

FINAL ENGINEERING PLANS

BOULDER CIVIC AREA

BOULDER, CO 80302

TEC2016-XXXX

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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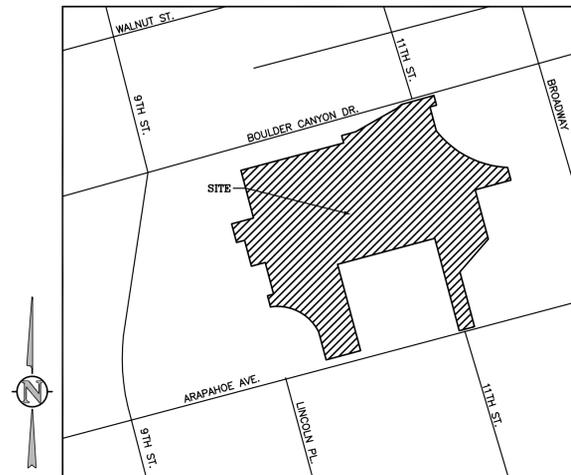
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Vicinity Map
NOT TO SCALE

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CITY OF BOULDER SIGN AND STRIPING NOTES:

- CONTACT THE CITY OF BOULDER SIGN AND MARKINGS MAINTENANCE GROUP (303-413-7122-SCOTT BAKER) FOR LOCATION OF ALL SIGNS PRIOR TO INSTALLATION AND FOR SIGN, SAFE-HIT AND MARKINGS LAYOUT/DETAILS PRIOR TO ORDERING AND PLACING.
- ALL SIGNS SHEETING TO BE CLASS XI (DG3 MATERIAL) WITH 3M 1150 OVERLAY FILM.
- ALL SIGNS SHALL BE 0.100 GAUGE ALUMINUM.
- ALL SIGN POST TO BE 12 GAUGE 2 INCH UNISTRUT
- ALL SIGN BASES TO BE 12 GAUGE 2-1/4 INCH UNISTRUT.
- SIGN POST LENGTHS WILL VARY, BUT 7 FOOT MINIMUM CLEARANCE FROM BOTTOM OF SIGN TO GROUND LEVEL IS REQUIRED.
- ALL SIGN MOUNT HARDWARE TO BE GATOR LOCK SYSTEM.
- REFER TO CDOT STD SPECS SECTION 627 FOR PAVEMENT SURFACE PREPARATION AND CLEANING (SAND BASTING WATER BLASTING OR OTHER METHODS APPROVED BY CITY) BEFORE STRIPING.
- ALL STRIPING, TURN ARROWS, STOP BARS, ETC WITHIN CITY ROW AND PROPERTY SHALL BE 3M TAP (270 SERIES) OR APPROVED EQUAL.

CITY OF BOULDER EROSION CONTROL NOTES:

- ALL TEMPORARY EROSION CONTROL FACILITIES SHALL BE INSTALLED BEFORE ANY CONSTRUCTION ACTIVITIES TAKE PLACE.
- SOLID WASTE, INDUSTRIAL WASTE, YARD WASTE AND ANY OTHER POLLUTANTS OR WASTE ON ANY CONSTRUCTION SITE SHALL BE CONTROLLED THROUGH THE USE OF BMP'S. WASTE AND/OR RECYCLING CONTAINERS SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR ON CONSTRUCTION SITES WHERE THERE IS THE POTENTIAL FOR RELEASE OF WASTE. UNCONTAINED WASTE THAT MAY BLOW, WASH OR OTHERWISE BE RELEASED FROM THE SITE IS PROHIBITED. SANITARY WASTE FACILITIES SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR.
- READY-MIXED CONCRETE, OR ANY MATERIALS RESULTING FROM THE CLEANING OF VEHICLES OR EQUIPMENT CONTAINING OR USED IN TRANSPORTING OR APPLYING IT, SHALL BE CONTAINED ON CONSTRUCTION SITES FOR PROPER DISPOSAL. RELEASE OF THESE MATERIALS IS PROHIBITED.
- COVER SHALL BE APPLIED WITHIN 14 DAYS TO INACTIVE SOIL STOCKPILES, AND SHALL BE MAINTAINED FOR STOCKPILES THAT ARE PROPOSED TO REMAIN IN PLACE LONGER THAN THIRTY (30) CALENDAR DAYS.
- BMP'S SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF SEDIMENT FROM CONSTRUCTION SITES. VEHICLE TRACKING OF MUD SHALL NOT BE ALLOWED TO ENTER THE STORM WATER SYSTEM OR WATERS OF THE STATE. SEDIMENT TRACKED ONTO PUBLIC STREETS SHALL BE REMOVED.
- TECHNIQUES SHALL BE USED TO PREVENT DUST, SEDIMENT OR DEBRIS BLOWING FROM THE SITE.
- STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION OR DEGRADATION OF WATERS OF THE STATE.
- ALL EARTH DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED AND COMPLETED TO LIMIT THE EXPOSED AREA OF ANY DISTURBED LAND TO THE SHORTEST POSSIBLE PERIOD OF TIME.
- BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING THE STORM WATER SYSTEM OR WATERS OF THE STATE.
- ANY DISTURBANCE TO TEMPORARY AND PERMANENT BMP'S SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS.
- THE PROPERTY OWNER AND SUBSEQUENT PROPERTY OWNERS WILL BE RESPONSIBLE FOR CONTINUED COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION, DURING CONSTRUCTION ACTIVITY ON THE SITE.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AND DISPOSED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED, OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, WHICHEVER OCCURS FIRST.

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Seal/Signature

Key Plan

North



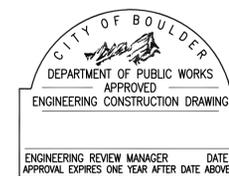
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Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC.2016XXXX

Drawing Title
COVER SHEET

Drawing Number

C0.0



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

ABBREVIATIONS

AASHTO	AMERICAN ASSOC. OF STATE HIGHWAY & TRANSPORTATION OFFICIALS	INCL	INCLUDED
ABAN	ABANDON	ID	INSIDE DIAMETER
AC	ASPHALTIC CONCRETE PAVING	IN	INLET
ADDL	ADDITIONAL	INSUL	INSULATION
ADDM	ADDENDUM	INV	INVERT
ADJ	ADJUSTABLE	IRR	IRRIGATION
AL	ALUMINUM		
ALT	ALTERNATE	JTS	JOINTS
AMT	AMOUNT	KB	KICKBLOCK
APPROX	APPROXIMATE	KO	KNOCKOUT
ARCH	ARCHITECT(URAL)	KPL	KICK PLATE
ARV	AIR RELIEF VALVE	KWY	KEYWAY
ASPH	ASPHALT		
ASSY	ASSEMBLY	LSCAPE	LANDSCAPE(ING)
ASYM	ASYMMETRICAL	LF	LINEAR FOOT
AUTO	AUTOMATIC	LOW	LIMIT OF WORK
AVG	AVERAGE	LP	LOW PRESSURE OR LIGHT POLE
AWWA	AMERICAN WATER WORKS ASSOC.	LT	LIGHT
		LWL	LOW WATER LEVEL
BC	BACK OF CURB	MAINT	MAINTENANCE
BFV	BUTTERFLY VALVE	MAN	MANUAL
BLDG	BUILDING	MATL	MATERIAL
BLK	BLOCK	MAX	MAXIMUM
BM	BENCH MARK	MECH	MECHANICAL
BMP	BEST MANAGEMENT PRACTICE	MFR	MANUFACTURER
BS	BACKSIGHT	MH	MANHOLE
BOT	BOTTOM	MIN	MINIMUM
BSMT	BASEMENT	MISC	MISCELLANEOUS
BVCE	BEGIN VERTICAL CURVE ELEVATION	MJ	MECHANICAL JOINT
BVCS	BEGIN VERTICAL CURVE STATION	N	NORTH
BW	BOTTOM OF WALL	NA	NOT APPLICABLE
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CCW	COUNTER CLOCKWISE	NPT	NATIONAL PIPE THREAD
CDOT	COLORADO DEPARTMENT OF TRANS	NTS	NOT TO SCALE
CIP	CAST IRON PIPE		
CJ	CONSTRUCTION JOINT	OC	ON CENTER
CL	CENTER LINE OR CHAIN LINK	OD	OUTSIDE DIAMETER
CLR	CLEAR	OPP	OPPOSITE
CMP	CORRUGATED METAL PIPE	OPT	OPTIONAL
CMU	CONCRETE MASONRY UNIT		
CO	CLEANOUT	PC	POINT OF CURVATURE
CONC	CONCRETE	PCO	PRESSURE CLEAN OUT
CONST	CONSTRUCTION	PCR	POINT OF CURVE RETURN
CONT	CONTINUOUS(ACTION)	PI	POINT OF INTERSECTION
COR	CORNER	PVI	POINT OF VERTICAL INTERSECTION
CR	CONCENTRIC REDUCER	PL	PROPERTY LINE
CTR	CENTER	PE	POLYETHYLENE
CY	CUBIC YARDS	PREFAB	PREFABRICATED
		PRELIM	PRELIMINARY
DEMO	DEMOLITION	PREP	PREPARATION
DIA	DIAMETER	PROP	PROPOSED
DIAG	DIAGONAL	PRV	PRESSURE REDUCING VALVE OR
DIP	DUCTILE IRON PIPE		PRESSURE RELIEF VALVE
DOM	DOMESTIC	PSF	POUNDS PER SQUARE FOOT
DN	DOWN	PSI	POUNDS PER SQUARE INCH
DR	DRAIN	PT	POINT OF TANGENCY
DWG	DRAWING	PV	PLUG VALVE
DWL	DOWEL	PVC	POLYVINYL CHLORIDE OR
			POINT OF VERTICAL CURVATURE
E	EAST	PVMT	PAVEMENT
EA	EACH	QTY	QUANTITY
ECC	ECCENTRIC	R	RIGHT
EJ	EXPANSION JT	RAD	RADIUS
EL	ELEVATION	RCP	REINFORCED CONCRETE PIPE
ELB	ELBOW	RD	ROOF DRAIN
ELEC	ELECTRICAL	RE	REFERENCE
ENGR	ENGINEER	RECT	RECTANGULAR
EOP	EDGE OF PAVEMENT	REINF	REINFORCE (D) (ING) (MENT)
EQ	EQUAL	REQD	REQUIRED
EQUIP	EQUIPMENT	ROW	RIGHT OF WAY
EQUIV	EQUIVALENT	SAN	SANITARY
ESMT	EASEMENT	SD	STORM DRAIN
EST	ESTIMATE	SECT	SECTION
EVCE	END VERTICAL CURVE ELEVATION	SPD	STANDARD PROCTOR DENSITY
EVCS	END VERTICAL CURVE STATION	SPEC	SPECIFICATION
EW	EACH WAY	SQ	SQUARE
EXP JT	EXPANSION JOINT	SQ IN	SQUARE INCH
EXIST	EXISTING	SQ FT	SQUARE FOOT
		SQ YD	SQUARE YARD
FND	FOUNDATION	SS	SANITARY SEWER
FES	FLARED END SECTION	SST	STAINLESS STEEL
FF	FINISH FLOOR	STA	STATION
FG	FINISH GRADE	STD	STANDARD
FH	FIRE HYDRANT	STL	STEEL
FL	FLOW LINE	STRUCT	STRUCTURAL
FN	FENCE	SWMP	STORMWATER MANAGEMENT PLAN
FOC	FACE OF CONCRETE	SYM	SYMMETRICAL
FPM	FEET PER MINUTE		
FPS	FEET PER SECOND	TB	THRUST BLOCK
FT	FEET	TBC	TOP BACK OF CURB
FTG	FOOTING OR FITTING	TBM	TEMPORARY BENCH MARK
		TEMP	TEMPORARY
G	GAS	THK	THICK
GA	GAUGE	TOB	TOP OF BANK
GAL	GALLON	TOC	TOP OF CONCRETE OR TOP OF CURB
GALV	GALVANIZED	TOT	TOTAL
GCO	GRADE CLEANOUT	TW	TOP OF WALL
GIP	GALVANIZED IRON PIPE	TYP	TYPICAL
GND	GROUND		
GPD	GALLONS PER DAY	UBC	UNIFORM BUILDING CODE
GPM	GALLONS PER MINUTE	UGE	UNDERGROUND ELECTRIC
GRTC	GRATING	UTL	UTILITY
GSP	GALVANIZED STEEL PIPE		
GV	GATE VALVE	VERT	VERTICAL
		VC	POINT OF VERTICAL CURVATURE
H	HIGH	VCP	VITRIFIED CLAY PIPE
HB	HOSE BIB		
HE	HORIZONTAL ELLIPTICAL	W	WIDE OR WIDTH
HDWL	HEADWALL	W/	WITH
HNDRL	HAND RAIL	W/O	WITHOUT
HORIZ	HORIZONTAL	WQCE	WATER QUALITY CONTROL ELEVATION
HP	HIGH POINT	WSE	WATER SURFACE ELEVATION
HR	HOUR	WW	WASTEWATER
HVAC	HEATING, VENTILATION, AIR CONDITIONING	X SECT	CROSS SECTION
HWY	HIGHWAY	YH	YARD HYDRANT
HWL	HIGH WATER LINE		
HYD	HYDRANT		

