CAUSING OBSTRUCTION TO
- FORM ON INSIDE OF PIPE.

- 1. CONTRACTOR IS REPONSIBLE TO COORDINATE THE INSTALLATION OF SLEEVING WITH THE
- WORK OF OTHER TRADES (I.E. CONCRETE, ASPHALT PAVING, ETC.) 2. SLEEVE IRRIGATION WATER LINES AND CONTROL WIRES UNDER WALKS AND PAVING. EXTEND SLEEVES 6 INCHES MINIMUM BEYOND WALK OR PAVEMENT EDGE. CAP SLEEVES
- 4. POSITION SLEEVES WITH RESPECT TO BUILDINGS AND OTHER OBSTRUCTIONS SO PIPE

- D. OUTLETS:
- a. PRIOR TO INSTALLATION OF SPRINKLER HEADS, OPEN CONTROL VALVES AND USE
- FULL HEAD OF WATER TO FLUSH OUT SYSTEM.
- d. SET SPRINKLERS AT A CONSISTENT DISTANCE FROM EXISTING WALKS, CURBS, AND OTHER PAVED AREAS AND TO GRADE.

c. DO NOT INSTALL SPRINKLERS USING SIDE INLETS. INSTALL USING BASE INLETS ONLY.

PROJECT DETAILS.

- E. VALVES & VALVE BOXES: 1. INSTALL CONTROL WIRES, AND VALVES IN ACCORDANCE WITH MANUFACTURER'S
- COVERS. LOCATE VALVE BOX TOPS AT FINISH GRADE. DO NOT INSTALL MORE THAN TWO VALVES IN A SINGLE BOX. 3. PLACE PEA GRAVEL A MINIMUM OF 6 INCHES DEEP BELOW VALVE FOR DRAINAGE. EXTEND WASHED GRAVEL 3 INCH MINIMUM BEYOND LIMITS OF VALVE BOX. MAINTAIN 4 INCH MINIMUM BETWEEN BOTTOM OF VALVE AND TOP OF GRAVEL AND 3 INCHES MINIMUM CLEARANCE BETWEEN THE TOP OF THE VALVE TO THE BOTTOM OF VALVE
- REASONABLY FREE FROM DIRT AND DEBRIS.
- 5. INSTALL QUICK COUPLING VALVES IN APPROPRIATE LOCATIONS IN VALVE BOXES. 6. ISOLATION VALVES, AND ANY OTHER EQUIPMENT REQUIRED BY LOCAL AUTHORITIES
- 7. INSTALL ISOLATION VALVES, AIR RELEASE VALVE, MASTER CONTROL VALVES AND FLOW SENSORS ACCORDING TO DETAILS PLANS AND MANUFACTURES

- 1. STANDARD WIRE:
- WIRE. EACH COMMON WIRE MAY SERVE ONLY ONE CONTROLLER. PROVIDE 12 INCHES OF EXPANSION LOOP SLACK WIRE AT ALL CONNECTIONS INSIDE VALVE BOX. d. RUN ONE EXTRA CONTROL WIRE FROM PANEL CONTINUOUSLY FROM VALVE TO VALVE
- MARKED IN CONTROL BOX AS AN EXTRA WIRE. EXTEND EXTRA CONTROL WIRES 24 INCHES AND LEAVE COILED IN EACH VALVE BOX.

G. AFTER PIPING IS INSTALLED, BUT BEFORE OUTLETS ARE INSTALLED AND BACKFILLING

DRAINS DURING TEST PERIOD.

- COMMENCES, OPEN VALVES AND FLUSH SYSTEM WITH FULL HEAD OF WATER. 3.06 FIELD QUALITY CONTROL A. NOTIFY LANDSCAPE ARCHITECT TWO WORKING DAYS MINIMUM PRIOR TO TESTING.
- (690 KPA) PRESSURE FOR SIX HOURS MINIMUM. D. SYSTEM IS ACCEPTABLE IF NO LEAKAGE OR LOSS OF PRESSURE OCCURS AND SYSTEM SELF

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PROJECT #:

CHECKED BY:

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LANDSCAPE

d. APPLY SOLVENT TO FITTING IN A SIMILAR MANNER.

AND MAKE SURE PIPE IS INSTERTED TO FULL DEPTH OF FITTING SOCKET.

h. WIPE OFF SOLVENT APPEARNING AT OUTER SHOULDER OF FITTING.

j. ALLOW JOINTS TO SET AT LEAST 24 HOURS BEFORE APPLYING PRESSURE TO PVC

10. THREADED CONNECTIONS SHALL BE MADE WITH TEFLON TAPE.

- UNTIL PIPES AND WIRES ARE INSTALLED TO KEEP SLEEVE CLEAN AND FREE OF DIRT AND
- 3. USE ONE WATER PIPE MAXIMUM PER SLEEVE. SLEEVE CONTROL WIRING IN SEPERATE
- CAN BE EASILY REMOVED.
- USE THREADED NIPPLES FOR RISERS TO EACH OUTLET.
- b. SET SPRINKLER HEADS AND QUICK-COUPLING VALVES PERPENDICULAR TO FINISH
- 3. TREE BUBBLERS: INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND
- RECOMMENDATIONS AND PER ELECTRICAL CODE. 2. INSTALL VALVES, IN PLASTIC BOXES WITH LOCKING REINFORCED HEAVY-DUTY PLASTIC
- COVER. SET VALVE BOXES OVER VALVE SO ALL PARTS OF VALVE CAN BE REACHED FOR SERVICE. SET COVER OF VALVE BOX EVEN WITH FINISH GRADE. VALVE BOX SHALL BE
- 4. INSTALL 3/4 INCH BRASS BALL VALVE IN VALVE BOX ON DOWNSTREAM SIDE OF AUTOMATIC VALVES IF LATERAL LINE SLOPES TOWARD VALVE BOX.
- SHALL BE INSTALLED ACCORDING TO LOCAL CODES AND REQUIREMENTS IN ORDER TO
- 8. INSTALL ANY OTHER EQUIPMENT REQUIRED BY LOCAL AUTHORITIES ACCORDING TO LOCAL CODES AND REQUIREMENTS IN ORDER TO MAKE THIS SYSTEM COMPLETE.
- a. TAPE CONTROL WIRE TO SIDE OF MAIN LINE EVERY 10 FEET. WHERE CONTROL WIRE LEAVES MAIN OR LATERAL LINE, ENCLOSE IT IN CLASS 200 PVC CONDUIT. b. PLACE ALL WATERPROOF WIRE SPLICE CONNECTORS INSIDE VALVE BOXES. c. USE WHITE OR GRAY COLOR FOR COMMON WIRE AND OTHER COLORS FOR ALL OTHER
- THROUGHOUT SYSTEM LIKE THE COMMON WIRE FOR USE IF THE COMMON WIRE FAILS. WIRE SHALL BE A DIFFERENT COLOR THAN ALL OTHER WIRES AND SHALL BE
- 4000 QUALITY REQUIREMENTS. C. PRIOR TO BACKFILLING, TEST SYSTEM FOR LEAKAGE AT MAIN PIPING TO MAINTAIN 100 PSI

B. FIELD INSPECTION AND TESTING WILL BE PERFORMED UNDER PROVISIONS OF SECTION 01

- B. BACKFILL TRENCH AND COMPACT TO WITHIN 5 INCHES (127 MM) OF FINISH GRADE AS SPECIFIED IN RELATED SECTIONS. PROTECT PIPING FROM DISPLACEMENT. TOP 5 INCHES (127 MM) OF BACKFILL SHALL BE TOPSOIL AS SPECIFIED IN RELATED SECTION.
- C. DO NOT COVER PRESSURE MAIN. SPRINKLER PIPE. OR FITTINGS UNTIL PRESSURE TEST HAS BEEN COMPLETED AND ARCHITECT HAS INSPECTED AND APPROVED THE SYSTEM
- D. AFTER BACKFILLING, PERFORM AN OPERATING TEST OF THE ENTIRE SYSTEM. OPERATE THE ENTIRE SYSTEM THROUGH ONE CYCLE OF THE CONTROLLER FOR THE PURPOSE OF CHECKING COVERAGE AND ASSURING THE ABSENCE OF LEAKS. REPAIR WATER LINES, VALVES, OR CONNECTIONS WHICH SHOW EVIDENCE OF LEAKAGE.
- E. ALL TRENCHES SHALL BE BACKFILLED AND THEN SATURATED WITH WATER SUFFICIENTLY TO ENSURE NO SETTLING OF THE SURFACE AFTER LAWN IN
- F. ANY PORTION OF THE SYSTEM WHICH SHOWS DEFECTS OR LEAKAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT AND OWNER OR BE REPLACED. AFTER ALL REPAIRS OR REPLACEMENTS HAVE BEEN MADE AND APPROVED BY THE LANDSCAPE ARCHITECT, THE ABOVE REQUIRED TEST SHALL BE MADE AGAIN.

3.08 SYSTEM STARTUP

- A. PREPARE AND START SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. ADJUST CONTROL SYSTEM TO ACHIEVE TIME CYCLES REQUIRED TO PROVIDE PROPER AMOUNTS OF WATER TO ALL PLANTS.
- C. ADJUST HEADS TO PROPER GRADE WHEN TURF IS SUFFICIENTLY ESTABLISHED TO ALLOW WALKING ON IT WITHOUT APPRECIABLE HARM. SUCH LOWERING OR RAISING OF HEADS SHALL BE PART OF ORIGINAL CONTRACT WITH NO ADDITIONAL COST TO OWNER.
- D. ADJUST SPRINKLER HEADS FOR PROPER DISTRIBUTION AND SO SPRAY DOES NOT FALL ON BUILDING.

3.09 CLOSEOUT ACTIVITIES

- A. AT THE POINT OF SUBSTANTIAL COMPLETION OF WORK OUTLINED IN THESE PLANS, THE LANDSCAPE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE AND ARRANGE FOR A WALK THROUGH TO VERIFY THE INSTALLATION OF THE SYSTEM. A COVERAGE TEST WILL BE COMPLETED AND THE SYSTEM INSTALLATION INSPECTED AND A PUNCH LIST OF FINAL ITEMS NEEDING COMPLETION MADE.
- B. AT THE TIME OF FINAL INSPECTION. THE ENTIRE SYSTEM MUST BE TESTED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. IT MUST BE FULLY OPERATIONAL IN A SATISFACTORY CONDITION. WITH FULL UNIFORM COVERAGE OF THE AREAS INDICATED TO BE IRRIGATED. ALL HEADS SHALL BE ADJUSTED TO PATTERN, RADIUS, AND GRADE LEVEL.
- C. BEFORE THE INSPECTION IS COMPLETE, THE CONTRACTOR MUST FURNISH THE "AS BUILT" DRAWINGS. THESE DRAWINGS SHOULD BE UPDATED ON A DAILY BASIS TO ENSURE ACCURACY. THESE DRAWINGS MUST SHOW THE LOCATION OF ALL PIPING, VALVES, HEADS, WIRE SPLICES AND OTHER PERTINENT INFORMATION. THESE DRAWINGS AND ALL MAINTENANCE MANUALS MUST BE SUBMITTED AT THE TIME OF FINAL INSPECTION IN ACCORDANCE WITH THESE SPECIFICATIONS.
- D. IF AT THE TIME OF THE FINAL INSPECTION THERE IS ANY ADDITIONAL WORK TO SATISFY CONTRACT REQUIREMENTS. IT WILL BE NOTED ON A "PUNCH LIST". CONTRACTOR WILL HAVE 10 DAYS IN ORDER TO SATISFY, OR MAKE SUITABLE ARRANGEMENTS WITH OWNER TO SATISFY ITEMS ON THE "PUNCH LIST". AT OWNER'S DISCRETION FINAL PAYMENT OR A PORTION THEREOF. COULD BE HELD PENDING COMPLETION OF "PUNCH LIST" ITEMS.
- E. INSTRUCT OWNER'S PERSONNEL IN OPERATION AND MAINTENANCE OF THE SYSTEM, INCLUDING ADJUSTING OF SPRINKLER HEADS. USE OPERATION AND MAINTENANCE DATA AS BASIS FOR DEMONSTRATION.