LEGEND

	SURVEY CONTROL POINT
	BENCHMARK
	PROPOSED MANHOLE
	EXISTING MANHOLE
	18" AREA DRAIN
	12" AREA DRAIN
	COMBINATION INLET
	TYPE R INLET
	TYPE 13 FIELD INLET
	FLARED END SECTION
	RIPRAP
	THRUST BLOCK
	TEE W/ THRUST BLOCK
	BEND W/ THRUST BLOCK
	END CAP W/ THRUST BLOCK
	GATE VALVE
	REDUCER/INCRASER
	WATER METER
	FIRE HYDRANT
	LIGHT POLE
	SIGN
	STRUCTURE IDENTIFICATION
	SIGN IDENTIFICATION
< 15 inch Storm Drain symbol"/>	< 15" STORM DRAIN
	≥ 15" STORM DRAIN
	ROOF DRAIN
	SANITARY SEWER
	WATER
	IRRIGATION
	UNDERDRAIN
	TRENCH DRAIN
	FRENCH DRAIN
	PERFORATED DRAIN
	TELEPHONE
	ELECTRIC
	OVERHEAD ELECTRIC
	UNDERGROUND ELECTRIC
	GAS
	CABLE TV
	FIBER OPTIC
	FLOW LINE
	FENCE
	ABANDON UTILITY
	DEMO SURFACE FEATURE
	DEMO SUBSURFACE FEATURE
	DEMO TREE
	LIMITS OF SAWCUT
	PROPERTY LINE / ROW
	EASEMENT LINE
	LIMITS OF WORK
	LIMITS OF OVEREXCAVATION
	MATCHLINE
	PROPOSED BUILDING
	EXIST BUILDING
	BLDG ACCESS
	CONCRETE PAVING
	HEAVY DUTY ASPHALT PAVING
	EARTH
	TRUNCATED DOME PAVERS
	GRASS PAVERS
	CONCRETE SCORING
	CURB & GUTTER
	GUTTER PAN
	SPILL/CATCH CURB TRANSITION
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	EXIST INDEX CONTOUR
	EXIST INTERMEDIATE CONTOUR
	PROPOSED SPOT ELEVATION
	EXIST SPOT ELEVATION
	DOWNSPOUT

SYMBOLS

	DETAIL TITLE
	DETAIL NUMBER IDENTIFICATION
	DETAIL MARKER
	REVISION CLOUD
	REVISION NUMBER

FINAL ENGINEERING PLANS

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE CITY OF BOULDER, BOULDER FIRE-RESCUE PROTECTION REQUIREMENTS, COLORADO DEPARTMENT OF TRANSPORTATION AND APPLICABLE STATE AND LOCAL STANDARDS AND SPECIFICATIONS. THE CONTRACTOR SHALL HAVE IN POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF APPROVED PLANS, STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN EMERGENCY ACCESS ROUTES TO THE SITE AND STRUCTURE AT ALL TIMES PER THE APPLICABLE JURISDICTIONAL FIRE PROTECTION DISTRICT REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS. NOTIFY ENGINEER OF ANY CONFLICTING STANDARDS OR SPECIFICATIONS. IN THE EVENT OF ANY CONFLICTING STANDARD OR SPECIFICATION, THE MORE STRINGENT OR HIGHER QUALITY STANDARD, DETAIL OR SPECIFICATION SHALL APPLY.

2. THE CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARD SPECIFICATIONS, PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK, INCLUDING, BUT NOT LIMITED TO A LOCAL AND STATE GROUNDWATER DISCHARGE AND COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT (CDPHE) STORM WATER DISCHARGE PERMIT ASSOCIATED WITH CONSTRUCTION ACTIVITY.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE REQUIRED PARTY (OWNER, OWNER'S REPRESENTATIVE, MUNICIPAL/DISTRICT INSPECTOR, GEOTECHNICAL ENGINEER, ENGINEER AND/OR UTILITY OWNER) AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. PRIOR TO BACKFILLING, AND AS REQUIRED BY JURISDICTIONAL AUTHORITY AND/OR PROJECT SPECIFICATIONS, THE CONTRACTOR SHALL CONTINUE WITH NOTIFICATIONS THROUGHOUT THE PROJECT AS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.

4. THE LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION BASED ON INFORMATION BY OTHERS. NOT ALL UTILITIES MAY BE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES WHETHER SHOWN OR NOT BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGES AND COSTS WHICH MIGHT OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO PROCEEDING WITH GRADING AND CONSTRUCTION. ALL WORK WITHIN THE AREA OF UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THE UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAPPING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION, AND FOR RELOCATING ENCOUNTERED UTILITIES AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL CONTACT AND RECEIVE APPROVAL FROM ALL PUBLIC AND PRIVATE UTILITIES BEFORE RELOCATING ANY ENCOUNTERED UTILITIES. CONTRACTOR RESPONSIBLE FOR SERVICE CONNECTIONS, AND RELOCATING AND RECONNECTING AFFECTED UTILITIES AS COORDINATED WITH UTILITY OWNER AND/OR ENGINEER, INCLUDING NON-MUNICIPAL UTILITIES (TELEPHONE, GAS, CABLE, ETC., WHICH SHALL BE COORDINATED WITH THE UTILITY OWNER). THE CONTRACTOR SHALL IMMEDIATELY CONTACT ENGINEER UPON DISCOVERY OF A UTILITY DISCREPANCY OR CONFLICT. AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY NOTIFICATION CENTER OF COLORADO (1-800-922-1987, WWW.UNCC.ORG).

5. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN FOR OWNER APPROVAL AND PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FENCING, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR AGREES TO COMPLY WITH THE PROVISIONS OF THE TRAFFIC CONTROL PLAN AND THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," PART VI, FOR CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL. ALL TEMPORARY AND PERMANENT TRAFFIC SIGNS SHALL COMPLY TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) WITH REGARD TO SIGN SHAPE, COLOR, SIZE, LETTERING, ETC. UNLESS OTHERWISE SPECIFIED. IF APPLICABLE, PART NUMBERS ON SIGNAGE DETAILS REFER TO MUTCD SIGN NUMBERS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS NOR EROSION ON ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS.

7. RIM AND GRATE ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. THE CONTRACTOR SHALL ADJUST RIMS AND OTHER IMPROVEMENTS TO MATCH FINAL PAVEMENT AND FINISHED GRADE ELEVATIONS.

8. THE EXISTING AND PROPOSED ELEVATIONS OF FLATWORK, SIDEWALKS, CURBS, PAVING, ETC. AS SHOWN HEREON ARE BASED ON EXTRAPOLATION OF FIELD SURVEY DATA AND EXISTING CONDITIONS. AT CRITICAL AREAS AND SITE FEATURES, CONTRACTOR SHALL HAVE FORMWORK INSPECTED AND APPROVED BY OWNER PRIOR TO PLACING CONCRETE. MINOR ADJUSTMENTS, AS APPROVED BY OWNER, TO PROPOSED GRADES, INVERTS, ETC. MAY BE REQUIRED TO PREVENT PONDING. ALL FLATWORK MUST PREVENT PONDING AND PROVIDE POSITIVE DRAINAGE AWAY FROM EXISTING AND PROPOSED BUILDINGS, WALLS, ROOF DRAIN OUTFALLS, ACROSS DRIVES AND WALKS, ETC., TOWARDS THE PROPOSED INTENDED DRAINAGE FEATURES AND CONVEYANCES.

9. FINAL LIMITS OF REQUIRED ASPHALT SAWCUTTING AND PATCHING MAY VARY FROM LIMITS SHOWN ON PLANS. CONTRACTOR TO PROVIDE SAWCUT AND PATCH WORK TO ACHIEVE POSITIVE DRAINAGE AND A SMOOTH TRANSITION TO EXISTING ASPHALT WITHIN ACCEPTABLE DRIVE SLOPE STANDARDS PER ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL SAWCUTTING AND PATCHING AT UTILITY WORK, ETC. THAT MAY NOT BE DELINEATED ON PLANS.

10. ANY EXISTING MONITORING WELLS, CLEANOUTS, VALVE BOXES, ETC. TO BE PROTECTED AND TO REMAIN IN SERVICE. IF FEATURES EXIST, EXTEND OR LOWER TO FINAL SURFACE WITH LIKE KIND CAP WITH STANDARD CAST ACCESS LID WITH SAME MARKINGS. IN LANDSCAPED AREAS PROVIDE A CONCRETE COLLAR (18"x18"x6" THICK) AT ALL EXISTING AND PROPOSED MONITORING WELLS, CLEANOUTS, VALVE BOXES, ETC.

11. OWNER TO APPROVE ALL CONCRETE FINISHING, JOINT PATTERNS AND COLORING REQUIREMENTS PRIOR TO CONSTRUCTION. SUBMIT JOINT LAYOUT PLAN TO OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.

12. PIPE LENGTHS AND HORIZONTAL CONTROL POINTS SHOWN ARE FROM CENTER OF STRUCTURES, END OF FLARED END SECTIONS, ETC. SEE STRUCTURE DETAILS FOR EXACT HORIZONTAL CONTROL LOCATION. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING ACTUAL PIPE LENGTHS TO ACCOUNT FOR STRUCTURES AND LENGTH OF FLARED END SECTIONS.

13. ALL SURPLUS MATERIALS, TOOLS, AND TEMPORARY STRUCTURES, FURNISHED BY THE CONTRACTOR, SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR. ALL DEBRIS AND RUBBISH CAUSED BY THE OPERATIONS OF THE CONTRACTOR SHALL BE REMOVED, AND THE AREA OCCUPIED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION, WITHIN 48 HOURS OF PROJECT COMPLETION, UNLESS OTHERWISE DIRECTED BY THE MUNICIPALITY OR OWNER'S REPRESENTATIVE.

14. THE CONTRACTOR IS REQUIRED TO PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE LOCAL JURISDICTION, THE STATE OF COLORADO, URBAN DRAINAGE AND FLOOD CONTROL DISTRICT "URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3", THE M-STANDARD PLANS OF THE COLORADO DEPARTMENT OF TRANSPORTATION, AND THE APPROVED EROSION CONTROL PLAN. JURISDICTIONAL AUTHORITY MAY REQUIRE THE CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL MEASURES AT THE CONTRACTOR'S EXPENSE DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE PLANS DO NOT FUNCTION AS INTENDED. THE CONTRACTOR IS RESPONSIBLE FOR PROHIBITING SILT AND DEBRIS LADEN RUNOFF FROM LEAVING THE SITE, AND FOR KEEPING ALL PUBLIC AREAS FREE OF MUD AND DEBRIS. THE CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING FINAL GRADES AND FOR REMOVING ACCUMULATED SEDIMENTATION FROM ALL AREAS INCLUDING SWALES AND DETENTION/WATER QUALITY AREAS. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AND REPAIR AREAS AS REQUIRED AFTER VEGETATION IS ESTABLISHED AND ACCEPTED BY OWNER AND MUNICIPALITY.

15. ADA COMPLIANCE: THE CROSS-SLOPE OF ALL WALKS MUST BE 2.0% MAX. PERPENDICULAR TO DIRECTION OF TRAVEL. MAXIMUM GRADE OF HANDICAPPED ACCESSIBLE WALKS MUST BE 5.0% MAX. IN DIRECTION OF TRAVEL. MAXIMUM GRADE OF ALL HANDICAP RAMPS IS 8.3% OVER A MAXIMUM 6" RISE. MAXIMUM GRADE AT HANDICAP PARKING IS TYPICALLY 2.0% IN ALL DIRECTIONS. CONTRACTOR TO NOTIFY ENGINEER PRIOR TO PLACEMENT OF FLATWORK OF SITE CONDITIONS OR DISCREPANCIES WHICH PREVENT TYPICAL REQUIRED GRADES FROM BEING ACHIEVED. ALL RAMPS, STAIRS AND RAILING SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT ADA STANDARDS. HANDICAP RAMPS SHALL CONFORM TO CDOT M-STANDARDS (SEE DETAIL M-608-1, ETC.).

16. BENCHMARK INFORMATION: TOPOGRAPHIC INFORMATION WAS PROVIDED BY BOULDER LAND CONSULTANTS, INC. SEE TOPOGRAPHIC SURVEY DATED 12/7/2015. ELEVATIONS BASED ON NGS MARKER J 321, PID LL-0801, WITH A PUBLISHED ELEVATION OF 5346.68 FEET (NAVD88). THE MARKER IS AN NGS BENCHMARK DISK SET IN A CONCRETE DIVERSION RETAINING WALL. SAID BENCHMARK LIES ON THE NORTH SIDE OF BOULDER CREEK, EAST OF THE BROADWAY BRIDGE. COORDINATE AND VERIFY ALL VERTICAL AND HORIZONTAL DATA WITH REFERENCED SURVEY AND SURVEYOR, AND REPORT ANY IRREGULARITIES OR DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.

17. HORIZONTAL CONTROL INFORMATION: HORIZONTAL CONTROL COORDINATES ARE BASED ON THE REFERENCED SURVEY AND ARE PROVIDED BY THE FOLLOWING POINTS AS SHOWN ON THE PLANS:
 CP-2284 N1247962.03 E3061615.00
 CP-5319 N1248153.29 E3062361.43
 CP-5489 N1248246.41 E3062052.90

BASIS OF BEARINGS: THE PROJECT IS BASED ON A MODIFIED STATE PLANE COORDINATE SYSTEM, COLORADO NORTH ZONE, NAD 83 (2011). PROJECT HAS BEEN SCALED TO GROUND FROM POINT 1008 USING A COMBINED SCALE FACTOR OF .9997125550 (CALCULATED INVERSE OF 1.000287528), A 2 1/2" ALLOY CAP, PLS 20134, IN A MONUMENT BOX AT THE INTERSECTION OF BROADWAY AND CANYON BLVD.

18. PROTECT TREES AND VEGETATION AS NOTED IN LANDSCAPE PLANS. HAND EXCAVATION REQUIRED AT ROOT ZONES WHERE PROPOSED PAVING OR UTILITY WORK IS WITHIN DRIPLINE OF TREES.

19. THE CONTRACTOR SHALL FURNISH THE ENGINEER AND OWNER WITH A SET OF CONSTRUCTION RECORD DRAWINGS MARKED "AS-BUILT", FOR THE CONSTRUCTED IMPROVEMENTS. THE PLANS SHALL SHOW FINAL PAVEMENT AND, FLOW LINE ELEVATIONS, CONTOURS AT POND/DRAINAGE FEATURES (AS SURVEYED AND CERTIFIED BY A COLORADO P.L.S.), MANHOLE, PIPE, AND INLET LOCATIONS, INVERTS, GRADE ELEVATIONS, AND SIZES OF ALL UTILITIES, AND ANY VARIATIONS FROM THE APPROVED PLAN.

20. LOCATIONS OF CLEANOUTS, LIGHTS, SIGNAGE, JUNCTION BOXES, AND OTHER SIGNIFICANT SITE FEATURES TO BE STAKED FOR ENGINEER AND OWNER APPROVAL PRIOR TO WORK. CLEANOUTS, JUNCTION BOXES, AND ADJACENT GRADES TO BE RAISED ONE-HALF INCH AT ASPHALT/CONCRETE (OR 1" AT LANDSCAPING) TO PROVIDE POSITIVE DRAINAGE AWAY FROM FEATURES.