3.10 CLEAN-UP AND MAINTENANCE

- A. REMOVE FROM SITE ALL DEBRIS RESULTING FROM WORK OF THIS SECTION.
- B. SEE SECTION 01 7000 EXECUTION AND CLOSEOUT REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS RELATING TO MAINTENANCE SERVICE.
- C. PROVIDE ONE COMPLETE SPRING START-UP AND A FALL SHUTDOWN BY INSTALLER, AT NO EXTRA COST TO OWNER.

3.11 WARRANTY

- A. ALL WORK SHALL BE WARRANTED FOR COMPLIANCE WITH THE CONTRACT REQUIREMENTS, INCLUDING REPLACEMENT, FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. IF AN UNSATISFACTORY CONDITION DEVELOPS DURING THE WARRANTY PERIOD AND IS DUE TO NEGLIGENCE, FAULTY MATERIALS, OR WORKMANSHIP, CONTRACTOR SHALL IMMEDIATELY REPLACE SUCH ITEMS IN A SATISFACTORY CONDITION. ALL WARRANTEES SHALL BE IN WRITING, SIGNED BY CONTRACTOR OR LEGAL REPRESENTATIVE, AND WORDED AS APPROVED BY OWNER. WARRANTY DOCUMENTS SHALL BE PRESENTED TO OWNER AT THE TIME OF FINAL INSPECTION.
- B. DURING ONE-YEAR WARRANTY PERIOD. CONTRACTOR WILL COMPLY WITH THE FOLLOWING:
- 1. FILL AND REPAIR LOW AREAS AND REPLACE PLANTINGS DUE TO SETTLEMENT OF EXCAVATED AREAS.
- 2. AT THE END OF THE FIRST WATERING SEASON, CONTRACTOR SHALL SHUT OFF AND WINTERIZE THE SYSTEM.
- 3. AT THE BEGINNING OF THE NEXT SEASON, CONTRACTOR SHALL RESTART SYSTEM AND MAKE ANY REPAIRS OR ADJUSTMENTS NEEDED TO MAKE SYSTEM FULLY OPERATIONAL.

END OF SECTION

SECTION 32 9113 SOIL PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. PERFORM SOIL PREPARATION WORK.
- B. FURNISH AND APPLY SOIL AMENDMENTS.
- C. PERFORM FINE GRADING WORK REQUIRED TO PREPARE SITE FOR PAVING FINISH GRADING AND FOR LANDSCAPE FINISH GRADING.

1.02 REFERENCES

A. ASTM D1557 - STANDARD TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT.

1.03 SUBMITTALS

- A. PRODUCT DATA: PRODUCT LITERATURE AND CHEMICAL /NUTRIENT ANALYSIS OF SOIL AMENDMENTS AND FERTILIZERS.
- B. INFORMATIONAL SUBMITTALS:
- 1. FIELD QUALITY CONTROL SUBMITTALS:
- a. SUBMIT TESTS ON IMPORTED AND SITE TOPSOIL BY LICENSED LABORATORY BEFORE USE.
- 1) BEFORE USE, TOPSOIL SHALL MEET MINIMUM SPECIFIED REQUIREMENTS AND BE APPROVED BY ARCHITECT.
- 2) IF NECESSARY, SUBMIT PROPOSED AMENDMENTS AND APPLICATION RATES NECESSARY TO BRING TOPSOIL UP TO MINIMUM SPECIFIED REQUIREMENTS.
- b. SUBMIT REPORT STATING LOCATION OF SOURCE OF IMPORTED TOPSOIL AND ACCOUNT OF RECENT USE.

PART 2 PRODUCTS

2.01 MATERIALS

A. TOPSOIL:

- 1. TOPSOIL USED IN LANDSCAPED AREAS, WHETHER IMPORTED, STOCKPILED, OR IN PLACE, SHALL BE FERTILE, LOOSE, FRIABLE SOIL MEETING THE FOLLOWING CRITERIA:
- a. CHEMICAL CHARACTERISTICS:
- 1) ACIDITY / ALKALINITY RANGE: PH 5.5 TO 7.0.
- 2) SOLUBLE SALTS: LESS THAN 3.0 MMHOS/CM.
- 3) SODIUM ABSORPTION RATIO (SAR): LESS THAN 6.0.

4) ORGANIC MATTER: FIVE PERCENT OR GREATER

- b. PHYSICAL CHARACTERISTICS:
- 1) GRADATION AS DEFINED BY USDA TRIANGLE OF PHYSICAL CHARACTERISTICS AS MEASURED BY HYDROMETER.
- (a) SAND: 15 TO 60 PERCENT
- (b) SILT: 10 TO 60 PERCENT
- (c) CLAY: 5 TO 30 PERCENT
- 2) CLEAN AND FREE FROM TOXIC MINERALS AND CHEMICALS, NOXIOUS WEEDS. ROCKS LARGER THAN 1-1/2 INCH IN ANY DIMENSION. AND OTHER OBJECTIONABLE MATERIALS.
- 3) SOIL SHALL NOT CONTAIN MORE THAN 2 PERCENT BY VOLUME OF ROCKS MEASURING OVER 3/32 INCH IN LARGEST SIZE.
- c. FERTILITY REQUIREMENTS:
- 1) NITRATE-NITROGEN PPM > 20
- 2) PHOSPHOROUS PPM > 15
- 3) POTASSIUM PPM > 150
- 4) IRON PPM > 10
- 2. TOPSOIL DEPTHS FOR THE PLANTING AREAS ARE AS FOLLOWS:
- a. SOD AREAS: 4 INCHES
- b. PLANTER BEDS: 12 INCHES

B. SOIL AMENDMENTS

- 1. AMEND TOPSOIL, EITHER IMPORTED OR STOCKPILED, TO BRING IT IN COMPLIANCE WITH SOILS TEST.
- a. ACCEPTABLE FERTILIZERS AND APPLICATION RATES:
- 1) LAWNS: PHOSPHORUS 1-2 LBS PER 1000 SQ. FT., POTASSIUM 2 LBS. PER 1000 SQ.FT., AND NITROGEN 2-4 LBS. PER 1000 SQ. FT.
- 2) SHRUBS: PHOSPHORUS 1-2 LBS PER 1000 SQ. FT., POTASSIUM 2 LBS. PER 1000 SQ.FT., AND NITROGEN 1-2 LBS. PER 1000 SQ. FT.
- 3) EQUAL AS APPROVED BY ARCHITECT BEFORE INSTALLATION.
- b. ACCEPTABLE SOIL CONDITIONERS AND APPLICATION RATES:
- 1) TYPE ONE ACCEPTABLE PRODUCTS.
- (a) SOIL CONDITIONER THAT MEETS THE REQUIRED FERTILIZER AND SOIL AMENDMENTS STATED ABOVE CAN BE USED AT THE DISCRETION OF THE CONTRACTOR.

PART 3 EXECUTION

3.01 PERFORMANCE

- A. PROTECTION OF IN-PLACE CONDITIONS: PROTECT UTILITIES AND SITE ELEMENTS FROM DAMAGE.
- **B. SOIL AMENDMENTS**
- 1. ADD SPECIFIED SOIL AMENDMENTS AT SPECIFIED RATES TO LAWN
- 2. ROTO-TILL OR OTHERWISE MIX AMENDMENTS EVENLY INTO TOP 4 INCHES OF TOPSOIL.

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3. INCORPORATE AND LEACH SOIL AMENDMENTS WHICH REQUIRE LEACHING, SUCH AS GYPSUM, WITHIN SUCH TIME LIMITS THAT SOIL IS SUFFICIENTLY DRY TO ALLOW PROPER APPLICATION OF FERTILIZER AND SOIL CONDITIONERS.

C. SURFACE PREPARATION:

- 1. LANDSCAPING AND PLANTING AREAS:
- a. BEFORE GRADING, DIG OUT WEEDS FROM PLANTING AREAS BY THEIR ROOTS AND REMOVE FROM SITE. REMOVE ROCKS LARGER THAN 1-1/2 INCHES IN SIZE AND FOREIGN MATTER SUCH AS BUILDING RUBBLE, WIRE, CANS, STICKS, CONCRETE, ETC.
- b. BEFORE BEGINNING MAINTENANCE PERIOD, PLANTS SHALL BE IN AT LEAST AS SOUND, HEALTHY, VIGOROUS, AND IN APPROVED CONDITION AS WHEN DELIVERED TO SITE, UNLESS ACCEPTED BY ARCHITECT IN WRITING AT FINAL LANDSCAPE INSPECTION.
- c. REMOVE IMPORTED PAVING BASE MATERIAL PRESENT IN PLANTING AREAS DOWN TO NATURAL SUBGRADE OR OTHER MATERIAL ACCEPTABLE TO ARCHITECT.

D. PERFORMANCE:

- 1. DO NOT EXPOSE OR DAMAGE EXISTING SHRUB OR TREE ROOTS.
- 2. TOLERANCES:
- a. LANDSCAPING AND PLANTING TOLERANCES:
- 1) MAXIMUM VARIATION FROM REQUIRED GRADES SHALL BE 1/10 OF ONE FOOT.
- 2) TO ALLOW FOR FINAL FINISH GRADES OF PLANTING AREAS, FINE GRADE ELEVATIONS BEFORE PLACING TOPSOIL AND MULCH ARE: (a) SOD AREAS: 5.5 INCHES BELOW TOP OF WALK OR CURB. (b) PLANTER BED AREAS: 16 INCHES BELOW TOP OF WALK OR
- 3. DO NOT EXPOSE OR DAMAGE EXISTING SHRUB OR TREE ROOTS REDISTRIBUTE APPROVED EXISTING TOPSOIL STORED ON SITE. REMOVE ORGANIC MATERIAL, ROCKS AND CLODS GREATER THAN 1-1/2 INCH IN ANY DIMENSION, AND OTHER OBJECTIONABLE MATERIALS
- 4. SLOPE GRADE AWAY FROM BUILDING AS SPECIFIED. DIRECT SURFACE DRAINAGE IN MANNER INDICATED ON DRAWINGS BY MOLDING SURFACE TO FACILITATE NATURAL RUN-OFF. FILL LOW SPOTS AND POCKETS WITH SPECIFIED FILL MATERIAL AND GRADE TO DRAIN PROPERLY

END OF SECTION

SECTION 32 9223 SODDING

PART 1 GENERAL

- 1.01 SECTION INCLUDES
- A. PLACING TOPSOIL.
- B. FERTILIZING.
- C. SOD INSTALLATION. D. MAINTENANCE.

1.02 RELATED REQUIREMENTS

A. SECTION 31 2200 - GRADING: PREPARATION OF SUBSOIL AND PLACEMENT OF TOPSOIL IN PREPARATION FOR THE WORK OF THIS SECTION.

1.03 DEFINITIONS

A. WEEDS: INCLUDES DANDELION, JIMSONWEED, QUACKGRASS, HORSETAIL, MORNING GLORY, RUSH GRASS, MUSTARD, LAMBSQUARTER, CHICKWEED, CRESS, CRABGRASS, CANADIAN THISTLE, NUTGRASS, POISON OAK, BLACKBERRY, TANSY RAGWORT, BERMUDA GRASS, JOHNSON GRASS, POISON IVY, NUT SEDGE, NIMBLE WILL, BINDWEED, BENT GRASS, WILD GARLIC. PERENNIAL SORREL, AND BROME GRASS.

1.04 REFERENCE STANDARDS

- A. 21 CFR 11 PART 11. ELECTRONIC RECORDS: ELECTRONIC SIGNATURES --SCOPE AND APPLICATION; CURRENT EDITION.
- B. TPI (SPEC) GUIDELINE SPECIFICATIONS TO TURFGRASS SODDING: 2006.

1.05 QUALITY ASSURANCE

- A. SOD PRODUCER: COMPANY SPECIALIZING IN SOD PRODUCTION AND HARVESTING WITH MINIMUM FIVE YEARS EXPERIENCE. AND CERTIFIED BY THE STATE OF COLORADO.
- B. INSTALLER QUALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER WHO HAS COMPLETED LANDSCAPING WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT AND WITH A RECORD OF SUCCESSFUL LANDSCAPE ESTABLISHMENT.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. DELIVER SOD IN ROLLS. PROTECT EXPOSED ROOTS FROM DEHYDRATION.
- B. DO NOT DELIVER MORE SOD THAN CAN BE LAID WITHIN 24 HOURS.
- C. HARVEST, DELIVER, STORE, AND HANDLE SOD ACCORDING TO THE REQUIREMENTS OF THE AMERICAN SOD PRODUCER'S ASSOCIATION (ASPA) "SPECIFICATIONS FOR TURFGRASS SOD MATERIALS AND TRANSPLANTING/INSTALLING".

1.07 PROJECT CONDITIONS

- A. UTILITIES: DETERMINE LOCATION OF ABOVE GRADE AND UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNERS WHICH WILL AVOILD DAMAGE. HAND EXCAVATE AS REQUIRED. MAINTAIN GRADE STAKES UNTIL REMOVAL IS MUTUALLY AGREED UPON BY PARTIES CONCERNED.
- B. EXCAVATION: WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED SUCH AS RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS, NOTIFY LANDSCAPE ARCHITECT BEFORE PLANTING.

1.08 COORDINATION AND SCHEDULING

A. COODINATE INSTALLATION OF PLANTING MATERIALS DURING NORMAL PLANTING SEASONS FOR EACH TYPE OF PLANT MATERIAL REQUIRED.

1.09 WARRANTY

A. GENERAL WARRANTY: THE SPECIAL WARRANTY SPECIFIED IN THIS ARTICLE SHALL NOT DEPRIVE THE OWNER OF OTHER RIGHTS THE OWNER MAY HAVE UNDER OTHER PROVISIONS OF THE CONTRACT DOCUMENTS AND SHALL BE IN ADDITION TO AND RUN CONCURRENT WITH OTHER WARRANTIES MADE BY THE CONTRACTOR UDNER REQUIREMENTS OF THE CONTRACT DOCUMENTS.

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- B. SPECIAL WARRANTY: WARRANT ALL LAWN AREAS FOR A PERIOD OF ONE YEAR AFTER DATE OF SUBSTANTIAL COMPLETION AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE, NEGLECT, OR ABUSE BY OWNER, ABNORMAL WEATHER CONDITIONS UNUSUAL FOR WARRANTY PERIOD, OR INCIDENTS THAT ARE BEYOND CONTRACTOR'S CONTROL.
- C. REMOVE AND REPLACE DEAD MATERIALS IMMEDIATLEY UNLESS REQUIRED TO PLANT IN THE SUCCEEDING PLANTING SEASON.
- D. A LIMIT OF ONE REPLACEMENT OF EACH PLANT MATERIAL WILL BE REQUIRED, EXCEPT FOR LOSSES OR REPLACEMENTS DUE TO FAILURE TO COMPLY WITH REQUIREMENTS.

PART 2 PRODUCTS

2.01 MATERIALS

- A. SOD: TPI (SPEC), CERTIFIED TURFGRASS SOD QUALITY; CULTIVATED GRASS SOD; TYPE INDICATED IN PLANT SCHEDULE ON DRAWINGS; WITH STRONG FIBROUS ROOT SYSTEM, FREE OF STONES, BURNED OR BARE SPOTS; CONTAINING NO MORE THAN 5 WEEDS PER 1000 SQ FT (100 SQ M). MINIMUM AGE OF 18 MONTHS, WITH ROOT DEVELOPMENT THAT WILL SUPPORT ITS OWN WEIGHT WITHOUT TEARING, WHEN SUSPENDED VERTICALLY BY HOLDING THE UPPER TWO CORNERS.
- 1. KENTUCKY BLUE GRASS TYPE: 3 CULTIVAR MINIMUM.
- 2. THICKNESS: MINIMUM 1 INCH (25 MM) AND MAXIMUM 1-3/8 INCH (35 MM) TOPSOIL BASE.
- 3. CUT SOD IN AREA NOT EXCEEDING 1 SQ YD (1 SQ M).
- 4. MACHINE CUT SOD AND LOAD ON PALLETS IN ACCORDANCE WITH TPI (SPEC) GUIDELINES.
- B. TOPSOIL: FERTILE, AGRICULTURAL SOIL, TYPICAL FOR LOCALITY, CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH, TAKEN FROM DRAINED SITE; FREE OF SUBSOIL, CLAY, OR IMPURITIES, PLANTS, WEEDS AND ROOTS; PH VALUE OF MINIMUM 5.5 AND MAXIMUM 7.0. BRING SURFACE TO SPECIFIED ELEVATION RELATIVE TO WALK OR CURB.
- C. COMMERCIAL FERTILIZER: COMPLETE FERTILIZER OF NEUTRAL CHARACTER; RECOMMENDED FOR GRASS, WITH FIFTY PERCENT OF THE ELEMENTS DERIVED FROM ORGANIC SOURCES; OF PROPORTION NECESSARY TO ELIMINATE ANY DEFICIENCIES OF TOPSOIL, TO THE FOLLOWING PROPORTIONS:
- 1. NITROGEN: >16% (OF WHICH 50% WILL BE ORGANIC). PROVIDE NITROGEN IN A FORM THAT WILL BE AVAILABLE TO LAWN DURING INITIAL PERIOD OF GROWTH.
- 2. PHOSPHORIC ACID: 16%
- 3. SOLUBLE POTASH: 8%

PART 3 EXECUTION

3.01 EXAMINATION

A. VERIFY THAT PREPARED SOIL BASE IS READY TO RECEIVE THE WORK OF THIS SECTION. EXAMINE AREAS TO RECEIVE LANDSCAPING FOR COMPLIANCE WITH REQUIREMENTS AND FOR CONDITIONS AFFECTING PERFORMANCE OF WORK IF THIS SECTION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN

CORRECTED.

FOLLOWS:

OPERATIONS.

- 3.02 PREPARATION
- A. PLACE TOPSOIL IN ACCORDANCE WITH SECTION 31 2200. B. LOOSEN SUB-GRADE TO A MINIMUM DEPTH OF 4 INCHES. REMOVE STONES LARGER THAN 1-1/2 INCHES IN ANY DIMENSION, STICKS, ROOTS, RUBBISH,
- AND OTHER EXTRANEOUS MATERIALS. C. SPREAD PLANTING SOIL MIXTURE TO DEPTH REQUIRED TO MEET THICKNESS. GRADES. AND ELEVATIONS SHOWN. AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. DO NOT SPREAD IF PLANTING SOIL OR SUB-GRADE
- IS FROZEN. 1. PLACE APPROXIMATELY 1/2 THE THICKNESS OF PLANTING SOIL MIXTURE REQUIRED. WORK INTO TOP OF LOOSENED SUB-GRADE TO CREATE TRANSITION LAYER AND THEN PLACE REMAINDER OF PLANTING SOIL
- MIXTURE.
- ALLOW FOR SOD THICKNESS IN AREAS TO BE SODDED. D. PREPARATION OF UNCHANGED GRADES: WHERE LAWNS ARE TO BE PLANTED IN AREAS UNALTERED OR UNDISTURBED BY EXCAVATING, GRADING, OR SURFACE SOIL STRIPPING OPERATIONS, PREPARE SOIL AS
- 1. TILL SURFACE SOIL TO A DEPTH OF AT LEAST 6 INCHES. APPLY REQUIRED SOIL AMENDMENTS AND INITIAL FERTILIZERS AND MIX THOROUGHLY INTO TOP 4 INCHES OF SOIL. TRIM HIGH AREAS AND FILL IN DEPRESSIONS. TILL SOIL TO A HOMOGENOUS MIXTURE OF FINE TEXTURE.
- 2. CLEAN SURFACE SOIL OF ROOTS, PLANTS, SOD, STONES, CLAY LUMPS, AND OTHER EXTRANEOUS MATERIALS HARMFUL TO PLANT GROWTH.
- E. GRADE LAWN AND GRASS AREAS TO A SMOOTH, EVEN SURFACE WITH LOOSE, UNIFORMLY FINE TEXTURE. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES. LIMIT FINE GRADING TO AREAS THAT CAN BE PLANTED IN THE IMMEDIATE FUTURE. REMOVE TRASH, DEBRIS, STONES LARGER THAN 1-1/2 INCHES IN ANY DIMENSION, AND OTHER OBJECTS THAT MAY INTERFERE WITH PLANTING OR MAINTENANCE
- F. MOISTEN PREPARED LAWN AREAS BEFORE PLANTING WHEN SOIL IS DRY. WATER THOROUGHLY AND ALLOW SURFACE TO DRY BEFORE PLANTING. DO NOT CREATE MUDDY SOIL.
- FINE GRADING AND BEFORE PLANTING. H. TOPSOIL DEPTH SHALL BE A MINIMUM OF 4 INCHES.

3.03 FERTILIZING

A. APPLY FERTILIZER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

G. RESTORE PREPARED AREAS IF ERODED OR OTHERWISE DISTURBED AFTER

- B. APPLY AFTER SMOOTH RAKING OF TOPSOIL AND PRIOR TO INSTALLATION OF
- C. APPLY FERTILIZER NO MORE THAN 48 HOURS BEFORE LAYING SOD.

- D. MIX THOROUGHLY INTO UPPER 2 INCHES (50 MM) OF TOPSOIL.
- E. LIGHTLY WATER TO AID THE DISSIPATION OF FERTILIZER.

3.04 LAYING SOD

- A. MOISTEN PREPARED SURFACE IMMEDIATELY PRIOR TO LAYING SOD.
- B. LAY SOD WITHIN 24 HOURS AFTER HARVESTING TO PREVENT DETERIORATION. DO NOT LAY SOD IF DORMANT OR IF GROUND IS FROZEN.
- C. LAY SOD SMOOTH AND TIGHT WITH NO OPEN JOINTS VISIBLE, AND NO OVERLAPPING: STAGGER END JOINTS 12 INCHES (300 MM) MINIMUM. DO NOT STRETCH OR OVERLAP SOD PIECES.
- D. WHERE NEW SOD ADJOINS EXISTING GRASS AREAS, ALIGN TOP SURFACES.
- E. WHERE SOD IS PLACED ADJACENT TO HARD SURFACES. SUCH AS CURBS. PAVEMENTS, ETC., PLACE TOP ELEVATION OF SOD 1/2 INCH (13 MM) BELOW TOP OF HARD SURFACE.
- F. WATER SODDED AREAS IMMEDIATELY AFTER INSTALLATION. SATURATE SOD TO 4 INCHES (100 MM) OF SOIL. DURING FIRST WEEK, WATER DAILY OR MORE FREQUENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A MINIMUM DEPTH OF 1-1/2 INCHES BELOW THE SOD.
- G. AFTER SOD AND SOIL HAVE DRIED, ROLL SODDED AREAS TO ENSURE GOOD BOND BETWEEN SOD AND SOIL AND TO REMOVE MINOR DEPRESSIONS AND IRREGULARITIES.

3.05 CLEAN-UP AND PROTECTION

- A. DURING LANDSDCAPING, KEEP PAVEMENT CLEAN AND WORK AREA IN AN ORDERLY CONDITION.
- B. PROTECT LANDSCAPING FROM DAMAGE DUE TO LANDSCAPE OPERATIONS, OPERATIONS BY OTHER CONTRACTORS AND TRADES, AND TRESPASSERS. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE DAMAGED LANDSCAPE WORK AS DIRECTED.

3.06 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. REMOVE SURPLUS SOIL AND WASTE MATERIAL, INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF IT OFF THE OWNER'S PROPERTY.

3.07 MAINTENANCE

BARE SPOTS.

PERIOD.

- A. PROVIDE MAINTENANCE AT NO EXTRA COST TO OWNER; OWNER WILL PAY
- B. MOW GRASS AT REGULAR INTERVALS TO MAINTAIN AT A MAXIMUM HEIGHT OF 2-1/2 INCHES (65 MM). DO NOT CUT MORE THAN 1/3 OF GRASS BLADE AT ANY ONE MOWING. DO NOT DELAY MOWING UNTIL GRASS BLADES BEND
- OVER AND BECOME MATTED. DO NOT MOW GRASS WHEN WET. C. APPLY FERTILIZER TO LAWN AFTER FIRST MOWING AND WHEN GRASS IS DRY. USE FERTILZER THAT WILL PROVIDE ACTUAL NITROGEN OF AT LEAST 1
- D. NEATLY TRIM EDGES AND HAND CLIP WHERE NECESSARY.
- E. IMMEDIATELY REMOVE CLIPPINGS AFTER MOWING AND TRIMMING. F. WATER TO PREVENT GRASS AND SOIL FROM DRYING OUT TO A UNIFORM DEPTH OF 4 INCHES. WATER LAWN AT THE MINIMUM RATE OF 1 INCH PER
- G. ROLL SURFACE TO REMOVE IRREGULARITIES.

LB. PER 1000 SQ. FT. OF LAWN AREA.