CITY OF BOULDER CONSTRUCTION NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "DESIGN AND CONSTRUCTION STANDARDS" OF THE CITY OF BOULDER, AND SHALL BE COMPLETED TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS. IN THE EVENT THAT A DESIGN ELEMENT DOES NOT REFLECT CITY STANDARDS, THE MATTER MUST BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER AND THE DIRECTOR OF PUBLIC WORKS. THE ENGINEER SHALL BE RESPONSIBLE FOR RECOMMENDING A SOLUTION OR ALTERNATIVE SOLUTIONS TO THE CITY FOR REVIEW AND APPROVAL.

2. THE APPROVAL OF A CONSTRUCTION PLAN DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF CONSTRUCTING WORKABLE PUBLIC IMPROVEMENTS. ALL REVISIONS AND/OR CORRECTIONS REQUIRED WILL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY, AND AT THEIR EXPENSE.

3. THESE PLANS HAVE BEEN CHECKED BY THE CITY OF BOULDER ONLY FOR CONFORMANCE WITH THE "DESIGN AND CONSTRUCTION STANDARDS," COMPLIANCE WITH DEVELOPMENT AGREEMENT CONDITIONS, AND FOR GENERAL CONCEPTUAL APPROVAL OF PUBLIC IMPROVEMENTS AS SHOWN. THE CITY'S REVIEW DOES NOT VERIFY OR ENSURE THE ACCURACY OF EXISTING OR PROPOSED DIMENSIONS, LINES, COORDINATES, OR GRADES SHOWN, INCLUDING ALL EXISTING UTILITIES SHOWN OR NOT SHOWN.

4. UTILITY LOCATIONS SHOWN REFLECT AVAILABLE RECORD DATA. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITY LINES SHOWN AND OTHERWISE LOCATED. THE CONTRACTOR SHALL CONTACT THE "UTILITY NOTIFICATION CENTER OF COLORADO" AT 1-800-922-1987 FOR UTILITY LOCATES 24 HOURS PRIOR TO BEGINNING CONSTRUCTION.

5. BEFORE WORK BEGINS, THE CONTRACTOR SHALL OBTAIN A PERMIT TO WORK IN THE RIGHT-OF-WAY FROM THE CITY AND MUST NOTIFY THE CITY RIGHT-OF-WAY INSPECTION STAFF AT LEAST 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION ACTIVITIES.

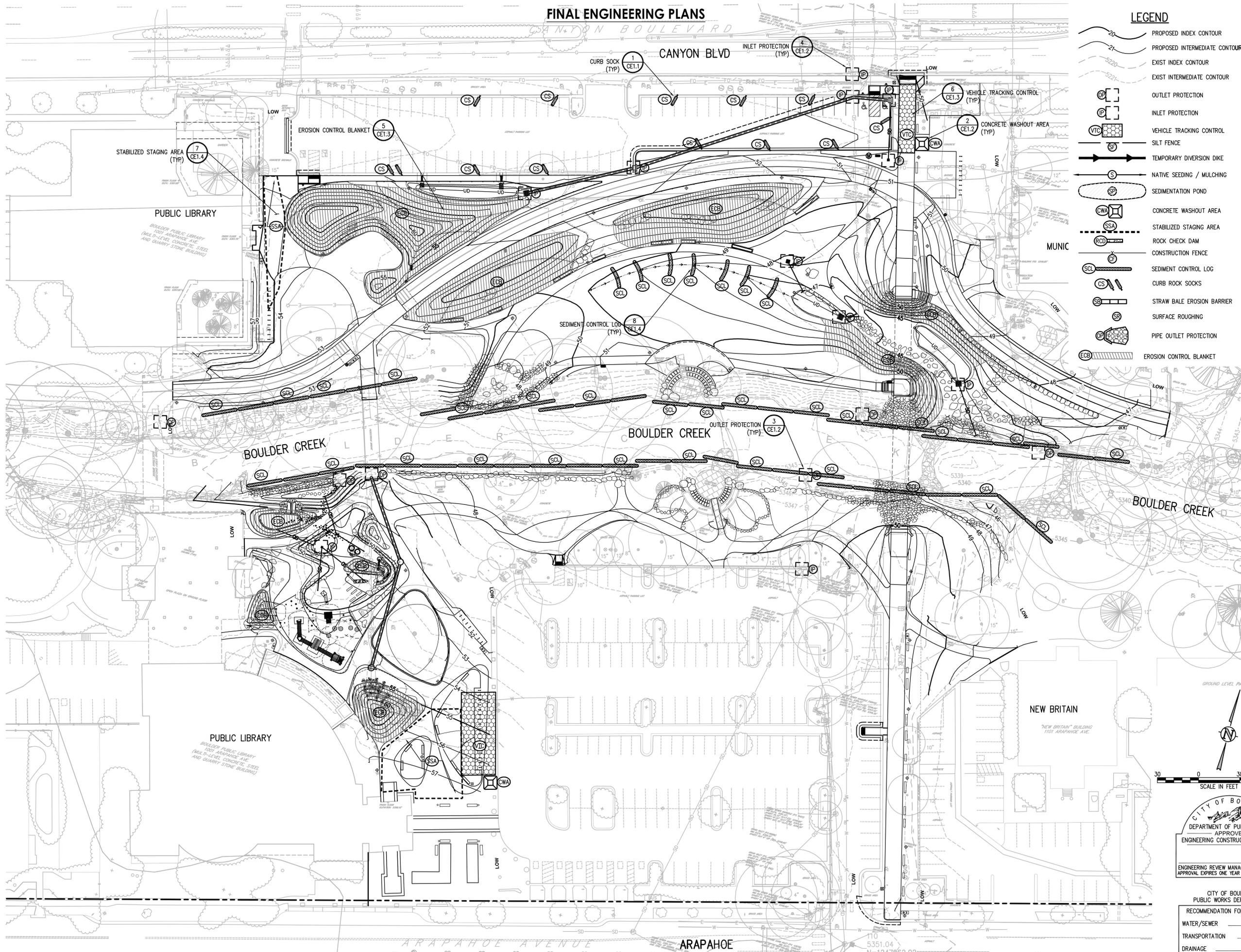
6. THE CONTRACTOR SHALL OBTAIN AND MAINTAIN A COMPLETE AND APPROVED SET OF CONSTRUCTION PLANS. THESE DRAWINGS, AND ANY REQUIRED PERMITS, SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE TO CITY STAFF UPON REQUEST. IF CONSTRUCTION PLANS ARE NOT READILY AVAILABLE AT THE PROJECT SITE, THE DIRECTOR OF PUBLIC WORKS MAY ISSUE A STOP WORK ORDER AND HALT ALL CONSTRUCTION ACTIVITIES PENDING COMPLIANCE BY THE CONTRACTOR.

7. THE CONTRACTOR AGREES TO COMPLY WITH THE PROVISIONS OF THE TRAFFIC CONTROL PLAN AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," "TEMPORARY TRAFFIC CONTROL," FOR CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL.

8. ALL SURPLUS MATERIALS, TOOLS, AND TEMPORARY STRUCTURES, FURNISHED BY THE CONTRACTOR, SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR. ALL DEBRIS AND RUBBISH CAUSED BY THE OPERATIONS OF THE CONTRACTOR SHALL BE REMOVED, AND THE AREA OCCUPIED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION, WITHIN 48 HOURS OF PROJECT COMPLETION, UNLESS OTHERWISE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS.

9. THE CONTRACT

FINAL ENGINEERING PLANS



LEGEND

- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- EXIST INDEX CONTOUR
- EXIST INTERMEDIATE CONTOUR
- OUTLET PROTECTION
- INLET PROTECTION
- VEHICLE TRACKING CONTROL
- SILT FENCE
- TEMPORARY DIVERSION DIKE
- NATIVE SEEDING / MULCHING
- SEDIMENTATION POND
- CONCRETE WASHOUT AREA
- STABILIZED STAGING AREA
- ROCK CHECK DAM
- CONSTRUCTION FENCE
- SEDIMENT CONTROL LOG
- CURB ROCK SOCKS
- STRAW BALE EROSION BARRIER
- SURFACE ROUGHING
- PIPE OUTLET PROTECTION
- EROSION CONTROL BLANKET

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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Boulder, CO 80302
Phone: 303.444.1951
Web: www.jva.com
CONSULTING ENGINEERS
e-mail: info@jva.com
JOB# 2300C

Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature

Key Plan



North



Scale:



CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING

ENGINEERING REVIEW MANAGER _____ DATE _____
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

Date
05.02.2016 SUBMITTAL

Phase
TECHNICAL DOCUMENTS

Case Number
TEC 2016XXXX

Drawing Title
EROSION CONTROL PLAN

Drawing Number

CE1.0

j:\2300C\Drawings\2300C - CE1.0.dwg, 4/28/2016 7:03:42 PM, sw, 1:1

STORMWATER MANAGEMENT PLAN (SWMP)

THIS STORMWATER MANAGEMENT PLAN IS TO BE RETAINED AND MAINTAINED ONSITE INCLUDING FINAL LANDSCAPING PLANS AND ANY OTHER EROSION CONTROL DOCUMENTATION. A SWMP ADMINISTRATOR WILL BE DESIGNATED BY THE CONTRACTOR AND IS RESPONSIBLE FOR DEVELOPING, IMPLEMENTING, MAINTAINING, AND REVISING THIS SWMP. THE SWMP ADMINISTRATOR IS THE CONTACT FOR ALL SWMP-RELATED ISSUES AND IS RESPONSIBLE FOR ITS ACCURACY, COMPLETENESS, AND IMPLEMENTATION. THE FOLLOWING HAS BEEN DESIGNATED AS THE SWMP ADMINISTRATOR FOR THIS PROJECT:

NAME: _____
 CONTACT INFO: _____

THE SITE IS LOCATED AT BETWEEN CANYON BOULEVARD AND ARAPAHOE AVENUE, AND AT APPROXIMATELY 40°53.95" LATITUDE, 105°16'50.59" LONGITUDE. THE PROPOSED PROJECT CONSISTS OF PARKING, OVERLOT GRADING, PAVING OF SIDEWALKS, PLAY AREAS, UTILITY INFRASTRUCTURE, AND MULTI-USE PATH CONSTRUCTION IN THE CITY OF BOULDER, CO. THE TOTAL SITE AREA AND TOTAL DISTURBANCE AREA IS APPROXIMATELY 4.3 ACRES WITH AT TOTAL DISTURBANCE OF 4.3 ACRES. NO AREAS GREATER THAN 40 ACRES SHALL BE DISTURBED AT ANY GIVEN TIME. NO CONSTRUCTION ACTIVITIES SHALL OCCUR OFFSITE OR OUTSIDE OF THE CONSTRUCTION LIMITS SHOWN ON THE CONSTRUCTION DOCUMENTS. THE SEQUENCE OF CONSTRUCTION STARTS IS AS FOLLOWS:

PHASE	ESTIMATED	ACTUAL
CONSTRUCTION START	AUGUST, 2016	_____
OVERLOT GRADING	AUGUST, 2016	_____
UTILITY CONSTRUCTION	SEPTEMBER, 2016	_____
	PAVING MARCH, 2017	_____
SITE RESTORATION	MAY, 2107	_____

THE EXISTING SITE CONSISTS OF BOTH DEVELOPED AND UNDEVELOPED LAND AND IS APPROXIMATELY 72% COVERED WITH VEGETATIVE GROUND COVER. THE ESTIMATED HISTORIC AND DEVELOPED RUNOFF COEFFICIENTS ARE .66 AND .68 RESPECTIVELY.

OFFSITE RUNOFF COMES FROM THE EXISTING PARKING LOT AND PART OF CANYON BOULEVARD, WHICH IS DIRECTED TO THE PROPOSED STORM SYSTEM. ONSITE DETENTION IS NOT PROVIDED. STORMWATER IS DISCHARGED FROM THIS SITE TO PROPOSED RAIN GARDENS AND ULTIMATELY OUTFALLS TO BOULDER CREEK. A DRAINAGE REPORT FOR THIS DEVELOPMENT HAS BEEN SUBMITTED TO THE ENGINEER CITY OF BOULDER.

OTHER POTENTIAL POLLUTION SOURCES SUCH AS VEHICLE FUELING, STORAGE OF FERTILIZER OR CHEMICALS, VEHICLE WASHING, WASTE INCINERATION, HAUL-ROADS, LOADING/ UNLOADING AREAS DO NOT EXIST AT THIS SITE. NON-STORMWATER COMPONENTS OF THE DISCHARGE, SUCH AS SPRINGS, LANDSCAPE IRRIGATION RETURN FLOW MAY BE LOCATED ONSITE.

BEST MANAGEMENT PRACTICES FOR STORMWATER MANAGEMENT
 NON STRUCTURAL BMPs WILL BE IMPLEMENTED TO THE MAXIMUM EXTENT POSSIBLE. THE UTILIZATION OF NON STRUCTURAL BMPs WILL BE AN ONGOING PROCESS DIRECTED AT PREVENTING EROSION. THE NON STRUCTURAL BMPs WILL RECEIVE CONTINUOUS EMPHASIS THROUGHOUT CONSTRUCTION BECAUSE THEY AVERT PROBLEMS BEFORE THEY OCCUR AND REDUCE THE NEED FOR STRUCTURAL BMPs. NON STRUCTURAL BMPs WILL CONSIST PRIMARILY OF PRESERVATION OF EXISTING MATURE VEGETATION AND TREES, PLANNING AND SCHEDULING CONSTRUCTION ACTIVITIES AIMED AT ACHIEVING THE GOAL OF MINIMIZING EROSION. FURTHERMORE, CONSTRUCTION PERSONNEL WILL BE INSTRUCTED AND SUPERVISED IN CONSTRUCTION METHODS CONSISTENT WITH EROSION PREVENTION PRACTICES.

PLANNED STRUCTURAL BMPs FOR EROSION AND SEDIMENT CONTROL ARE SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN. IMPLEMENTING THESE MEASURES SHOULD MINIMIZE NUISANCE SILT AND SEDIMENTATION EXITING THE SITE AND PREVENT CLOGGING EXISTING STORM SEWERS AND STREET GUTTERS.