- H. CONTROL GROWTH OF WEEDS. APPLY HERBICIDES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMEDY DAMAGE RESULTING FROM IMPROPER USE OF HERBICIDES.
- J. PROTECT SODDED AREAS WITH WARNING SIGNS DURING MAINTENANCE

END OF SECTION

I. IMMEDIATELY REPLACE SOD TO AREAS THAT SHOW DETERIORATION OR

DESIGN

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323218 PROJECT #: J. CLEMENTS DRAWN BY: L. HEPWORTH CHECKED BY:

09.19.2024 LARRY N'EPWORTH ARC. 00405088 09.19.2024

LANDSCAPE **SPECIFICATIONS**

SECTION 32 9300 PLANTS: EXTERIOR PLANTS

1.01 SECTION INCLUDES

A. PREPARATION OF SUBSOIL.

C. NEW TREES AND PLANTS.

A. WEEDS: ANY PLANT LIFE NOT SPECIFIED OR SCHEDULED.

B. PLANTS: LIVING TREES, PLANTS, AND GROUND COVER SPECIFIED IN THIS SECTION, AND DESCRIBED IN ANSI Z60.1.

A. ANSI A300 PART 1 - AMERICAN NATIONAL STANDARD FOR TREE CARE OPERATIONS -- TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE -- STANDARD PRACTICES; 2017.

B. ANSI/AHIA Z60.1 - AMERICAN NATIONAL STANDARD FOR NURSERY STOCK; 2014.

A. NURSERY QUALIFICATIONS: COMPANY SPECIALIZING IN GROWING AND CULTIVATING THE PLANTS WITH THREE YEARS DOCUMENTED EXPERIENCE.

B. INSTALLER QUALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER WHO HAS COMPLETED LANDSCAPING WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT WITH AT LEAST 3 YEARS EXPERIENCE AND A RECORD OF SUCCESSFUL LANDSCAPE ESTABLISHMENT.

C. PROVIDE QUALITY, SIZE, GENUS, SPECIES, AND VARIETY OF TREES, SHRUBS, AND PLANTS INDICATED COMPLYING WITH THE APPLICABLE REQUIREMENTS OF ANSI/AHIA Z60.1.

D. MEASURE TREES AND SHRUBS ACCORDING TO ANSI/AHIA Z60.1 WITH BRANCHES AND TRUNKS OR CANES IN THEIR NORNAL POSITION. DO NOT PRUNE TO OBTAIN REQUIRED SIZES. TAKE CALIPER MEASUREMENTS 6 INCHES ABOVE GROUND FOR TREES UP TO 4 INCH CALIPER SIZE AND 12 INCHES ABOVE GROUND FOR LARGER SIZES. MEASURE MAIN BODY OF TREE OR SHRUB FOR HEIGHT AND SPREAD; DO NOT MEASURE BRANCHES OR ROOTS TIP-TO-TIP.

E. TREE PRUNING: COMPLY WITH ANSI A300 PART 1.

1.05 DELIVERY, STORAGE, AND HANDLING

A. TREES AND SHRUBS: DELIVER FRESHLY DUG TREES AND SHRUBS. DO NOT PRUNE BEFORE DELIVERY, EXCEPT AS APPROVED BY LANDSCAPE ARCHITECT. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, SWEATING, WHIPPING, AND OTHER HANDLING AND TYING DAMAGE. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING DELIVERY. DO NOT DROP TREES AND SHRUBS DURING DELIVERY.

B. HANDLE BALLED AND BURLAPPED STOCK BY THE ROOT BALL.

C. DELIVER FERTILIZER IN WATERPROOF BAGS SHOWING WEIGHT, CHEMICAL ANALYSIS, AND NAME OF MANUFACTURER.

D. DELIVER TREES, SHRUBS, AND PLANTS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND INSTALL IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, SET PLANTING MATERIALS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST.

1. SET BALLED STOCK ON GROUND AND COVER BALL WITH SOIL, PEAT MOSS, SAWDUST, OR OTHER ACCEPTABLE MATERIAL.

2. DO NOT REMOVE CONTAINER-GROWN STOCK FROM CONTAINERS BEFORE TIME OF

3. WATER ROOT SYSTEMS OF TREES AND SHRUBS STORED ON SITE WITH A FINE-MIST SPRAY. WATER AS OFTEN AS NECESSARY TO MAINTAIN ROOT SYSTEMS IN A MOIST

E. PROTECT AND MAINTAIN PLANT LIFE UNTIL PLANTED.

F. DELIVER PLANT LIFE MATERIALS IMMEDIATELY PRIOR TO PLACEMENT. KEEP PLANTS MOIST.

A. DO NOT INSTALL PLANT LIFE WHEN AMBIENT TEMPERATURES MAY DROP BELOW 35 DEGREES F (2 DEGREES C) OR RISE ABOVE 90 DEGREES F (32 DEGREES C).

B. DO NOT INSTALL PLANT LIFE WHEN WIND VELOCITY EXCEEDS 30 MPH (48 K/HR).

C. UTILITIES: DETERMINE LOCATION OF ABOVE GRADE AND UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER WHICH WILL AVOID DAMAGE, HAND EXCAVATE AS REQUIRED. MAINTAIN GRADE STAKES UNTIL REMOVAL IS MUTUALLY AGREED UPON BY PARTIES

D. EXCAVATION: WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS, NOTIFY LANDSCAPE ARCHITECT BEFORE PLANTING.

1.07 COORDINATION AND SCHEDULING

A. COORDINATE INSTALLATION OF PLANTING MATERIALS DURING NORMAL PLANTING SEASONS FOR EACH TYPE OF PLANT MATERIAL REQUIRED.

A. GENERAL WARRANTY: THE SPECIAL WARRANTY SPECIFIED IN THIS ARTICLE SHALL NOT DEPRIVE THE OWNER OF OTHER RIGHTS THE OWNER MAY HAVE UNDER OTHER PROVISIONS OF THE CONTRACT DOCUMENTS AND SHALL BE IN ADDITION TO AND RUN CONCURRENT WITH OTHER WARRANTIES MADE BY THE CONTRACTOR UDNER REQUIREMENTS OF THE CONTRACT DOCUMENTS.

B. SPECIAL WARRANTY: WARRANT TREES, SHRUBS, AND PLANTS FOR A PERIOD OF ONE YEAR AFTER DATE OF SUBSTANTIAL COMPLETION AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE, NEGLECT, OR ABUSE BY OWNER, ABNORMAL WEATHER CONDITIONS UNUSUAL FOR WARRANTY PERIOD, OR INCIDENTS THAT ARE BEYOND CONTRACTOR'S

C. REPLACEMENTS: PLANTS OF SAME SIZE AND SPECIES AS SPECIFIED, PLANTED IN THE NEXT GROWING SEASON, WITH A NEW WARRANTY COMMENCING ON DATE OF REPLACEMENT.

1. REMOVE AND REPLACE DEAD PLANTING MATERIALS IMMEDIATELY UNLESS REQUIRED TO PLANT IN THE SUCCEEDING PLANTING SEASON.

2. REPLACE PLANTING MATERIALS THAT ARE MORE THAN 25% DEAD OR IN AN UNHEALTHY CONDITION AT END OF WARRANTY PERIOD.

3. A LIMIT OF ONE REPLACEMENT OF EACH PLANT MATERIAL WILL BE REQUIRED, EXCEPT FOR LOSSES OR REPLACEMENTS DUE TO FAILURE TO COMPLY WITH REQUIREMENTS.

A. PLANTS: SPECIES AND SIZE IDENTIFIED IN PLANT SCHEDULE, GROWN IN CLIMATIC CONDITIONS SIMILAR TO THOSE IN LOCALITY OF THE WORK.

B. GENERAL: FURNISH NURSERY-GROWN TREES AND SHRUBS CONFORMING TO ANSI/AHIA Z60.1, WITH HEALTHY ROOT SYSTEMS, DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL SHAPED, FULLY-BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT.

C. GRADE: PROVIDE TREES AND SHRUBS OF SIZES AND GRADES CONFORMING TO ANSI/AHIA Z60.1 FOR TYPE OF TREES AND SHRUBS REQUIRED. TREES AND SHRUBS OF A LARGER SIZE MAY BE USED IF ACCEPTABLE TO LANDSCAPE ARCHITECT WITH PROPORTIONATE INCREASE IN SIZE OF ROOTS AND BALL.

D. LABEL AT LEAST 1 TREE AND 1 SHRUB OF EACH VARIETY AND CALIPER WITH A SECURELY ATTACHED, WATERPROOF TAG BEARING LEGIBLE DESIGNATION OF BOTANNICAL AND COMMON NAME.

2.02 SHADE AND FLOWERING TREES

A. SMALL TREES: SMALL UPRIGHT OR SPREADING TYPE, BRANCHED OR PRUNED NATURALLY ACCORDING TO SPECIES AND TYPE, AND WITH RELATIONSHIP OF CALIPER, HEIGHT, AND BRANCHING RECOMMENDED BY ANSI/AHIA Z60.1.

B. PROVIDE BALLED AND BURLAPPED TREES WHEN SPECIFIED ON APPROVED PLANS.

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2.03 CONIFEROUS EVERGREENS

A. FORM & SIZE: NOMAL QUALITY, WELL-BALANCED. CONIFEROUS EVERGREENS, OF TYPE, HEIGHT, SPREAD, AND SHAPE REQURIED, COMPLYING WITH ANSI/AHIA Z60.1

2.04 SHRUBS AND PERENNIALS

A. FORM AND SIZE: SHRUBS WITH NOT LESS THAN THE MINIMUM NUMBER OF CANES REQUIRED BY AND MEASURED ACCORDING TO ANSI/AHIA Z60.1 FOR TYPE, SHAPE, AND HEIGHT OF

B. PROVIDE BALLED AND BURLAPPED OR CONTAINER SHRUBS AND PERENNIALS.

2.05 SOIL MATERIALS A. PROVIDE APPROVED IMPORTED TOPSOIL REQUIRED TO BRING SURFACE TO SPECIFIED ELEVATION RELATIVE TO WALK OR CURB.

B. TOPSOIL: FERTILE, AGRICULTURAL SOIL, TYPICAL FOR LOCALITY, CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH, TAKEN FROM DRAINED SITE; FREE OF SUBSOIL, CLAY OR IMPURITIES, PLANTS, WEEDS AND ROOTS; SEE SECTION 32 9113: SOIL PREPARATION FOR REQUIRED CHEMICAL AND PHYSICAL CHARACTERISTICS.

2.06 SOIL AMENDMENT MATERIALS

A. FERTILIZER FOR TREES AND SHRUBS: CONTAINING FIFTY PERCENT OF THE ELEMENTS DERIVED FROM ORGANIC SOURCES; OF PROPORTION NECESSARY TO ELIMINATE ANY DEFICIENCIES OF TOPSOIL, TO THE FOLLOWING PROPORTIONS:

1. NITROGEN: >20% (OF WHICH 50% WILL BE ORGANIC).

2. PHOSPHORIC ACID: 10%. 3. SOLUBLE POTASH: 5%.

B. WATER: CLEAN, FRESH, AND FREE OF SUBSTANCES OR MATTER THAT COULD INHIBIT VIGOROUS GROWTH OF PLANTS.

2.07 ACCESSORIES

A. STAKES: SOFTWOOD LUMBER, POINTED END.

PART 3 EXECUTION

A. EXAMINE AREAS TO RECEIVE LANDSCAPING FOR COMPLIANCE WITH REQUIREMENTS AND FOR CONDITIONS AFFECTING PERFORMANCE OF WORK OF THIS SECTION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

B. VERIFY THAT PREPARED SUBSOIL AND PLANTERS ARE READY TO RECEIVE WORK.

C. SATURATE SOIL WITH WATER TO TEST DRAINAGE.

3.02 PREPARATION OF SUBSOIL

A. PREPARE SUBSOIL TO ELIMINATE UNEVEN AREAS. MAINTAIN PROFILES AND CONTOURS.

MAKE CHANGES IN GRADE GRADUAL. BLEND SLOPES INTO LEVEL AREAS. B. REMOVE STONES LARGER THAN 1 INCH IN ANY DIMENSION, FOREIGN MATERIALS, STICKS, RUBBISH, WEEDS AND UNDESIRABLE PLANTS AND THEIR ROOTS. REMOVE CONTAMINATED

C. SCARIFY SUBSOIL TO A DEPTH OF 6 INCHES (150 MM) WHERE PLANTS ARE TO BE PLACED. REPEAT CULTIVATION IN AREAS WHERE EQUIPMENT, USED FOR HAULING AND SPREADING TOPSOIL, HAS COMPACTED SUBSOIL.

3.03 PLACING TOPSOIL

A. TOPSOIL DEPTH SHALL BE A MINIMUM OF 12 INCHES.

B. SPREAD TOPSOIL TO A MINIMUM DEPTH OF 6 INCHES (150 MM) OVER AREA TO BE PLANTED. WORK INTO TOP OF LOOSENED SUB GRADE TO CREATE A TRANSITION LAYER AND HTEN PLACE REMAINDER OF PLANTING SOIL MIXTURE.

C. TILL SOIL IN BEDS TO A MINIMUM DEPTH OF 8 INCHES AND MIX WITH SPECIFIED SOIL AMENDMENTS AND FERTILIZERS.

D. PLACE TOPSOIL DURING DRY WEATHER AND ON DRY UNFROZEN SUBGRADE.

E. REMOVE VEGETABLE MATTER AND FOREIGN NON-ORGANIC MATERIAL FROM TOPSOIL WHILE

SPREADING. F. GRADE TOPSOIL TO ELIMINATE ROUGH, LOW OR SOFT AREAS, AND TO ENSURE POSITIVE

DRAINAGE.

3.04 FERTILIZING

A. APPLY FERTILIZER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. APPLY AFTER INITIAL RAKING OF TOPSOIL AND TILL IN TO BEDS C. MIX THOROUGHLY INTO UPPER 8 INCHES (203 MM) OF TOPSOIL

D. LIGHTLY WATER TO AID THE DISSIPATION OF FERTILIZER.

3.05 EXCAVATION FOR TREES AND SHRUBS

A. PITS AND TRENCHES: EXCAVATE WITH BOTTOM OF EXCAVATION SLIGHTLY RAISED AT

CENTER TO ASSIST DRAINAGE. LOOSEN HARD SUBSOIL IN BOTTOM OF EXCAVATION. 1. BALLED AND BURLAPPED TREES AND SHRUBS: EXCAVATE APPROXIMATELY 3 TIMES AS WIDE AS BALL DIAMETER AND EQUAL TO BALL DEPTH.

2. CONTAINER-GROWN TREES AND SHRUBS: EXCAVATE APPROXIMATELY 3 TIMES AS WIDE AS CONTAINER DIAMTER AND EQUAL TO ROOT MASS DEPTH.

B. DISPOSE OF SUBSOIL REMOVED FROM LANDSDCAPE EXCAVATIONS. DO NOT MIX WITH PLANTING SOIL OR USE AS BACKFILL.

C. OBSTRUCTIONS: NOTIFY LANDSCAPE ARCHITECT IF UNEXPECTED ROCK OR OBSTRUCTIONS DETRIMENTAL TO TREES OR SHRUBS ARE ENCOUNTERED IN EXCAVATIONS. D. DRAINAGE: NOTIFY LANDSCAPE ARCHITECT IF SUBSOIL CONDITIONS EVIDENCE UNEXPECTED

WATER SEEPAGE OR RETENTION IN TREE OR SHRUB PITS. E. FILL EXCAVATION WITH WATER AND ALLOW TO PERCOLATE OUT BEFORE PLACING SETTING

LAYER AND POSITIONING TREES AND SHRUBS. 3.06 PLANTING

A. LAYOUT INDIVIDUAL TREE AND SHRUB LOCATIONS AND AREAS FOR MULTIPLE PLANTINGS. STAKE LOCATIONS, OUTLINE AREAS, AND SECURE LANDSCAPE ARCHITECTS ACCEPTANCE BEFORE THE START OF PLANTING WORK. MAKE MINOR ADJUSTMENTS AS NEEDED.

B. SET BALLED AND BURLAPPED STOCK PLUMB AND IN CENTER OF PIT OR TRENCH WITH TOP OF BALL RAISED ABOVE ADJACENT FINISH GRADES AS INDICATED.

1. PLACE STOCK ON UNDISTURBED OR COMPACTED TOPSOIL.

2. REMOVE BURLAP AND WIRE BASKETS FROM TOPS AND AT LEAST UPPER HALF OF ROOT BALL (MORE IF THE ROOT BALL IS STABLE), BUT DO NOT REMOVE FROM UNDER ROOT BALL. REMOVE PALLETS, IF ANY, BEFORE SETTING. DO NOT USE PLANTING STOCK IF BALL

IS CRACKED OR BROKEN BEFORE OR DURING PLANTING OPERATION.

3. PLACE BACKFILL AROUND BALL IN LAYERS, TAMPING TO SETTLE BACKFILL AND ELIMINATE VOIDS AND AIR POCKETS.

4. BACKFILL TO CONSIST OF ONE (1) PART TOPSOIL AND ONE (1) PART NATIVE SOIL CLEAN AND FREE FROM TOXIC MINERAL AND CHEMICALS, NOXIOUS WEEDS, ROCKS LARGER THAN 1-1/2 INCH IN ANY DIMENSION, AND OTHER OBJECTIONABLE MATERIALS.

5. WHEN PIT IS APPROXIMATELY 1/2 BACKFILLED, WATER THOROUGHLY BEFORE PLACING REMAINDER OF BACKFILL. REPEAT WATERING UNTIL NO MORE IS ABSORBED. WATER AGAIN AFTER PLACING AND TAMPING FINAL LAYER OF BACKFILL

C. SET CONTAINER-GROWN STOCK PLUMB IN CENTER OF PIT OR TRENCH WITH TOP OF BALL RAISED ABOVE ADJACENT FINISH GRADES AS INDICATED.

1. CAREFULLY REMOVE CONTAINERS SO AS NOT TO DAMAGE ROOT BALLS.

2. PLACE STOCK ON UNDISTURBED OR COMPACTED TOPSOIL. 3. PLACE BACKFILL AROUND BALL IN LAYERS, TAMPING TO SETTLE BACKFILL AND

ELIMINATE VOIDS AND AIR POCKETS.

4. BACKFILL TO CONSIST OF ONE (1) PART TOPSOIL AND ONE (1) PART NATIVE SOIL CLEAN AND FREE FROM TOXIC MINERAL AND CHEMICALS, NOXIOUS WEEDS, ROCKS LARGER THAN 1-1/2 INCH IN ANY DIMENSION, AND OTHER OBJECTIONABLE MATERIALS. 5. WHEN PIT IS APPROXIMATELY 1/2 BACKFILLED, WATER THOROUGHLY BEFORE PLACING

REMAINDER OF BACKFILL. REPEAT WATERING UNTIL NO MORE IS ABSORBED. WATER AGAIN AFTER PLACING AND TAMPING FINAL LAYER OF BACKFILL. D. DISH AND TAMP TOP OF BACKFILL TO FORM A 3 INCH HIGH MOUND AROUND THE RIM OF THE

PIT. DO NOT COVER TOP OF ROOT BALL WITH BACKFILL. E. PLACE PLANTS AS INDICATED ON PLANS.

3.07 PLANT SUPPORT

A. BRACE PLANTS VERTICALLY WITH PLANT PROTECTOR WRAPPED GUY WIRES AND STAKES TO

1. TREE CALIPER: 1 TO 2 INCHES (25 TO 50 MM); TREE SUPPORT METHOD: 2 STAKES WITH

3.08 TREE PRUNING

A. PRUNE TREES AS RECOMMENDED IN ANSI A300 PART 1 B. UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT, DO NOT CUT TREE LEADERS, REMOVE ONLY DEAD, BROKEN, AND SPLIT BRANCHES.

C. PRUNE SHRUBS TO RETAIN NATURAL CHARACTER. SHRUB SIZES INDICATED ARE SIZE AFTER PRUNING.

3.09 FIELD QUALITY CONTROL

A. PLANTS WILL BE REJECTED IF A BALL OF EARTH SURROUNDING ROOTS HAS BEEN DISTURBED OR DAMAGED PRIOR TO OR DURING PLANTING.

3.10 CLEAN-UP AND PROTECTION

A. DURING LANDSCAPING, KEEP PAVEMENT CLEAN AND WORK AREA IN ORDERLY CONDITION. B. PROTECT LANDSCAPING FROM DAMAGE DUE TO LANDSCAPE OPERATIONS, OPERATIONS BY

OTHER CONTRACTORS AND TRADES, AND TRESPASSERS. MAINTAIN PROTECTION DURING

INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE DAMAGED

LANDSCAPE WORK AS DIRECTED. 3.11 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. REMOVE SURPLUS SOIL AND WASTE MATERIAL, INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF IT OFF THE OWNER'S PROPERTY.

A. PROVIDE MAINTENANCE AT NO EXTRA COST TO OWNER; OWNER WILL PAY FOR WATER.

B. IRRIGATE SUFFICIENTLY TO SATURATE ROOT SYSTEM AND PREVENT SOIL FROM DRYING OUT.

C. REMOVE DEAD OR BROKEN BRANCHES AND TREAT PRUNED AREAS OR OTHER WOUNDS.

D. NEATLY TRIM PLANTS WHERE NECESSARY.

MANUFACTURERS INSTRUCTIONS.

E. IMMEDIATELY REMOVE CLIPPINGS AFTER TRIMMING. F. CONTROL GROWTH OF WEEDS. APPLY HERBICIDES IN ACCORDANCE WITH

MANUFACTURER'S INSTRUCTIONS. G. CONTROL INSECT DAMAGE AND DISEASE. APPLY PESTICIDES IN ACCORDANCE WITH

H. REMEDY DAMAGE FROM USE OF HERBICIDES AND PESTICIDES. I. MAINTAIN WRAPPINGS, GUYS, AND STAKES. REPAIR OR REPLACE ACCESSORIES WHEN

END OF SECTION

SECTION 32 9419 LANDSCAPE SURFACING

PART 1 GENERAL

A. MULCH.

1.01 SECTION INCLUDES

REQUIRED.

B. MAINTENANCE. 1.02 SUBMITTALS

A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES. 1.03 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER WHO HAS COMPLETED LANDSCAPING WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT WITH AT LEAST 3 YEARS EXPERIENCE AND A RECORD OF SUCCESSFUL LANDSCAPE ESTABLISHMENT.

1.04 FIELD CONDITIONS

A. DO NOT INSTALL MULCH WHEN WIND VELOCITY EXCEEDS 30 MPH (48 K/HR).

A. GENERAL WARRANTY: THE SPECIAL WARRANTY SPECIFIED IN THIS ARTICLE SHALL NOT DEPRIVE THE OWNER OF OTHER RIGHTS THE OWNER MAY HAVE UNDER OTHER PROVISIONS OF THE CONTRACT DOCUMENTS AND SHALL BE IN ADDITION TO AND RUN CONCURRENT WITH OTHER WARRANTIES MADE BY THE CONTRACTOR UDNER REQUIREMENTS OF THE CONTRACT DOCUMENTS.

PART 2 PRODUCTS

2.01 MULCH MATERIALS

A. TAN DECOMPOSED GRANITE: 3/8" MINUS, AND GRAY DECOMPOSED GRANITE: 3/8" MINUS 2.02 ACCESSORIES

A. ANTIDESICCANT: WATER-INSOLUBLE EMULSION, PERMEABLE MOISTURE RETARDER, FILM FORMING, FOR TREES AND SHRUBS. DELIVER IN ORIGINAL, SEALED, AND FULLY LABELED CONTAINERS AND MIX ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

PART 3 EXECUTION 3.01 EXAMINATION

3.03 ACCESSORIES

3.06 MAINTENANCE

A. EXAMINE AREAS TO RECEIVE LANDSCAPING FOR COMPLIANCE WITH REQUIREMENTS AND FOR CONDITIONS AFFECTING PERFORMANCE OF WORK OF THIS SECTION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.02 MULCHING

B. VERIFY THAT PREPARED SUBSOIL AND PLANTERS ARE READY TO RECEIVE WORK.

A. MULCH BACKFILLED SURFACES OF PITS, TRENCHES, PLANTED AREAS, AND OTHER AREAS B. DECOMPOSED GRANITE: PLACE 3 INCH DEPTH MULCH IN AREAS AS SHOWN ON PLANS

BRANCHES, STEMS, TWIGS, AND FOLIAGE. WHEN DECIDUOUS TREES OR SHRUBS ARE MOVED IN FULL-LEAF, SPRAY WITH ANTIDESICCANT AT NURSERY BEFORE MOVING AND AGAIN 2 WEEKS AFTER PLANTING.