APPLICATION OF THESE BMPs FOR STORMWATER MANAGEMENT ARE FOR CONSTRUCTION PERIODS AND ARE CONSIDERED TEMPORARY. POST-DEVELOPMENT STORMWATER MANAGEMENT IS PROVIDED THROUGH GRASSED SWALES, RIPRAP PROTECTION AND RAIN GARDENS.

VEHICLE TRACKING CONTROL (VTC):

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED AT ARAPAHOE AVE AND CANYON BLVD. THE CONSTRUCTION ACCESS AND PARKING WILL BE GRADED AND COVERED WITH A CRUSHED STONE BASE COURSE DURING CONSTRUCTION. THE VEHICLE TRACKING CONTROL WILL BE RELOCATED WITH THE CONSTRUCTION ACCESS AS NECESSARY.

INLET PROTECTION (IP):

THE INLET PROTECTION WILL BE INSTALLED AS THE STORM SEWER STRUCTURES ARE CONSTRUCTED. EACH INLET ON THE PROPOSED STORM SEWER SYSTEM WILL HAVE A TEMPORARY INLET SEDIMENT TRAP CONSTRUCTED AROUND IT. IN PAVED AREAS, THIS TRAP CONSISTS OF WIRE MESH SOCKS AND CONCRETE BLOCKS TO FILTER THE STORM RUNOFF AND ALLOW ANY SILT TO SETTLE OUT. IN FIELDS OR LANDSCAPED AREAS THIS TRAP CONSISTS OF WIRE MESH SOCKS.

OUTLET PROTECTION (OP):

THE STORM SEWER OUTLETS WILL BE PROTECTED WITH RIPRAP. PLACING RIPRAP AT PIPE OUTFALLS REDUCES EXIT VELOCITIES AND REDUCES SCOUR. THIS RIPRAP WILL BE LEFT IN PLACE AS PART OF THE PERMANENT STORMWATER MANAGEMENT PLAN.

OVERLOT GRADING:

ALL OPEN AREAS WILL BE TREATED WITHIN 14 DAYS OF COMPLETION OF THE OVERLOT GRADING. ALL OVERLOT GRADING IN THE NON-IRRIGATED AREAS WILL HAVE THE SURFACE ROUGHENED AND WILL BE PERMANENTLY LANDSCAPED OR TEMPORARILY SEEDED UNTIL THE PLANNED INSTALLATIONS ARE COMPLETED. AT THE COMPLETION OF THE MASS GRADING, ALL EXPOSED SOIL AREAS WILL HAVE THE SURFACE ROUGHENED AND PLANTED WITH A REVEGETATION SEED MIX. VEGETATION IS TO BE MAINTAINED THROUGHOUT CONSTRUCTION BY THE CONTRACTOR UNTIL AREAS ARE PERMANENTLY LANDSCAPED. ALTERNATELY, ROUGH-CUT DRIVEWAYS OR PROPOSED PAVED AREAS CAN BE COVERED WITH A LAYER OF AGGREGATE, ROAD BASE OR ASPHALT PAVING.

DUST CONTROL MEASURES:

DISTURBED AREAS NOT YET READY TO BE SEEDED, LANDSCAPES, PAVED, OR OTHERWISE STABILIZED SHALL BE WATERED, OR RIPPED AS NECESSARY TO PRECLUDE VISIBLE DUST EMISSIONS.

ITEMS ARE SCHEDULED TO BE IMPLEMENTED ACCORDING TO THE CONSTRUCTION SCHEDULE. AS WORK PROCEEDS, IMPLEMENTATION OF INDIVIDUAL BMPs IS TO COINCIDE WITH THE CONSTRUCTION THEREBY MINIMIZING THE EXPOSURE OF UNPROTECTED AREAS. THE SILT FENCE, INLET PROTECTION (FOR EXISTING INLETS), AND GRAVELING OF THE CONSTRUCTION ENTRANCE WILL BE PERFORMED WHEN THE GRADING BEGINS. THE INLET PROTECTION WILL BE INSTALLED AS THE STORM SEWER STRUCTURES ARE CONSTRUCTED. THE RIPRAP PROTECTION WILL BE INSTALLED AS THE STORM SEWER OUTFALLS OR CULVERTS ARE CONSTRUCTED. THE STRUCTURAL BMPs THAT DO NOT BECOME PART OF THE PERMANENT STORMWATER MANAGEMENT PLAN ARE TO BE REMOVED, AS THE PAVING, LANDSCAPING, AND OTHER PERMANENT GROUND COVER INSTALLATIONS ARE COMPLETED. FUGITIVE DUST EMISSIONS RESULTING FROM GRADING ACTIVITIES AND/OR WIND SHALL BE CONTROLLED USING THE BEST AVAILABLE CONTROL TECHNOLOGY AS DEFINED BY THE COLORADO DEPARTMENT OF HEALTH AT THE TIME OF GRADING. THE GRAVELING IS TO BE MAINTAINED AND EXTENDED CONSTRUCTION PROGRESSES ESPECIALLY AROUND THE BUILDING SITE. THE STRUCTURAL BMPs ARE TO BE REMOVED, AS THE PERMANENT LANDSCAPING INSTALLATIONS ARE COMPLETED.

THE EROSION AND SEDIMENT CONTROL PLAN MAY BE MODIFIED BY THE CITY OF BOULDER AS FIELD CONDITIONS WARRANT.

STORMWATER DETENTION AND WATER QUALITY:

NO STORMWATER DETENTION IS PROVIDED ONSITE. WATER QUALITY TREATMENT IS PROVIDED ONSITE IN THE PROPOSED RAIN GARDENS.

TEMPORARY SEEDING AND MULCHING:

ALL SEEDS FURNISHED SHALL BE FREE FROM NOXIOUS SEEDS (SUCH AS RUSSIAN OR CANADIAN THISTLE, COURSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAPWEED, AND LEAFY SPURGE. SEEDING RECOMMENDATIONS ARE PROVIDED BY LANDSCAPE ARCHITECT.

ALL SEEDS SHALL BE DRILLED NOT HYDROSEEDED. ALL DISTURBED AREAS SHALL BE SEEDED AND CRIMP MULCHED IF PERMANENT VEGETATION IS NOT IMMEDIATELY INSTALLED. AFTER SEEDING HAS BEEN COMPLETED, A RATE OF 4,000 LBS. OF STRAW PER ACRE SHALL BE APPLIED UNIFORMLY, CRIMPED IN WITH A CRIMPER OR OTHER APPROVED EQUIPMENT OR OTHERWISE ATTACHED. A TACKIFIER OR JUTE NETTING TO ATTACH MULCH MAY BE USED WITH THE OWNER'S APPROVAL. THE SEEDED AREA SHALL BE CRIMPED MULCHED AND THE MULCH ATTACHED WITHIN TWENTY-FOUR (24) HOURS AFTER SEEDING. AREAS NOT MULCHED AND ATTACHED WITHIN TWENTY-FOUR (24) HOURS AFTER SEEDING MUST BE RESEEDED WITH THE SPECIFIED MIX AT THE CONTRACTOR'S EXPENSE, PRIOR TO MULCHING AND ATTACHING. ON STEEP SLOPES OR OTHER SPECIFIED AREAS AS SHOWN ON THE PLANTING PLAN, WHICH ARE DIFFICULT TO MULCH AND ATTACH BY CONVENTIONAL METHOD, BURLAP OR OTHER BLANKETING MATERIALS PROPERLY ANCHORED AND SECURED MAY BE USED WHEN APPROVED BY THE LANDSCAPE ARCHITECT/ CITY OF BOULDER.

PERMANENT STABILIZATION MEASURES:

RIPRAP FOR STORM DRAIN OUTFALLS AND ROCK CHECK DAMS WILL BECOME PART OF THE PERMANENT STORMWATER MANAGEMENT PLAN AND WILL NOT BE REMOVED. PERMANENT LANDSCAPING WILL INCLUDE SODDING, SEEDING, TREES, SHRUBS, OR OTHER VEGETATIVE COVER TO OPEN AREAS. NATIVE PERENNIAL SEEDING WILL BE ESTABLISHED IN NON-IRRIGATED AREAS AND SOD OR OTHER VEGETATIVE COVER WILL BE ESTABLISHED IN IRRIGATED OPEN AREAS. ALL PERMANENT STABILIZATION MEASURES WILL BE SPECIFIED BY THE LANDSCAPE ARCHITECT OR CITY OF BOULDER.

MATERIALS AND SPILL PREVENTION:

THE CONTRACTOR WILL STORE CONSTRUCTION MATERIALS AND EQUIPMENT IN CONFINED AREAS ON SITE FROM WHICH RUNOFF WILL BE CONTAINED AND FILTERED AND AWAY FROM THE FLOODPLAIN. MATERIALS WILL BE STORED OFF THE GROUND AND PROTECTED FROM THE WEATHER BY A COVER OR STORED IN A CONTAINER SUCH AS A VAN OR TRAILER. EQUIPMENT MAINTENANCE WILL BE PERFORMED IN A DESIGNATED AREA AND STANDARD MAINTENANCE PROCEDURES, SUCH AS THE USE OF DRIP PANS, WILL BE USED TO CONTAIN PETROLEUM PRODUCTS.

INSPECTION AND MAINTENANCE:

THE EROSION CONTROL MEASURES WILL BE INSPECTED DAILY DURING CONSTRUCTION BY THE CONTRACTOR AND AFTER EACH RAIN EVENT. ALL INSPECTIONS SHALL BE DOCUMENTED AND SHALL INCLUDE THE DATE OF INSPECTION, ANY INCIDENCE OF NON-COMPLIANCE, SIGNED CERTIFICATION THAT THE SITE IS IN COMPLIANCE, AND ANY NOTES, DRAWINGS, MAPS, ETC. PERTAINING TO REPAIRS. COPIES OF ALL DOCUMENTATION SHALL BE DISTRIBUTED TO MUNICIPALITIES AND OWNER ON A REGULAR BASIS AS SPECIFIED BY OWNER. STRAW BALE BARRIERS WILL BE CHECKED FOR UNDERMINING AND BYPASS AND REPAIRED OR EXPANDED AS NEEDED. SEDIMENT SHOULD BE REMOVED FROM INLET FILTERS BEFORE ONE HALF OF THE DESIGN DEPTH HAS BEEN FILLED. SEDIMENTS DEPOSITED IN THE PUBLIC RIGHTS-OF-WAY WILL BE REMOVED IMMEDIATELY. THE TEMPORARY VEGETATION OF BARE SOILS WILL BE CHECKED REGULARLY AND AREAS WHERE IT IS LOST OR DAMAGED WILL BE RESEEDED. AT MINIMUM THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL BMPs EVERY 14 DAYS AND AFTER SIGNIFICANT PRECIPITATION OR SNOWMELT EVENTS. INSTALLATIONS AND MODIFICATIONS AS REQUIRED BY THE CITY OF BOULDER WILL BE IMPLEMENTED WITHIN 48 HOURS OF NOTIFICATION. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AND REPAIR AREAS AS REQUIRED AFTER VEGETATION IS ESTABLISHED AND ACCEPTED BY OWNER AND MUNICIPALITY.

FINAL STABILIZATION AND LONG-TERM STORMWATER QUALITY:

FINAL STABILIZATION IS REACHED WHEN ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH A DENSITY OF AT LEAST 70% OR PRE-DISTURBANCE LEVELS OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED. FINAL STABILIZATION WILL BE ACHIEVED USING SOD, NATIVE SEEDING, PERMANENT BMPs, AND OTHER METHODS. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL STABILIZATION REGARDLESS OF ACCEPTANCE BY OWNER OF THE CONTRACTOR ITEM.

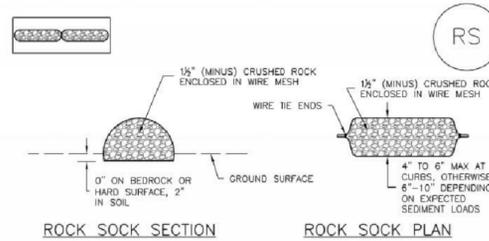
FINAL ENGINEERING PLANS

SC-5

Rock Sock (RS)

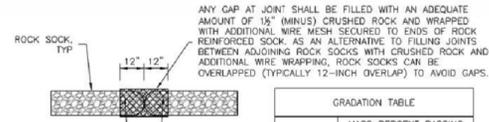
Rock Sock (RS)

SC-5



ROCK SOCK SECTION

ROCK SOCK PLAN



ROCK SOCK JOINTING

GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
NO. 4	
2"	100
1 1/2"	90 - 100
1"	20 - 55
3/4"	0 - 15
5/8"	0 - 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M4.3. ALL ROCK SHALL BE FRACTURED FACE. ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

- SEE PLAN VIEW FOR:
-LOCATION(S) OF ROCK SOCKS.
- CRUSHED ROCK SHALL BE 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1/2" MINUS).
- WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1/2", RECOMMENDED MINIMUM ROLL WIDTH OF 48"
- WIRE MESH SHALL BE SECURED USING "HOC RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
- SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL



CS

CURB SOCK DETAIL

1
CE1.0

10 UNITS PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD)

ROCK SOCK MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
- SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE ROCK SOCK.
- ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
 NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

CIVIC AREA
 PARK
 DEVELOPMENT
 PLAN
 Boulder, CO



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CONSULTING ENGINEERS

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Date	Issuance	By	Check
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11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature

Key Plan



North



Scale:

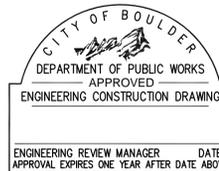
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 05.02.2016 SUBMITTAL
 Phase
 TECHNICAL DOCUMENTS
 Case Number
 TEC 2016XXXX

Drawing Title

SWMP & EROSION CONTROL
 DETAILS

Drawing Number

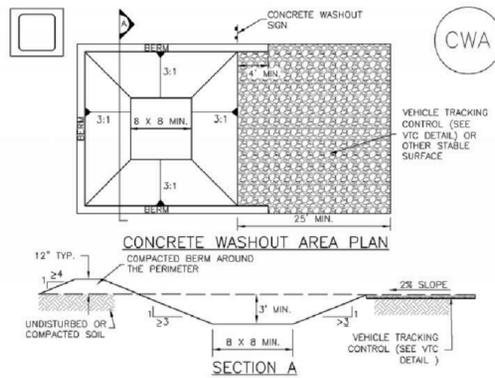
CE1.1



CITY OF BOULDER
 PUBLIC WORKS DEPARTMENT
 RECOMMENDATION FOR APPROVAL
 WATER/SEWER _____
 TRANSPORTATION _____
 DRAINAGE _____

FINAL ENGINEERING PLANS

Concrete Washout Area (CWA) MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (1/8 MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 12".
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA INSTALLATION PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) DISTRICT (UDFCD) **CE1.0**

Concrete Washout Area (CWA) MM-1

CWA MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
 - CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
 - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
 - WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Temporary Outlet Protection (TOP) EC-8

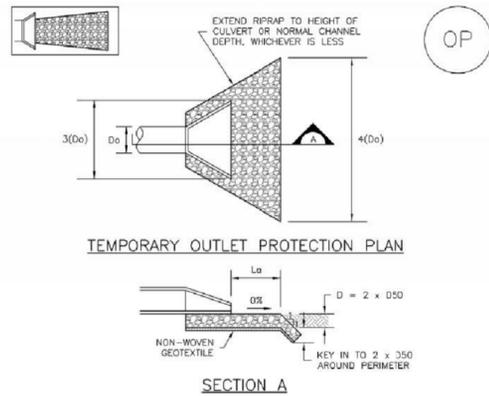


TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, La (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
	10	10	6
18	20	16	9
	30	23	12
	40	26	16
	60	30	18
24	30	16	9
	40	26	9
	50	26	12

OP-1. TEMPORARY OUTLET PROTECTION

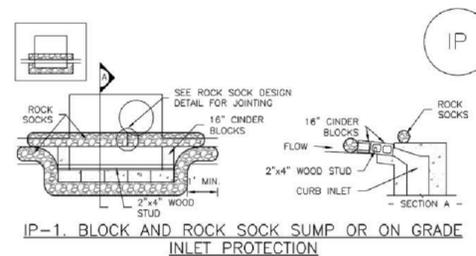
OP INSTALLATION PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) **CE1.0**

Temporary Outlet Protection (TOP) EC-8

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR: -LOCATION OF OUTLET PROTECTION. -DIMENSIONS OF OUTLET PROTECTION.
 - DETAIL IS INTENDED FOR PIPES WITH SLOPE \leq 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.
 - TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.
- TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)

Inlet Protection (IP) SC-6

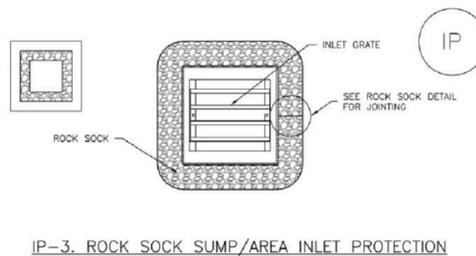


BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
- GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.

- SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
- PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
- SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
- AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

Inlet Protection (IP) SC-6

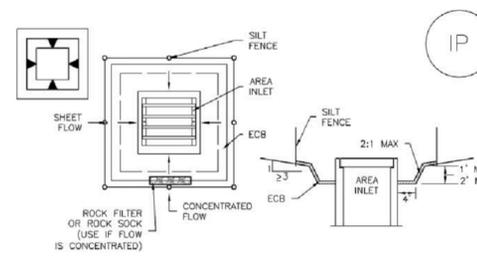


ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

- SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
- STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

Inlet Protection (IP) SC-6



OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

- THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.
- WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
- SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.

- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

Inlet Protection (IP) SC-6

GENERAL INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR: -LOCATION OF INLET PROTECTION. -TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)
 - INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
 - MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- INLET PROTECTION MAINTENANCE NOTES
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY. A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
 - INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
 - WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDS AND MULCH, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

IP INSTALLATION PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) **CE1.0**

CIVIC AREA PARK DEVELOPMENT PLAN
Boulder, CO



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(TECH DOC 01)

Seal/Signature

Key Plan



North



Scale:

Date

05.02.2016 SUBMITTAL

Phase

TECHNICAL DOCUMENTS

Case Number

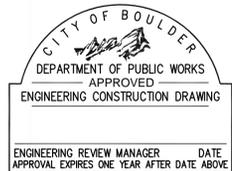
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Drawing Title

EROSION CONTROL DETAILS

Drawing Number

CE1.2



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

WATER/SEWER _____

TRANSPORTATION _____

DRAINAGE _____

FINAL ENGINEERING PLANS

EC-6 Rolled Erosion Control Products (RECP)

Rolled Erosion Control Products (RECP)

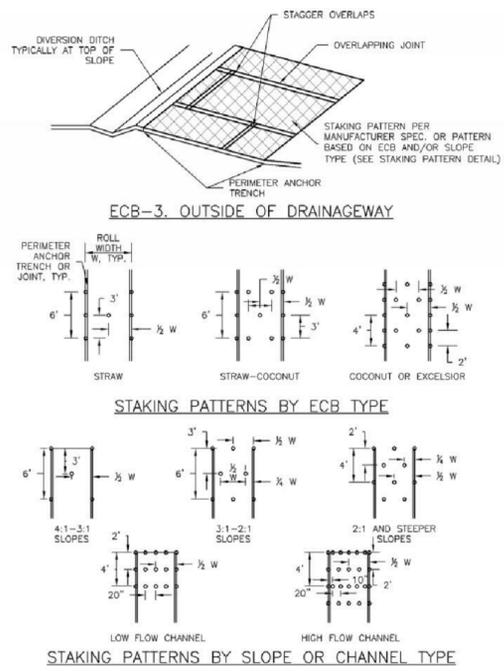
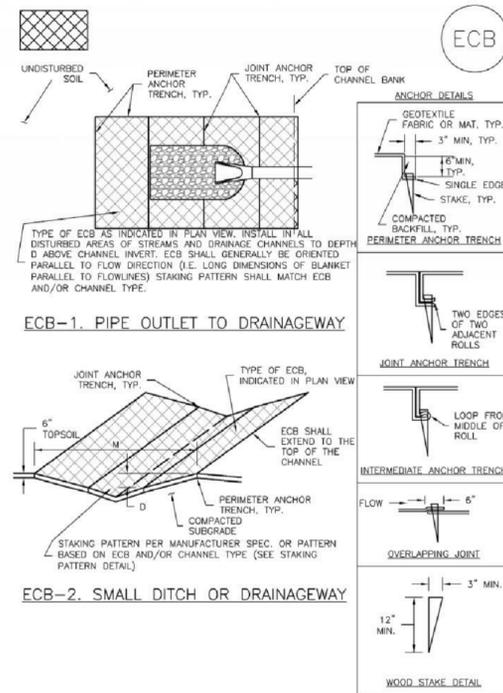
EC-6

EC-6

Rolled Erosion Control Products (RECP)

Rolled Erosion Control Products (RECP)

EC-6



EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOST PRIORITY TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

EROSION CONTROL BLANKET MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
 - ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PRIMER COLORADO, NOT AVAILABLE IN AUTOCAD)

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING*
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCOONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREETS AND DRAINAGE CHANNELS.
*MULTIWEAVE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

EROSION CONTROL BLANKET DETAIL

PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD)

Vehicle Tracking Control (VTC)

SM-4

SM-4

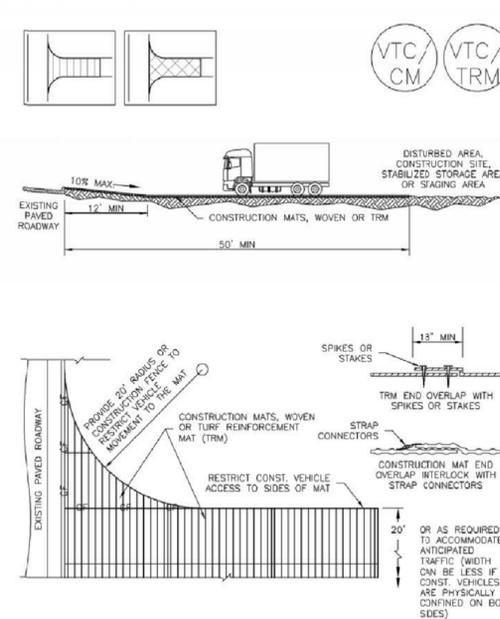
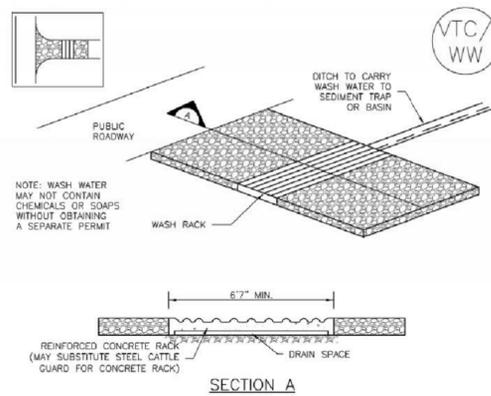
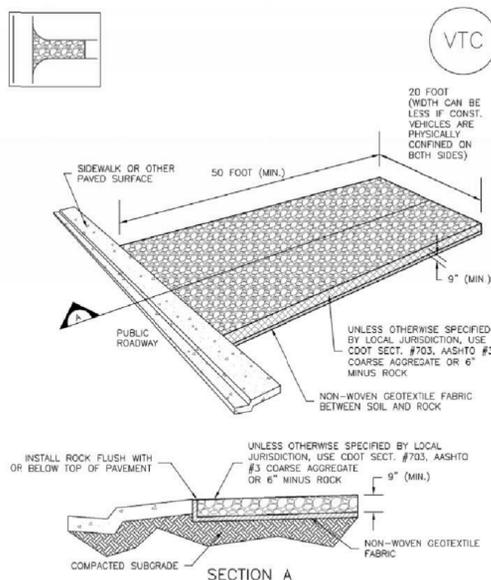
Vehicle Tracking Control (VTC)

Vehicle Tracking Control (VTC)

SM-4

SM-4

Vehicle Tracking Control (VTC)



STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
- CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

VEHICLE TRACKING CONTROL DETAIL

PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD)

CIVIC AREA PARK DEVELOPMENT PLAN

Boulder, CO



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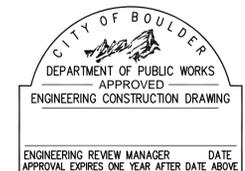
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Case Number
TEC.2016XXXX

Drawing Title

EROSION CONTROL DETAILS

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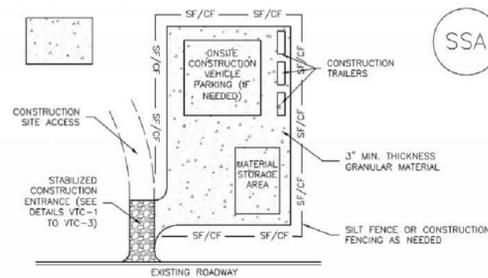
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CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

FINAL ENGINEERING PLANS

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

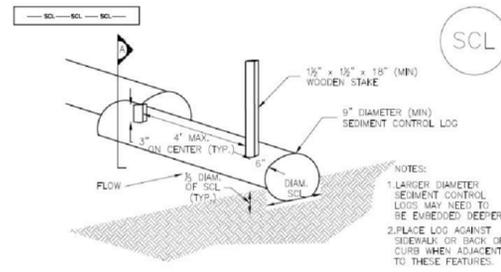
NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

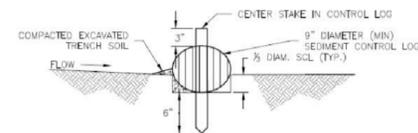
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)



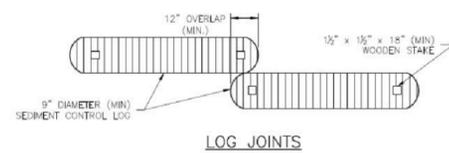
Sediment Control Log (SCL) SC-2



TRENCHED SEDIMENT CONTROL LOG

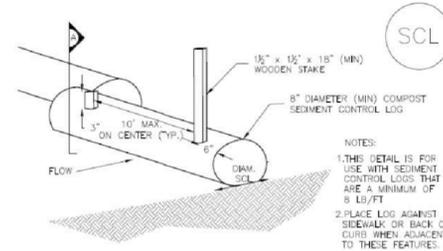


SECTION A
TRENCHED SEDIMENT CONTROL LOG

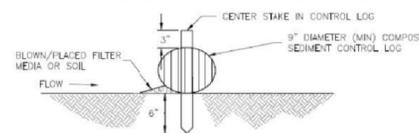


SCL-1. TRENCHED SEDIMENT CONTROL LOG

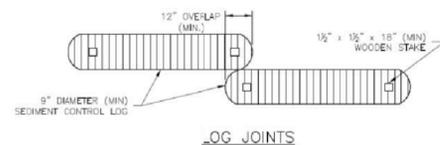
SC-2 Sediment Control Log (SCL)



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SECTION A
COMPOST SEDIMENT CONTROL LOG



SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SC-2 Sediment Control Log (SCL)

SEDIMENT CONTROL LOG INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
- SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPRADIENT LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
- IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
- THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
- FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED, IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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e-mail: info@jva.com
JOB# 2300C

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03.07.2016	50% CD		
05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature

Key Plan



North



Scale:

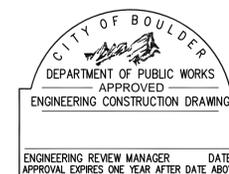
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05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC.2016XXXX