3.04 CLEAN-UP AND PROTECTION A. DURING LANDSCAPING, KEEP PAVEMENT CLEAN AND WORK AREA IN ORDERLY CONDITION. B. PROTECT LANDSCAPING FROM DAMAGE DUE TO LANDSCAPE OPERATIONS, OPERATIONS BY

OTHER CONTRACTORS AND TRADES, AND TRESPASSERS. MAINTAIN PROTECTION DURING

INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE DAMAGED

A. APPLY ANTIDESICCANT USING POWER SPRAY TO PROVIDE AN ADEQUATE FILM OR TRUNKS,

LANDSCAPE WORK AS DIRECTED. 3.05 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. REMOVE SURPLUS SOIL AND WASTE MATERIAL, INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF IT OFF THE OWNER'S PROPERTY.

A. REPLACE MULCH WHEN DETERIORATED.

END OF SECTION

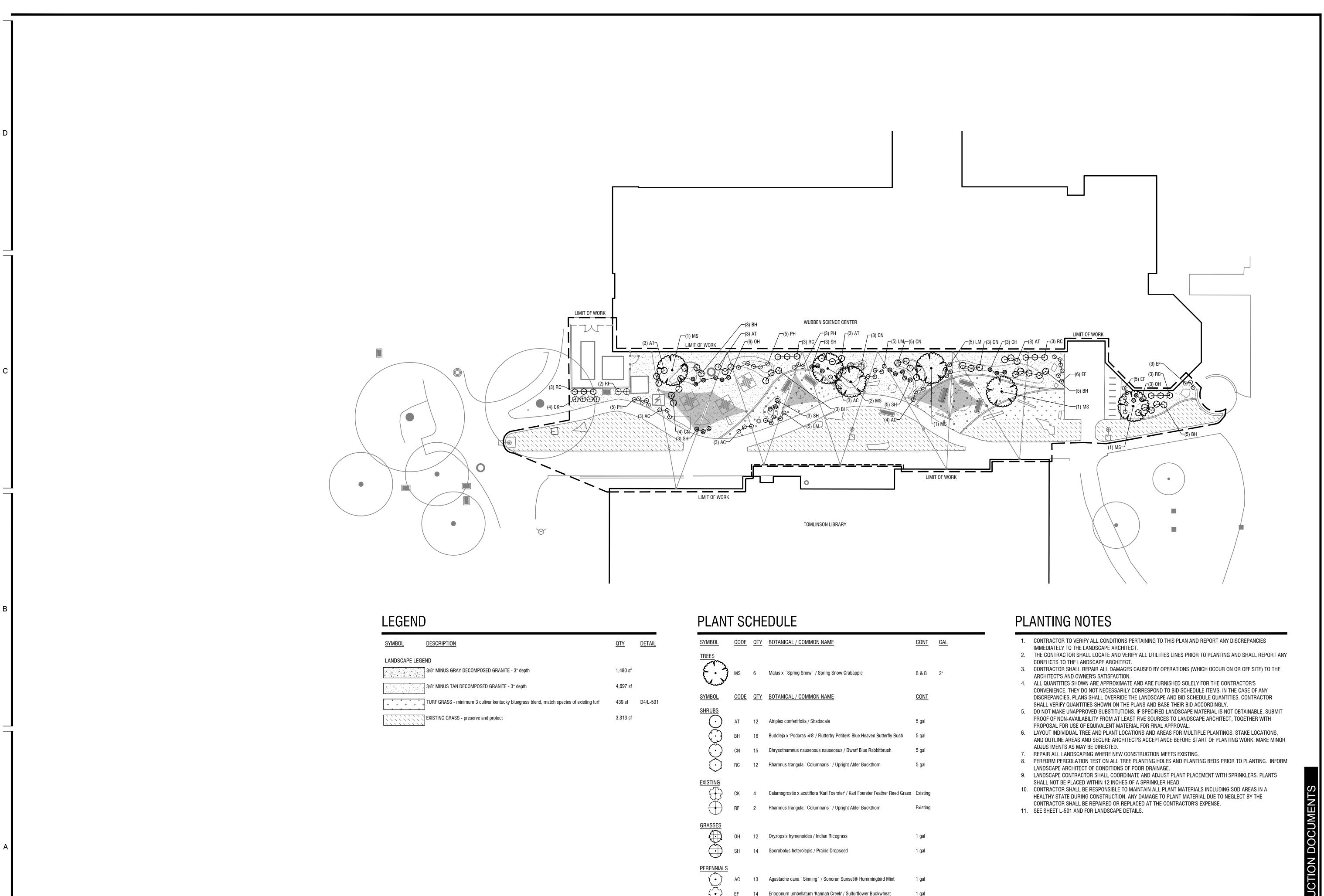
(435) 752-7031 SALT LAKE CITY, UTAH (801) 539-8221

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323218 PROJECT #: J. CLEMENTS L. HEPWORTH CHECKED BY:

LANDSCAPE

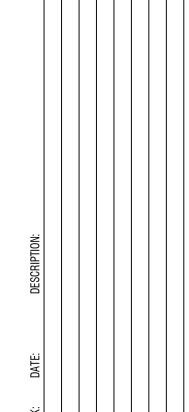


LM 15 Lavandula angustifolia 'Munstead' / Munstead English Lavender

PH 13 Penstemon digitalis 'Husker Red' / Husker Red Beardtongue

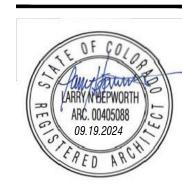
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ART CENTER WUBBI



323218 PROJECT #: J. CLEMENTS

CHECKED BY: L. HEPWORTH



SCALE: 1" = 20'

SLEEVED SHALL FOLLOW THE MAINLINE AND BE BUNDLED EVERY 10 FEET AS SHOWN IN DETAILS. 18. FIELD VERIFY HEAD SPACING IN AREAS WHERE NEW AND OLD IRRIGATION SYSTEMS JOIN. ADJUST IRRIGATION

19. RECONNECT THE IRRIGATION CONTROL WIRES AS REQUIRED TO CREATE AN OPERATIONAL SYSTEM. PUT ALL

SYSTEM HEAD SPACING TO PROVIDE COVERAGE AS REQUIRED IN SPECIFICATIONS.

WIRE SPLICES IN SPLICE BOXES OR IN REMOTE CONTROL BOXES.

20. SEE SHEET L-501 FOR IRRIGATION DETAILS.

Valve Flow

Valve Size

and kept healthy during construction.

EXISTING IRRIGATION SYSTEM TO REMAIN - preserve and protect heads and lateral lines, 2,786 sf

reconnect and ensure system is fully operational in this area. Ensure grass in this area is watered

DESCRIPTION

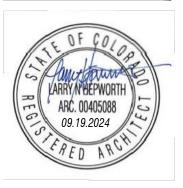
(435) 752-7031 SALT LAKE CITY, UTAH

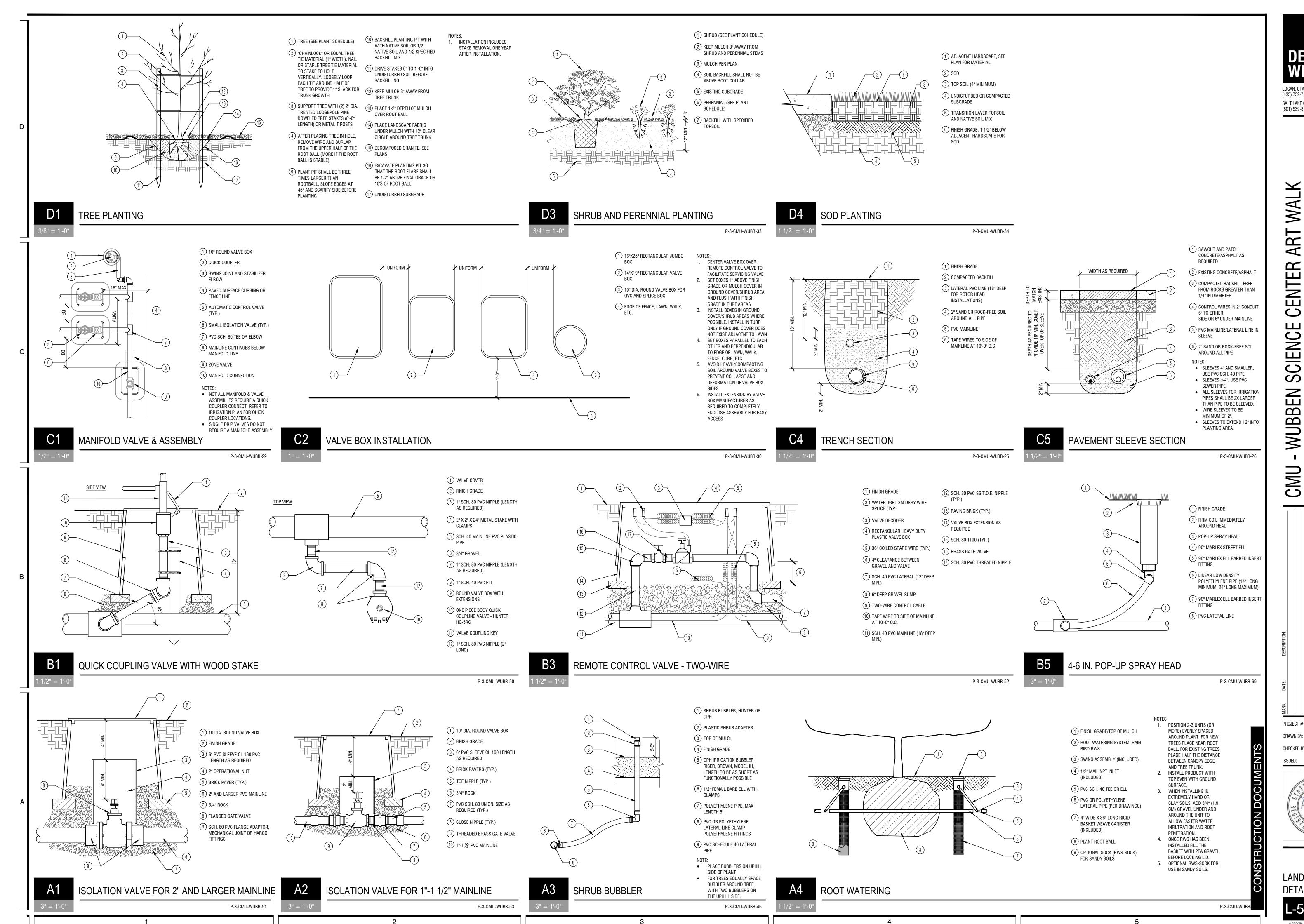
(801) 539-8221

CENTER CIENCE WUBB

323218 PROJECT #:

J. CLEMENTS L. HEPWORTH CHECKED BY:





DESIGN LOGAN, UTAH

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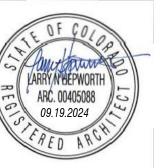
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WALK