Drawing Title

EROSION CONTROL DETAILS

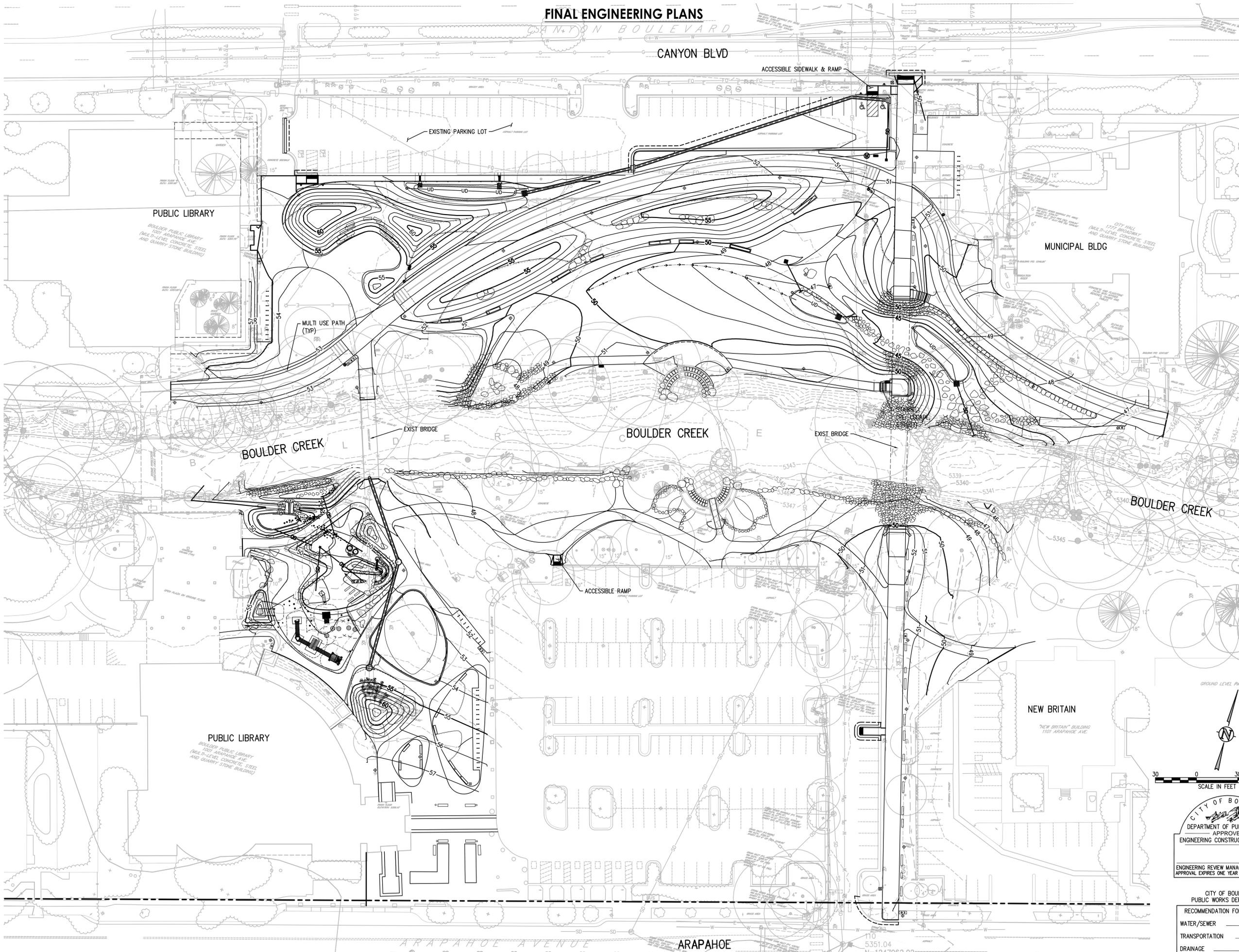
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CE1.4



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

FINAL ENGINEERING PLANS



**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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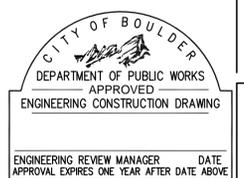
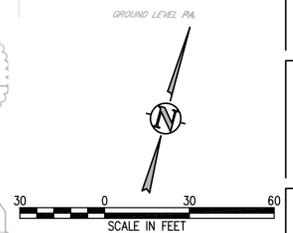
Key Plan



North



Scale:



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

Date
05.02.2016 SUBMITTAL
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Case Number
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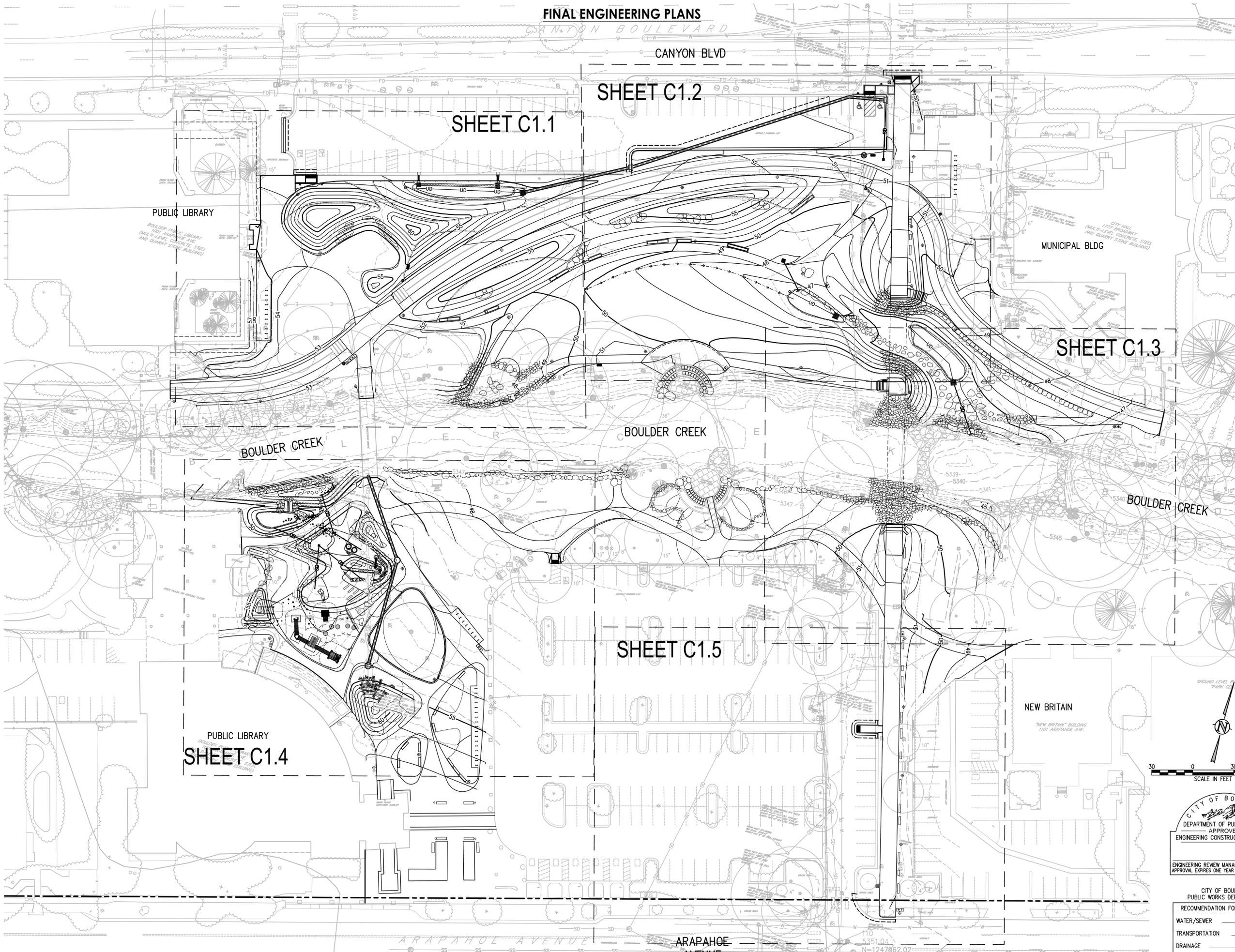
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OVERALL GRADING PLAN

Drawing Number

C1.0A

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FINAL ENGINEERING PLANS



**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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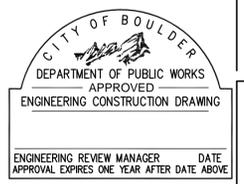
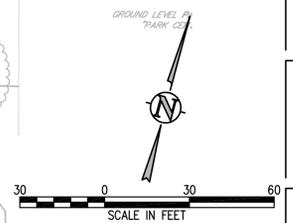
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North



Scale:



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

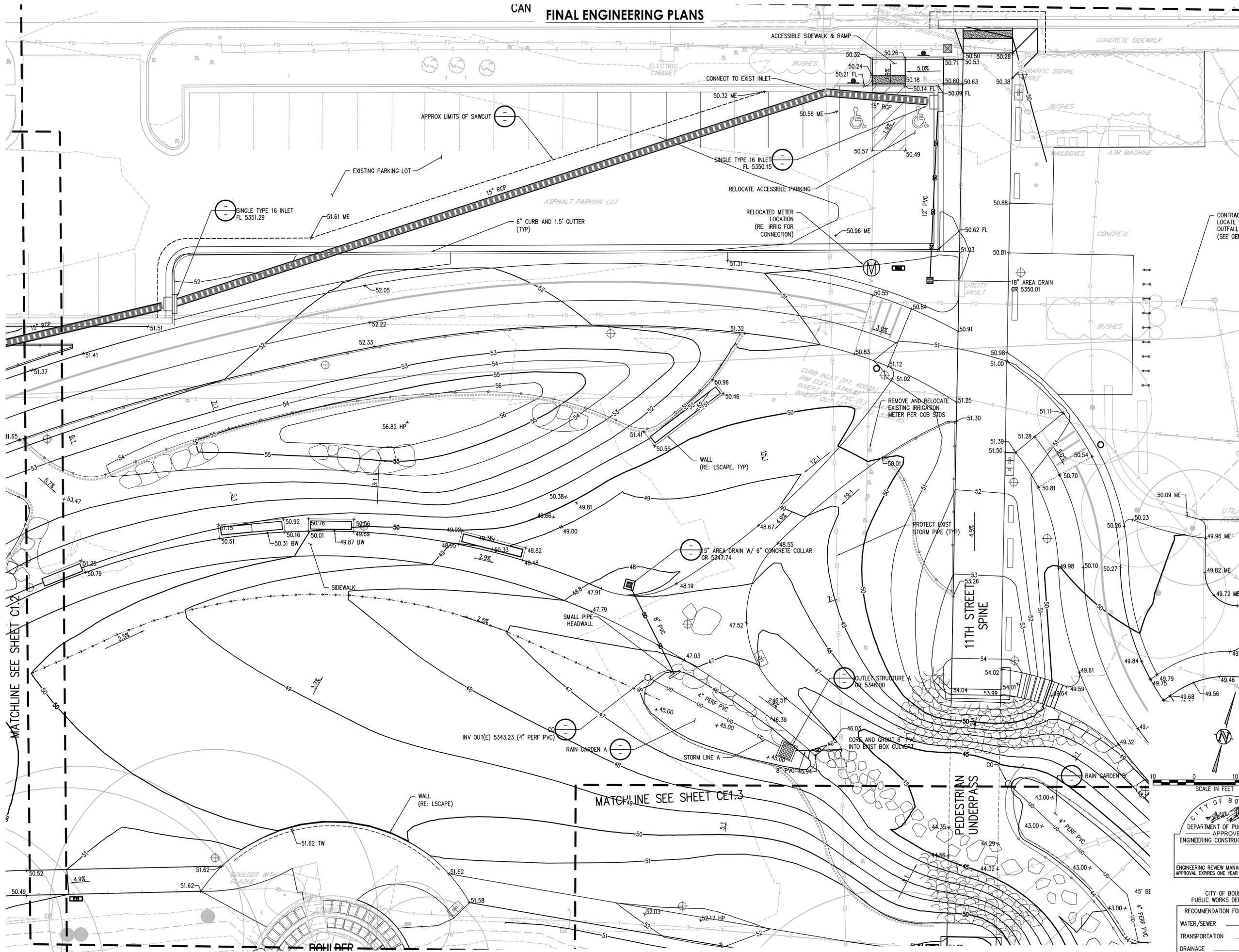
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OVERALL GRADING &
DRAINAGE REFERENCE
PLAN

Drawing Number

C1.0

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CAN FINAL ENGINEERING PLANS



**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



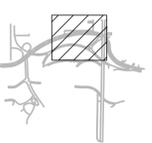
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	(TECH DOC 01)		

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Key Plan



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TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING

ENGINEERING REVIEW MANAGER DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

Drawing Title
DETAILED GRADING PLAN

CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

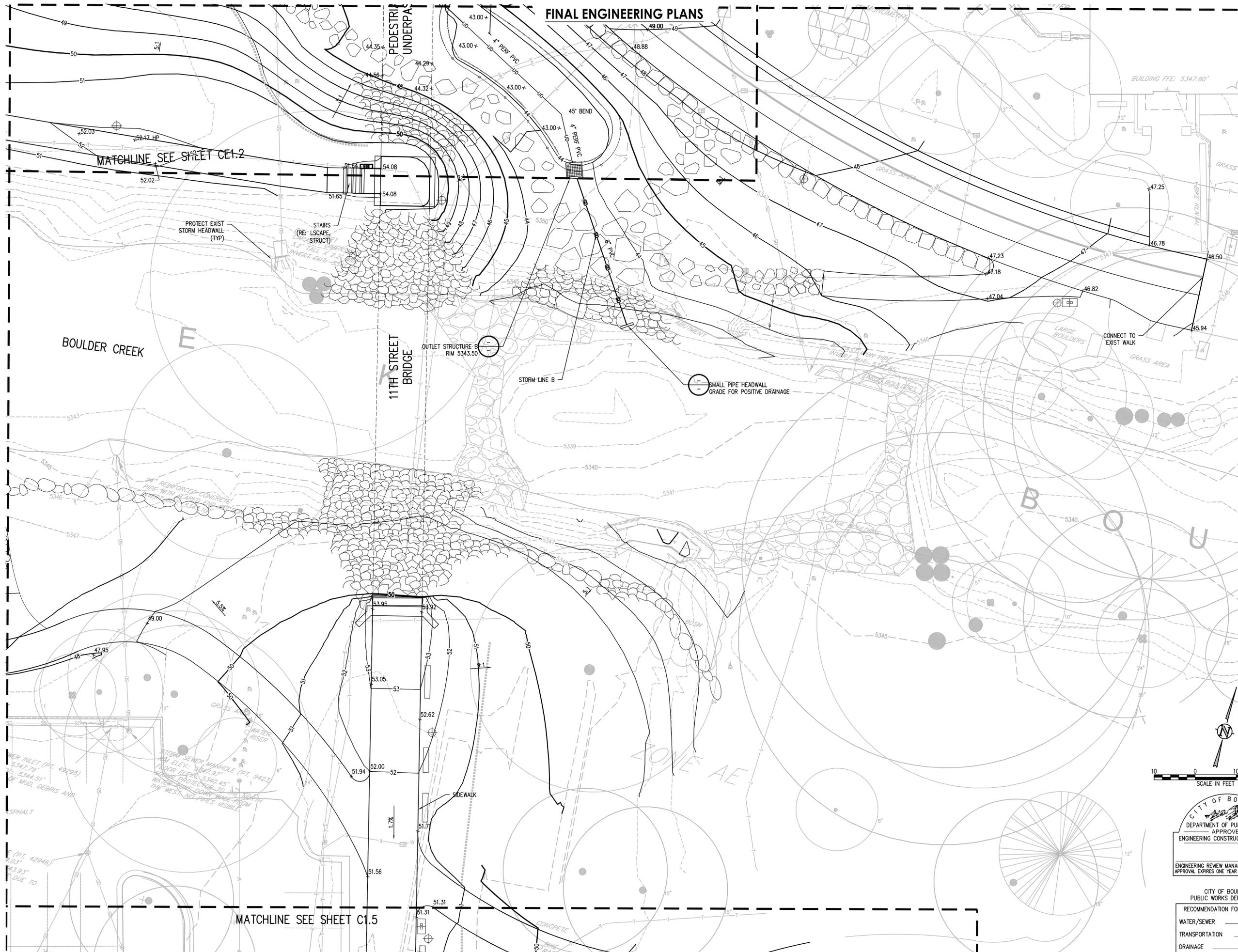
RECOMMENDATION FOR APPROVAL

WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

Drawing Number

C1.2

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FINAL ENGINEERING PLANS

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO

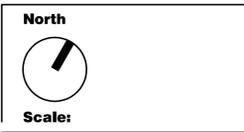
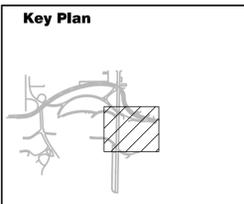


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CITY OF BOULDER
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RECOMMENDATION FOR APPROVAL

WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

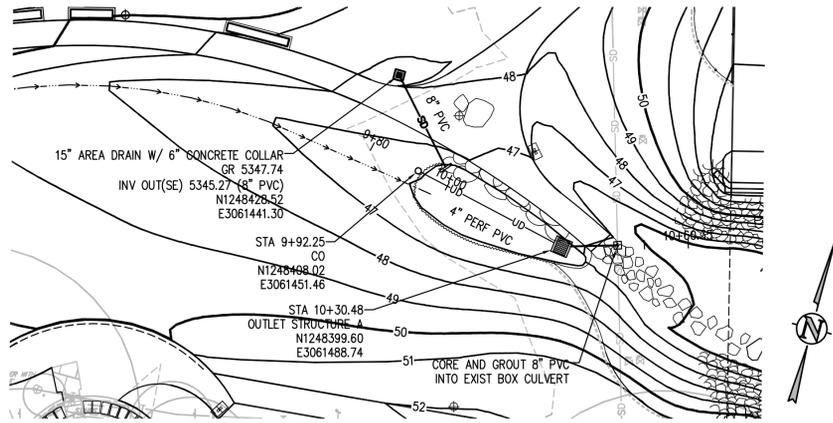
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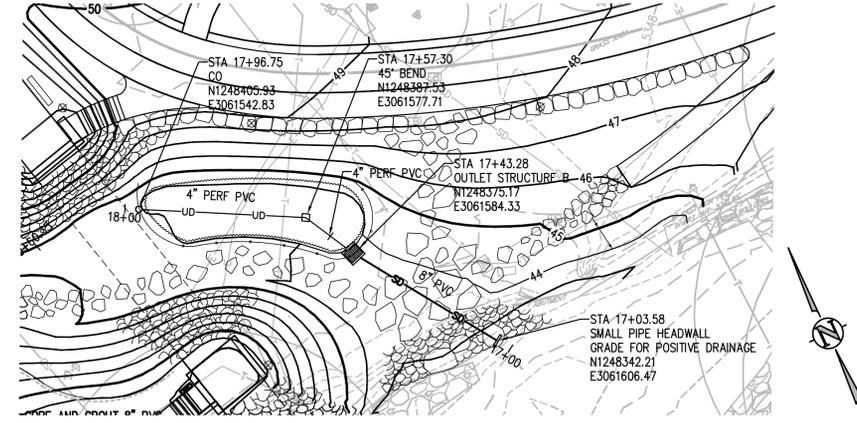
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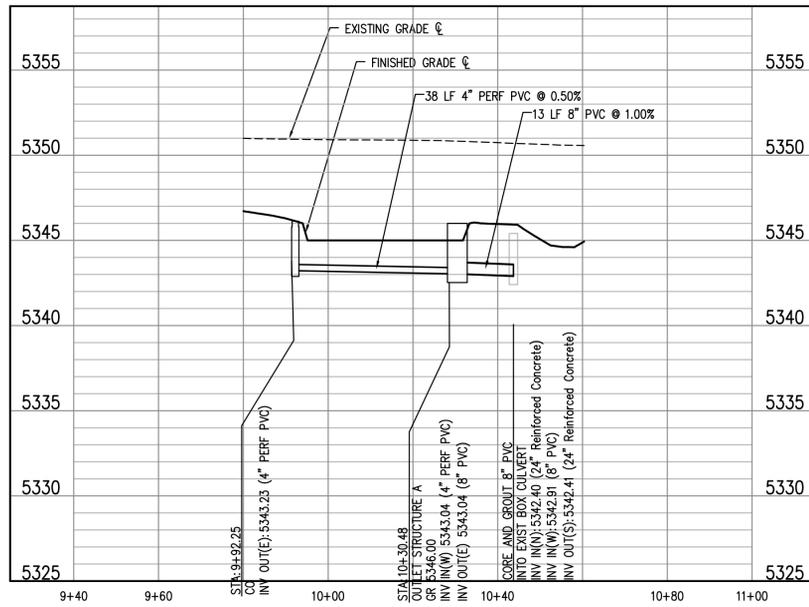
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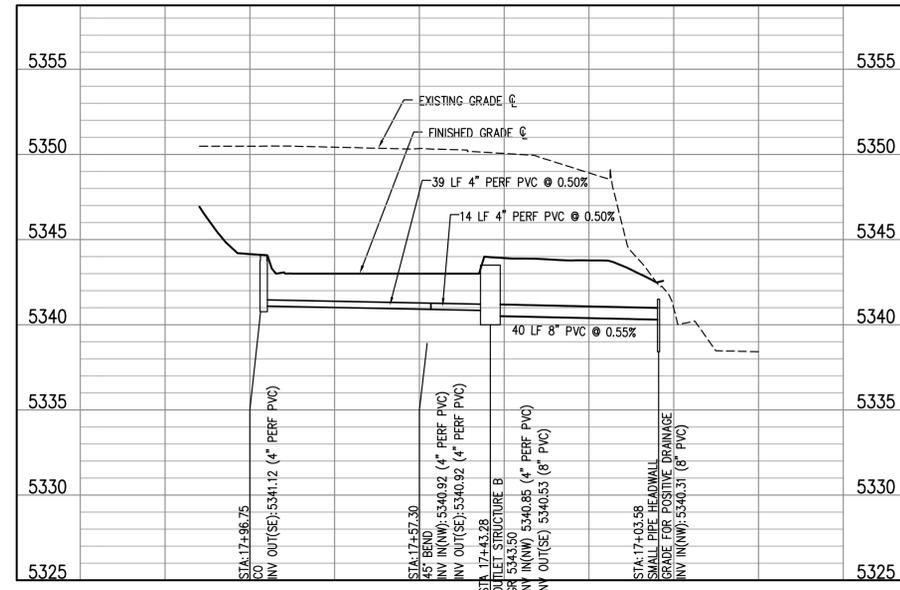
STORM LINE A PLAN
SCALE: 1"=20'



STORM LINE B PLAN
SCALE: 1"=20'



STORM LINE A PROFILE
SCALE: 1"=20' HORIZ
1"=5' VERT



STORM LINE B PROFILE
SCALE: 1"=20' HORIZ
1"=5' VERT

CIVIC AREA
PARK
DEVELOPMENT
PLAN
Boulder, CO



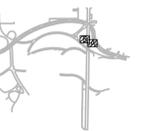
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05.02.2016	90% CD		
	(TECH DOC 01)		

Seal/Signature

Key Plan



North



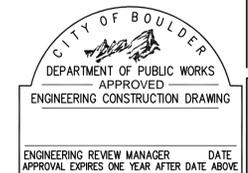
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Date
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Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

Drawing Title
STORM PLAN & PROFILE

Drawing Number

C1.6



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

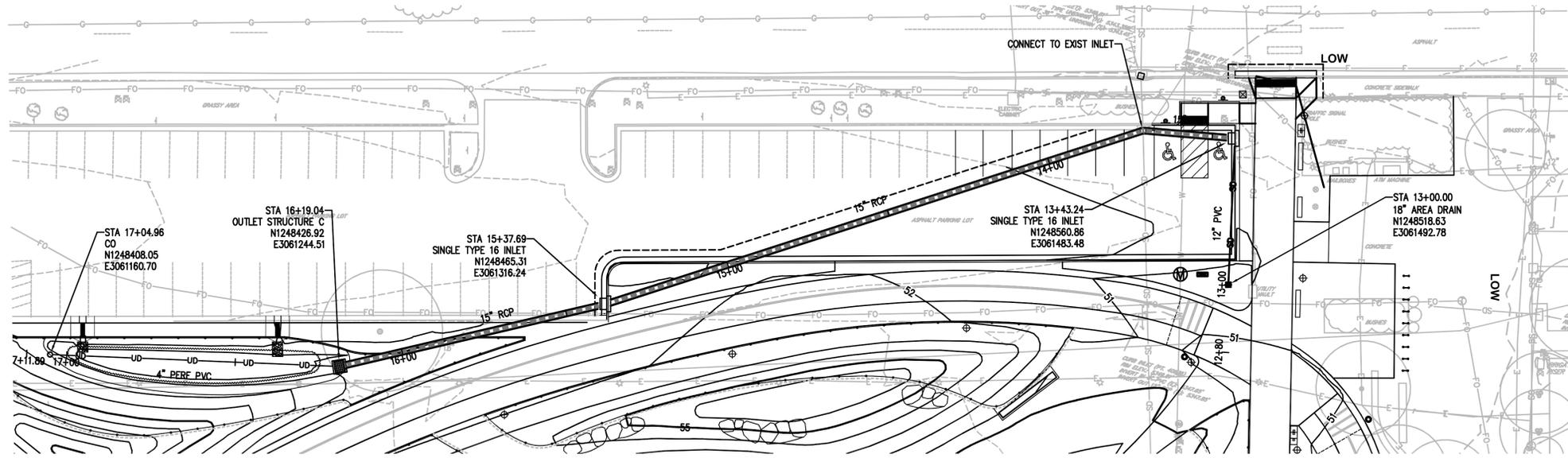
RECOMMENDATION FOR APPROVAL

WATER/SEWER _____

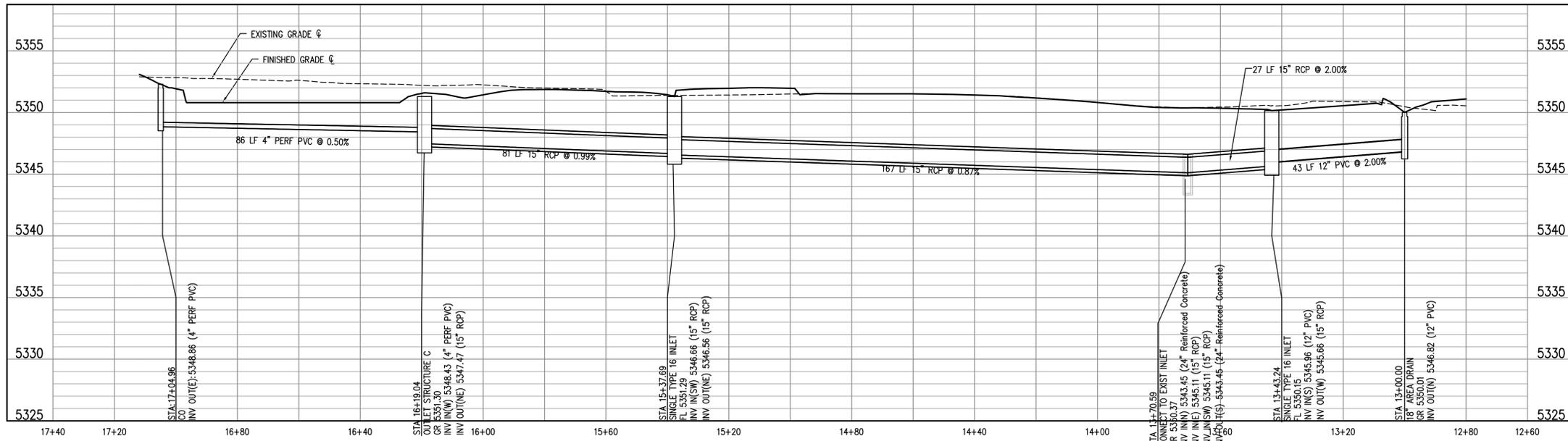
TRANSPORTATION _____

DRAINAGE _____

FINAL ENGINEERING PLANS



STORM LINE C PLAN
SCALE: 1"=20'



STORM LINE C PROFILE
SCALE: 1"=20' HORIZ
1"=5' VERT

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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Key Plan



North



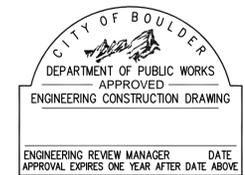
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Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

Drawing Title
STORM PLAN & PROFILE

Drawing Number

C1.7



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

FINAL ENGINEERING PLANS

ALLOWED WITH RCP

REQUIRED WITH ALL PIPE EXCEPT RCP
(MAY BE USED WITH RCP AT CONTRACTOR'S OPTION)

DRAWN BY: JSH
CHECKED BY: RJH
APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO