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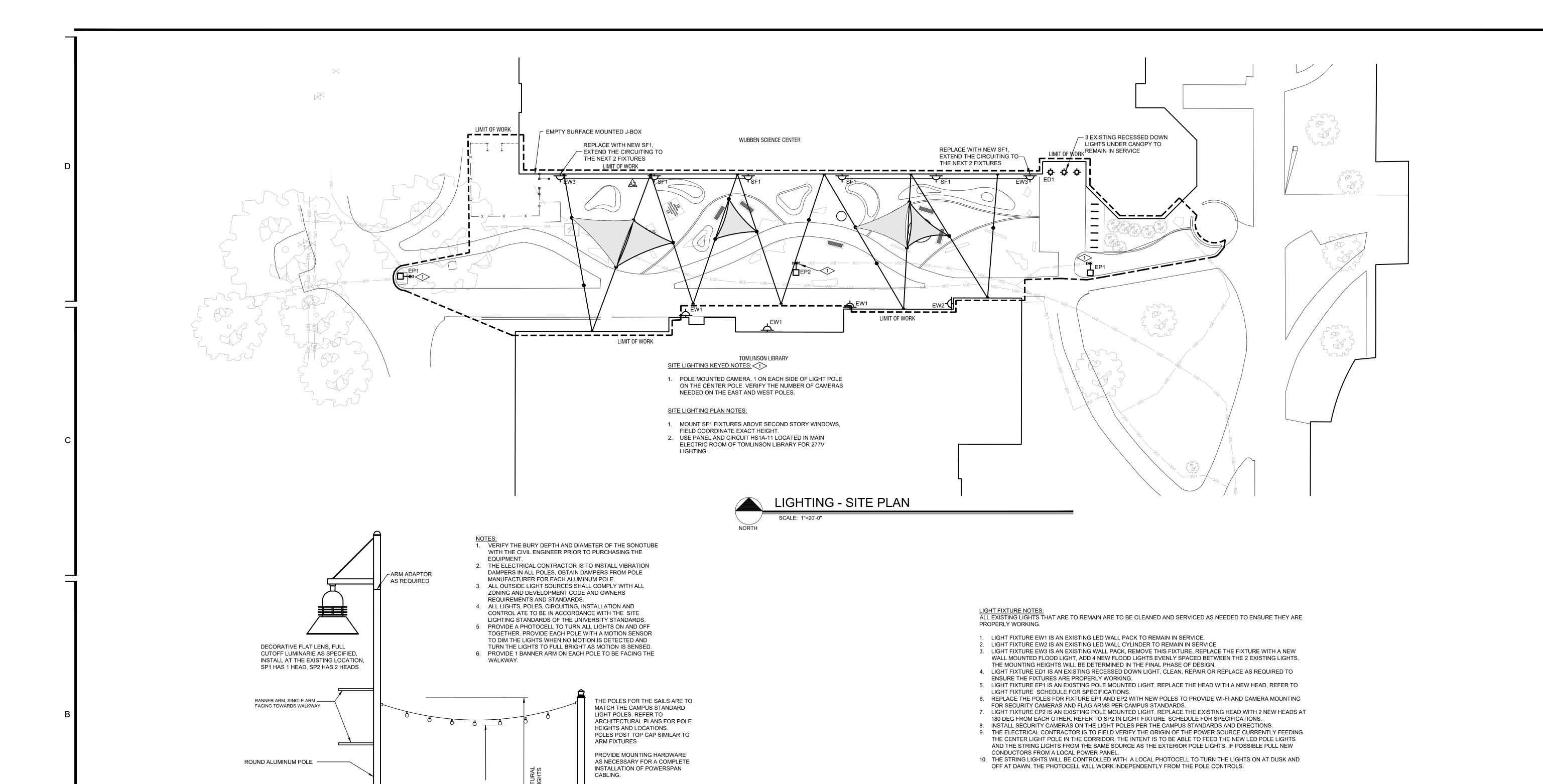
> 323218 PROJECT #: J. CLEMENTS L. HEPWORTH CHECKED BY:

09.19.2024



LANDSCAPE **DETAILS**

L-501



TENSION CABLE PER THE MANUFACTURER'S INSTALLATION

INSTRUCTION AND TO

ENSURE THAT THE LOWEST POINT DOES NOT EXTEND BELOW 12'-0"A.F.G.

LIGHT POLE BASE DETAIL & ELEVATION

— CHAMFER

1'-6" OR DIAMETER PER MANUFACTURES RECOMMENDATIONS

2" 3.5"ANCHOR BOLT

1" THREADED PIPE PORT FOR ___

1" LIQUID TIGHT FLEXIBLE CONDUIT —

20'-0" TALL ROUND STRAIGHT ALUMINUM POLE

FINISHED GRADE

CONDUIT BURY 24"

SONOTUBE

UNDISTURBED EARTH →

1" CONDUIT IN CONCRETE

4 #5 REBAR #3 TIES AT 12" O.C.

I.P. CAMERA CABLES AT 12'-0"

| LIGHTING FIXTURE SCHEDULE | | | | | | | |
|---------------------------|--------------------------------|---|--|---|--|--|--|
| TYPE MARK | MANUFACTURER | MODEL | LAMP | DESCRIPTION | | | |
| SC1 | TEGAN LIGHTING | DSW-48-120-G16.5F-27/325-DSC7-STK- LENGTH TEGAN POWER SUPPLY & DRIVER | LED REMOTE DIMMING POWER SUPPLY, 6W, 199LM, 3500K, 90CRI | SUSPENDED DECORATIVE STRING LIGHT SYSTEM, CABLE MOUNT, G GLASS ENVELOPE FROSTED GLASS BULB, BLACK FINISH, DIMMABLE. 110' MAX CABLE LENGTH, MOUNT LAMPS 4'-0" APART. REFER TO THE ARCHITECTURAL PLANS FOR OVER ALL RUN LENGTH BETWEEN POLES PRIOR TO PLACING THE ORDER | | | |
| SF1 | INVUE LIGHTING | VFS-K-B40-5-LED-D1-WST-BZ-PC-WMT- XX-VFS-BD | LED DIMMING DRIVER, 5774LM, 4000K, 70CRI, 67W | VISION SMALL LED FLOOD LIGHT, WALL MOUNT TENON MOUNT WITH SLIPFITTER, ELECTRONIC DIMMING, WIDE SYMMETRICAL RECTANGULAR DISTRIBUTION, BRONZE FINISH, BARNDOORS. | | | |
| (EP1) SP1 | ARCHITECTURAL AREA LIGHTING | UCM2-LUM-ANG-36L-615-4K7-5Q-VBL- SLA20-CL-SCL-SCP-20F-UNV(277V) | 615mA LED DIMMING DRIVER, 7533LM, 3000K, 71W LED 277V | UNIVERSE COLLECTION MEDIUM LED POLE MOUNTED FIXTURE, FLAT GLASS LENS, UNIVERSE MEDIUM WITH LUMINOUS RINGS HOUSING, ANGLED HOOD, INTEGRAL MOTION SENSOR, VBL UNIVERSITY STANDARD COLOR, WITH CONTEMPORARY ARM,16'x4"DIA ALUMINUM POLE, ONE HEAD PER POLE | | | |
| (EP2) SP2 | ARCHITECTURAL AREA LIGHTING | UCM2-LUM-ANG-36L-615-4K7-5Q-VBL- SLA20-CL-SCL-SCP-20F-UNV(277V) | 615mA LED DIMMING DRIVER, 7533LM, 3000K, 71W LED 277V | | | | |

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(801) 539-8221 Bighorn Consulting

Engineers, Inc

Grand Junction, CO 81501 Phone (970) 241-8709

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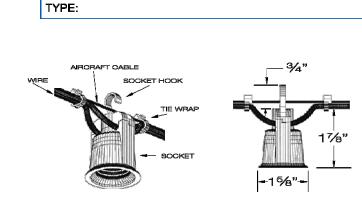
PROJECT #: DRAWN BY: 09.19.2024

SITE LIGHTING PLANS AND DETAILS

ES1-1

PROJECT:





SOCKET, WIRE & CABLE DETAILS

Decostrings are a perfect accent lighting solution to add a personal ambience to patios, courtyards, atriums, restaurants, amusement parks and any open area. The "festoon" lighting system is typically strung between two anchorage points with optional intermediary support and electrically fed from one end. The sockets can be either symmetrically spaced or randomly spaced to suit the application. Optional shades, guards and lenses complete the architectual design.

SPECIFICATIONS

| LAMPHOLDER | Black phenolic, medium base UL weatherproof with hook for optional mounting. |
|------------------|---|
| POWER CORD | 12/2 G. Black flexible duplex cable, UV rated for extended outdoor use. |
| SUPPORT CABLE | 3/32" SS aircraft catenary cable supports the system, 980# test. Heavier cable available. |
| TERMINATION KITS | Heavy duty stainless steel hardware available. |
| LAMPS | Wet location rated LED and incandescent medium base A, G or S style lamps. |
| DIMMING | Dimmable to 10% with ELV trailing edge type dimmers. |
| VOLTAGE | 120V system (1920 watts max load). No driver or transformer required. |
| ACCESSORIES | Optional brass, aluminum and acrylic shades. Consult factory for custom shades. |
| PHOTOMETRY | Bare lamp and shielded "BUG" rated .IES files available. |

PART NUMBER

CERTIFICATION

| DSW | 48 | 120V | G16.5F | DSC7 | STK | |
|----------|------------------|-----------------|----------------|--------------|-----------------------------|---------|
| SERIES | SPACING | VOLTS | LAMP | SHADE-FINISH | TERMINATION KIT | LENGTH |
| DSD DAMP | 12 12"O/C | 120 120V | SELECT | OPTIONAL | OPTIONAL | SPECIFY |
| DSW WET | 18 18"0/C | | FROM | SELECT FROM | STK | |
| | 24 24"O/C | | LAMP PAGE 3 | PAGE 4 & 5 | STANDARD TERMINATION KIT | |
| | 36 36"O/C | | | OR | LTK | |
| | 48 48"O/C | | | LEAVE BLANK | LIGHTWEIGHT | |
| | (OTHER, SPECIFY) | | | | TERMINATION KIT | |
| | | | | | TRK | |

ETL listed for permenant damp or wet installations. (2001431 MADE IN THE USA

| 3570 LEXINGTON AVE. EL MONTE, CA 91731 • | PH. 626.442.4600 | primuslighting.com |
|--|------------------|--|
| P2 | | |
| | | |

| DSC7 | 7" W X 3" H CONE SHADE | 6 OZ | | |
|------------|----------------------------------|-------|------|------------------------|
| DSC10 | 10" W X 3" H CONE SHADE | 9 OZ | tre- | |
| DSC12 | 12" W X 4" H CONE SHADE | 18 OZ | | |
| FINISH: | ACID ETCHED BRASS OR POWDER COAT | | | |
| PROVIDES (| D/O/O BUG RATING | | | SHOWN: AGED BRASS (AB) |

TERMINATION KITS

Commercial grade heavy duty stainless steel cable termination kits. System working load 175# using standard Decostring 3/32" suspension cable to attach to typically a 1/4" eye or mounting tab (by others). Complete hardware for both cable ends. Order (1) kit per run. Other components available.







TURNBUCKLE KIT (SEE PAGE 6)

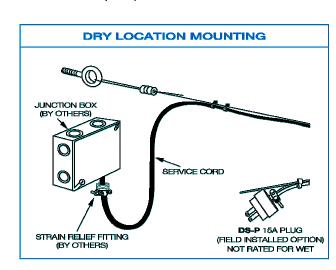
STANDARD TERMINATION KIT For Drooped Suspension | 5/16" Gate

LIGHTWEIGHT TERMINATION KIT

TURNBUCKLE KIT Maximum Working Load 30 LBS Only for Tensioned Suspension | 7/16" Gate

POWER CONNECTIONS

Decostrings are designed to be permanently installed and hard wired to a junction box. Customary wet location make-up includes a drip loop and mechanical termination to a weatherproof j-box using an appropriate nylon cord grip

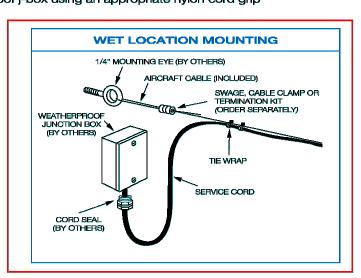


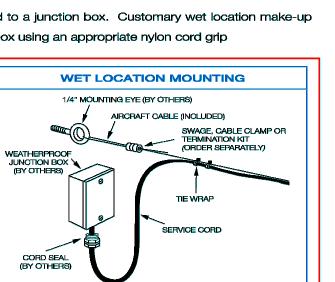
G16.5 G16.5F-24/325 - 24K, 3.5W, 325L, CLEAR G16.5F-27/325 - 27K, 3.5W, 325L, CLEAR

G16.5F-24/200 - 24K, 2W, 200L, CLEAR

G16.5F-27/200 - 27K, 2W, 200L, CLEAR

WHITE OR FROSTED - CONSULT FACTORY





DESCRIPTION

The cylindrical form of the Vision Flood Small LED luminaire blends effortlessly to architectural and landscape environments. The Vision Flood Small LED luminaire offers optical, energy and maintenance solutions for the full breadth of floodlighting applications.

| Catalog # | Туре |
|-------------|------|
| Project | SF1 |
| Comments | Date |
| Prepared by | |

SPECIFICATION FEATURES

| Construction | in 4000K (+/- 275K) and nominal | mounting accessories. Optional |
|---|---|--|
| HOUSING: One-piece, die-cast aluminum housing maintains a | 70 CRI. | slipfitter mount available for VFS. |
| nominal .125" thickness to endure | Electrical | Finish |
| the toughest environments while maintaining precise tolerance control. DOOR: Die-cast aluminum door maintains a nominal .125" thickness and features concealed hinging to the housing. Door is secured with four tamper-resistant recessed stainless steel allen head | DRIVER: LED drivers feature electronic universal voltage 120-277V (50/60Hz), 347V (60Hz) or 480V (60Hz) > 0.9 power factor, < 20% harmonic distortion. 480V is compatible for use with 480V Wye systems only. Features ambient temperature rating | Housing is finished in five-stage, super premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom |
| fasteners. Door frame features an integral accessory channel for the mounting of optional light control accessories. Doorframe seals to housing with a continuous extruded silicone gasket. Lens is impact-resistant .180" thick | range of +40°C (104°F) down to minimum starting temperature of -40°C (-40°F). Shipped standard with our proprietary circuit module designed to withstand 10kV of transient line surge. LEDs and drivers mounted to | color matches available. Consult Outdoor Architectural Colors brochure for a complete selection. Options to meet Buy American Act requirements |

gasket. IP66 rated. Optics
DISTRIBUTION: State-of-the-art optical designs offer the choice of high efficiency floodlighting optical distributions including symmetric round, symmetric rectangular, asymmetric rectangular and tight spot beam patterns. Optic module is injection molded thermo plastic with highly reflective, metalized

tempered clear flat glass, sealed to

the door with a one-piece silicone

KNUCKLE: Heavy-duty die-cast aluminum knuckle utilizes a taperlock adjustment mechanism for both solid engagement and infinite aiming adjustment. Knuckle adjustment is made via one captive stainless steel allen head fastener consistent with doorframe fasteners. Tested to sustain 2G of specular finish. LEDs: High output vibration without loosing aiming LEDs, 60,000+ hours life at >90% position. VFS knuckle features a lumen maintenance per IESNA 3/4" NPT nipple on bottom surface TM-21 Standards, offered standard for rigid attachment to available

assembly trays and equipped

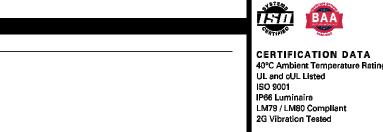
with quick disconnects for ease of



VISION FLOOD SMALL LED

Invue

ARCHITECTURAL FLOOD

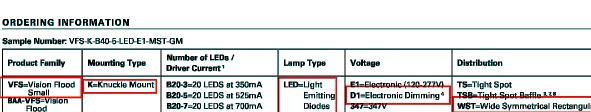


LM79 / LM80 Compliant 2G Vibration Tested ENERGY DATA Electronic LED Driver >0.9 Power Factor <20% Total Harmonic Distortion 120-277V 50/60Hz, 347V/60Hz, 480V/60Hz -40°C Minimum Temperature Effective Projected Area (Sq. Ft.):

SHIPPING DATA Approximate Net Weight: 18 lbs. (8 kgs.)

December 20, 2021 11:25 AM





| BAA-V-S=VISION Flood Small Buy American Act Compliant ¹² | B20-7=20 LEC B40-3=40 LEC B40-5=40 LEC B40-7=40 LEC | S at 350mA | Diodes | 347=347V 480=480V ^{5, 8} | WST=Wide Symmetrical Rectangular MST=Medium Symmetrical Rectangular VAT=Vertical Asymmetric Rectangular NSR=Narrow Symmetrical Round MSR=Medium Symmetrical Round | BZ=Bronze DP=Dark Platinum GM=Graphite Metallic WH=White |
|---|--|---|--|--|---|--|
| Options (Add as Suffix) | | Accessories (O | rder Separately) ¹³ | 1 | | |
| PC=Button Photocontrol (Specify Voltag SG=Softening Glass® 7080=70 CRI / 6000 CCT 8030=80 CRI / 3000 CCT | e) | SM-XX=Stanch ST-XX=Stanchi WM-XX=Wall M WMA-XX=Wall WMT-XX=Wall TMA-XX=Twin TMT-XX=Twin | ilon Mount ion Mount Tenon Mount Mount Arm Mount Tenon Mo Mount Arm - EPA Mount Arm Teno Ge Mount Tenon | ount ¹⁰ \ 0.35 n Mount - EPA 0.42 ¹⁹ | PM1-XX=Post Mount Extension Sing PM2-XX=Post Mount Extension Douves-CFR-XX=Color Filter Adapter w VFS-CFG-XX=Color Filter Adapter w VFS-CFG-XX=Color Filter Adapter w VFS-CFG-XX=Barn Doors - EPA 1.01 VFS-TV-XX=Top Visor - EPA 0.6 VFS-4S-XX=Four Sided Visor VA6174=Tamper-proof Driver Bit CF | uble - EPA 0.12 rith Red Gel ¹¹ rith Bright Blue Gel ¹¹ rith Deep Green Gel ¹¹ rith Warm Orange Gel ¹¹ |

1. Standard 4000K CCT, nominal 70 CRI. 2. 40 LEDs at 700mA (B40-7) limited to 25°C ambient condition

3. Not available with color filters or external shielding.
4. Not available with 20 LEDs at 700mA (820-7). Provides 0-10V DC low voltage leads used in dimming control.

5. Only available with normal power factor and <30THD. 6. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg 7. Not available with 347V or 480V. 8. Available with 20 or 40 LEDs at 350mA (B20-3 or B40-3) only

9. Standard on WST distribution. 10. Must order SF Slipfitter.

11. Not evailable with B40-5 or B40-7.

12. Only product configurations with this designated prefix are built to be compliant with the Buy American Act of 1933 (BAA). Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements. 13. Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information

5" [127mm]

Extruded aluminum arm with cast mounting

plate is 15" in length and is supplied with a Also useful as an arm extension off square area lightpole. Requires SF Slipfitter.

WALL MOUNT ARM TENON (WMT)





FEATURES

- Types 1, 2, 3, 4W, 5Q, and 5W distributions
- 0-10V dimming ready
- Integral Surge protection: 10k in parallel, 20k in series Upgrade Kits









SPECIFICATIONS

- CONSTRUCTION All housing components aluminum 360 alloy, sealed with continuous silicone rubber
- Standard configurations do not require a flat lens, optional lenses is tempered glass
- stainless steel Finish: fade and abrasion resistant, electrostatically applied, thermally cured,
- triglycidal isocyanurate (TGIC) polyester powdercoat
- Optical bezel finish is match the luminaire housing
- LED/OPTICS Optical cartridge system consisting of a die cast heat sink, LED engine, TIR optics, gasket
- and bezel plate Optics are held in place without the use of
- Molded silicone gasket ensures a weather-proof seal around each individual LED.
- Features individual LED optical control based on high performance TIR optical designs. House Side Shield is available on Standard and Clear Lens options except any Type 5

for any distribution using a Diffused Lens. INSTALLATION

 Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury.

ARCHITECTURAL AREA/SITE

- Reliable, uniform, glare free illumination
- 3000K, 4000K, 5000K CCT









- Luminaires have integral surge protection, UL recognized and have a surge current rating of 10,000 Amps using the industry standard
- current maximum of <20.0 Amps maximum at All internal and external hardware is 230VAC • 100%-1% dimming range. Fixture will be wired
 - for low voltage 0-10V dimming control Standard Input Black (+)
 - - Driver and surge suppressor are mounted to a prewired tray with quick disconnects that may be removed from the gear compartment CONTROLS

Green (GND)

Gray Dimming Lead (-)

• Egress adapter(s) shall slip over a 4"/100mm

DIA. pole with the luminaire or arm slipping

over the adapter to add a total of 4.5"/114mm to the overall height. Adapter(s) shall be prewired, independently rotatable 359°, and have a cast access cover with an integral lens and lanyard. distribution. House Side Shield is not available

LOCATION TYPE: PROJECT: CATALOG #:

UNIVERSE®



(435) 752-7031

(801) 539-8221

Electrical

386 Indian Road

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Grand Junction, CO 81501

Phone (970) 241-8709

SALT LAKE CITY, UTAH

Engineers, Inc

Bighorn Consulting

₿<u>UCS</u> 8 UCB

CONTROLS (CONTINUED) Photocell adapter shall include an internal

- twist lock receptacle. Photocell by others. • Egress adapter shall require an auxiliary 120 8/20uSec wave and surge rating of 372J volt supply for operation of an integral MR16 Drivers are UL recognized with an inrush lamp in the event of emergency. The lamp may be aimed and locked into position with
 - an adjustment range of 15°-45°. Adapter shall have a socket that accepts miniature bi-pin MR16 lamps up to 50 watts, lamp by others
 - CERTIFICATIONS ETL listed under UL 1598 and CSA C22.2 No. 250.0-08 for wet locations
 - This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective
 - 6/06/2020. See Buy American Solutions. WARRANTY

 See <u>HLI Standard Warranty</u> for additional information

| KEY DATA | | | | | |
|--------------------------|-------------------------------------|--|--|--|--|
| LUMEN RAL'CE | 1,821–9,336 | | | | |
| WATTAGE RA | 31.52-71.6 | | | | |
| EFFICACY RANGE | 54.5–138.5 | | | | |
| INPUT CURRENT RANGE (MA) | 260/420/615 mA | | | | |
| WEIGHT | 18 lbs 4.1 kg to 27 lbs 12.25 kg | | | | |
| EPA | .53 to 1.05 | | | | |
| | | | | | |

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UCM2 ARCHITECTURAL AREA/SITE

PROJECT: CATALOG #:

STR Straight Hood

STS Stainless Steel

Hood Finish

COP Copper

ORDERING GUIDE Example: UCM2-WND-BLU-FLR-36L-420-4K7-2-CL-BL-WIRSC-SLA2-D-UNV CATALOG #

 UCM2
 Universe Medium 2.0
 36L
 36 LED
 260
 260mA, 4000 Lumens
 AMB Amber-595nm Peak¹ BLT Black Matte Textured Optional Element 325 450mA Microcore Equivalent 3K7 **4K7** 4000K, 70 CRI DBS Dark Bronze Gloss WND Universe Medium with **420** 420mA, 6000 Lumens Smooth Luminous Window 460 700mA Microcore Equivalent 5K7 5000K, 70 CRI 50 Type V Square DBT Dark Bronze Matte 4W Type IV Wide SR Universe Medium with 615 615mA, 9000 Lumens Luminous Solid Rings 5W Type V Wide GTT Graphite Matte VSL Universe Medium with Luminous Vertical Slots LGS Light Grey Gloss **LUM** Universe Medium with Smooth LGT Light Grey Matte Optional Intenal Lens PSS Platinum Silver Glos RD Red Smooth VGT Verde Green Matte Hood Syle Textured ANG Angled Hood WHS White Gloss Smooth WHT White Matte FLR Flared Hood SKB Skirted Bell Hood

| Mounting | Optional Lens | Options | Mounting Options | Voltage |
|---|---|--|---|--------------------------------------|
| Pole Mount SLA2-D SLA18 SLA3 SLA20 SLA4 SLA20A SLA7 SLA22D SLA8D SLA24 SLA9 TRA7 SLA10 TRA8 SLA16 TRA9 SLA17 TRA9 | CL Clear Lens DL Diffused Lens ² | HS House Side Shield ⁴ SLC Solid Lens Cover SF Single Fuse (120, 277, 347) DF Double Fuse (208, 240, 480) | WIR WISCAPE connectivity WIRSC WISCAPE connectivity with Sensor SCP-8F Sensor Control to 8' Mounting Height SCP-20F Sensor Control to 9' to 20' Mounting Height PCA-C Photocontrol Adaptor Contemporary EPA-C Egress Adaptor Contemporary | UNV 120-277V 347 347V 480 480V |
| Wall Mount | | | Notes: | |
| WMA5 WMA17 | | | 1 Wild life friendly | |
| WMA9D WMA20 | | | Diffused Lens is available only with T3 ar distribution | nd T5W |
| WMA11 WMA24 | | | Consult factory for custom color, marine and options | d corrosive finish |
| WMA12 WMA39 WMA16 | | | House side Shield is available only with T2, T3 and T4W distributions | ⊤1, |

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SITE LIGHTING

FIXTURES

CC ⁸ Custom Color

VBL OR CAMPUS

STANDARD

PROJECT #:

DRAWN BY:

WG

D. BROWN

09.19.2024

ES1-2