PIPE BEDDING

ISSUED: JULY 2, 1998
REVISED: OCT. 17, 2000

DRAWING NO. 4.03

PIPE BEDDING DETAIL 1
NTS C1.0

TOE POCKET DETAILS

LARGEST PIPE ID	REQ'D MH ID	CONE REQUIRED
<24"	48"	4"x2" ECCENTRIC CONE
27" - 36"	60"	5"x2" ECCENTRIC CONE
42" - 48"	72"	6"x2" REDUCER AND 5"x2" ECCENTRIC CONE
54" & LARGER	SPECIAL DETAIL	

DRAWN BY: JSH
CHECKED BY: RJH
APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO

STORM SEWER MANHOLE

ISSUED: JULY 2, 1998
REVISED: OCT. 17, 2000

DRAWING NO. 7.01

STORM SEWER MANHOLE DETAIL 2
NTS C1.4

DRAWN BY: JSH
CHECKED BY: RJH
APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO

STORM SEWER MANHOLE BASE

ISSUED: JULY 2, 1998
REVISED: OCT. 17, 2000

DRAWING NO. 7.02

STORM SEWER MANHOLE BASE DETAIL 3
NTS C1.2

DRAWN BY: JSH
CHECKED BY: RJH
APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO

FLAT TOP FOR FOR SHALLOW MANHOLES LESS THAN 6' IN HEIGHT

ISSUED: JULY 2, 1998
REVISED: OCT. 17, 2000

DRAWING NO. 7.03

FLAT TOP DETAIL 4
NTS C1.2

DRAWN BY: JSH
CHECKED BY: RJH
APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO

DOUBLE NO. 16 OPEN THROAT INLET ADJUSTABLE CURB BOX

ISSUED: JULY 2, 1998
REVISED: OCT. 17, 2000

DRAWING NO. 7.05B

DOUBLE NO. 16 OPEN THROAT INLET DETAIL 5
NTS C1.1

DRAWN BY: CSM
CHECKED BY: RJH
APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO

DOUBLE NO. 16 INLET GRATE AND FRAME ADJUSTABLE CURB BOX

ISSUED: JULY 2, 1998
REVISED: OCT. 17, 2000

DRAWING NO. 7.07

DOUBLE NO. 16 INLET GRATE AND FRAME DETAIL 6
NTS C1.1

CIVIC AREA PARK DEVELOPMENT PLAN
Boulder, CO



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01.08.2016	50% DD		
01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		

Seal/Signature

Key Plan



North



Scale:

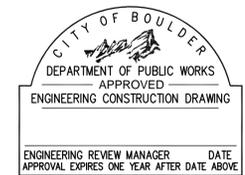
Date: 05.02.2016 SUBMITTAL
Phase: TECHNICAL DOCUMENTS
Case Number: TEC 2016XXXX

Drawing Title

GRADING AND DRAINAGE DETAILS

Drawing Number

CD1.0



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

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Date	Issuance	By	Check
11.13.2015	100% SD		
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01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		

(TECH DOC 01)

Seal/Signature

Key Plan



North

Scale:

Date
05.02.2016 SUBMITTAL

Phase
TECHNICAL DOCUMENTS

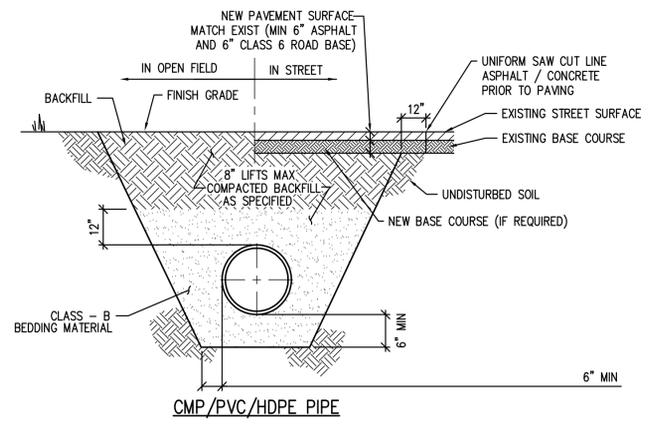
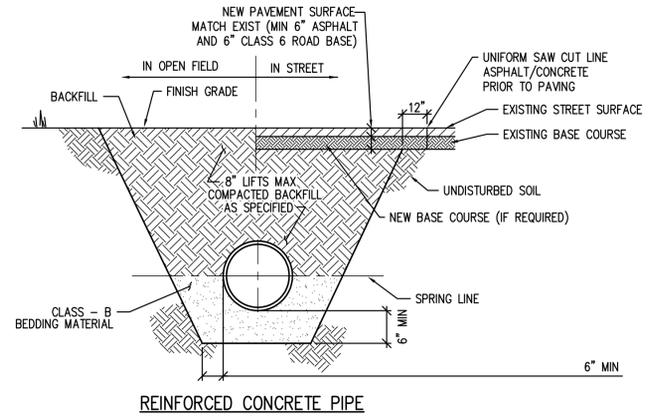
Case Number
TEC.2016XXXX

Drawing Title
GRADING AND DRAINAGE DETAILS

Drawing Number

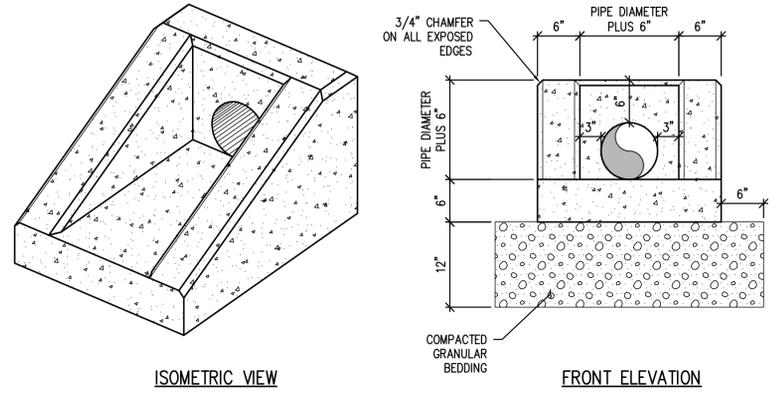
CD1.1

FINAL ENGINEERING PLANS



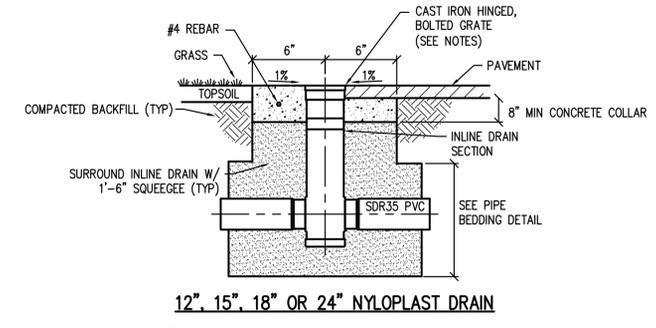
- NOTES:**
- IF UNSTABLE MATERIALS ARE FOUND IN TRENCH, OVEREXCAVATE PER SPECIFICATIONS OR AS REQUIRED.
 - TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKERS AND THE PROTECTION OF OTHER UTILITIES.
 - MINIMUM COVER IS 18" BELOW FINISHED GRADE.

STORM SEWER PIPE BEDDING DETAIL
NTS



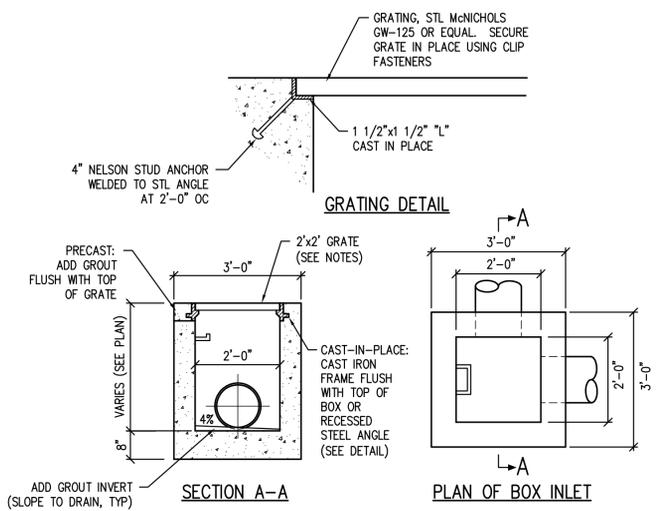
- NOTES:**
- COMPACT SUBGRADE PER SPECIFICATIONS
 - 3/4" CHAMFER ON ALL EXPOSED EDGES
 - ALL CONCRETE TO BE FIBER REINFORCED PER SPECIFICATIONS.

SMALL PIPE HEADWALL DETAIL
NTS



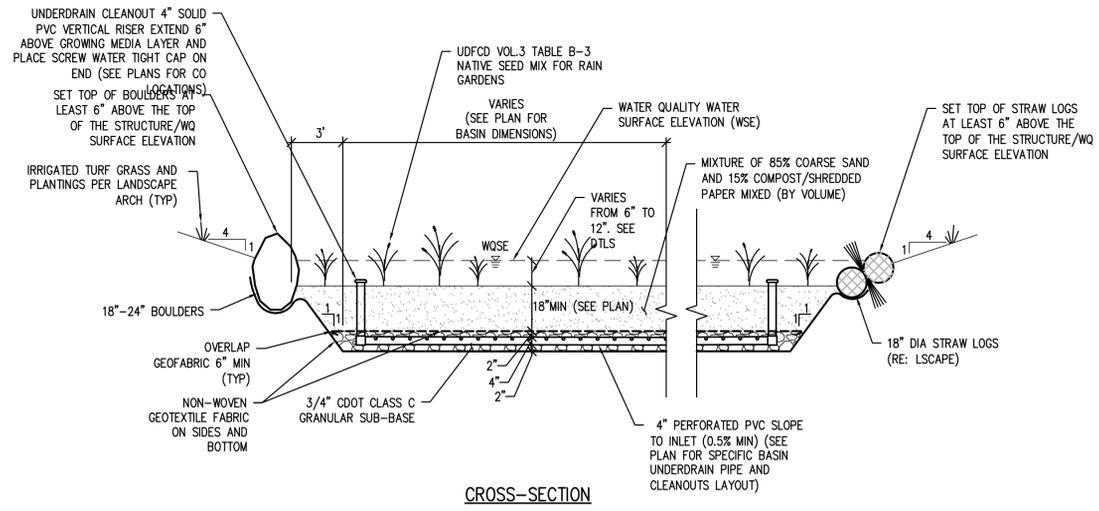
- NOTES:**
- AREA DRAIN COVER TO BE NYLOPLAST 10CAST HS-20 RATED HINGED GRATE OR APPROVED EQUAL IN TRAFFIC AREAS.
 - AREA DRAIN INLETS IN PEDESTRIAN AREAS SHALL BE INSTALLED WITH PEDESTRIAN RATED GRATES (1/4" MAX OPENING, TYPICAL).

AREA DRAIN DETAIL
NTS



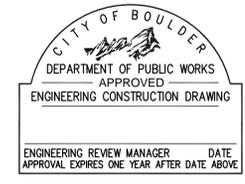
- NOTES:**
- CONCRETE SHALL BE CDOT CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST AND SHALL CONFORM TO ASTM C478. PRECAST BOX IS SHOWN.
 - CAST-IN-PLACE CONCRETE WALLS SHALL BE 6" MIN THICKNESS WITH 3/4" CHAMFERED EDGES.
 - ALL WALLS AND BASE SHALL BE REINFORCED WITH #4'S @ 8" OC EACH WAY. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2" MIN CLEARANCE.
 - WHERE INLET IS INSTALLED IN TRAFFIC AREAS, ALL GRATES AND FRAMES SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO CDOT 712.06. GRATES AND FRAMES SHALL BE DESIGNED TO WITHSTAND HS20 LOADING.
 - USE AMCOR 7202410 OR NEENAH 3402E CAST GRATING OR ACCEPTED SUBSTITUTE.
 - SEE PLAN FOR LOCATION AND SIZE OF PIPE. WHERE INLET IS INSTALLED IN PEDESTRIAN AREAS, A PEDESTRIAN/ADA GRATE SHALL BE USED (MAX 1/4" OPEN SPACING, IRONSMITH GRAY CAST GRATE 9032DR-24, McNICHOLS GCM-1-125 METAL BAR GRATING W/ CLIPS, OR ACCEPTED SUBSTITUTE)
 - WHEN BITUMINOUS MATERIAL IS TO EXTEND TO THE EDGE OF THE GRATING FRAME, CONCRETE MAY BE DEPRESS.
 - PROVIDED EMBEDDED PLASTIC LADDER STEPS AT 18" VERTICAL SPACING FOR INLETS DEEPER THAN 4". SEE PLASTIC STEP DETAIL.

2'x2' FIELD INLET DETAIL
NTS



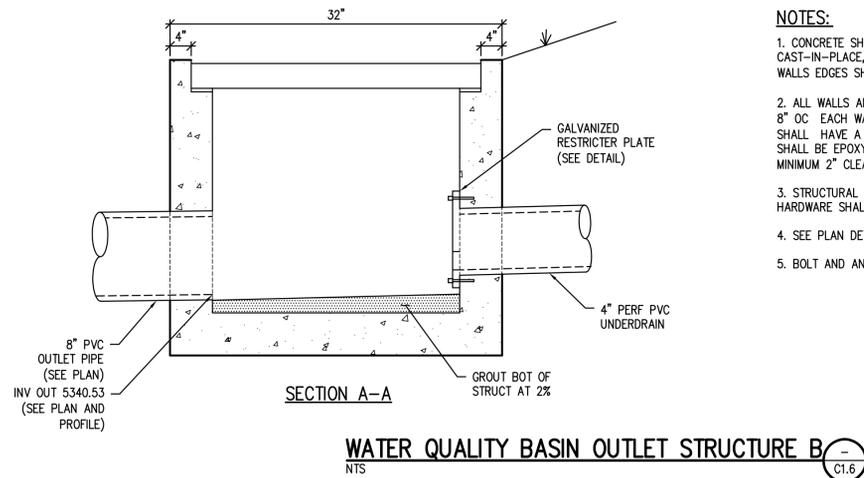
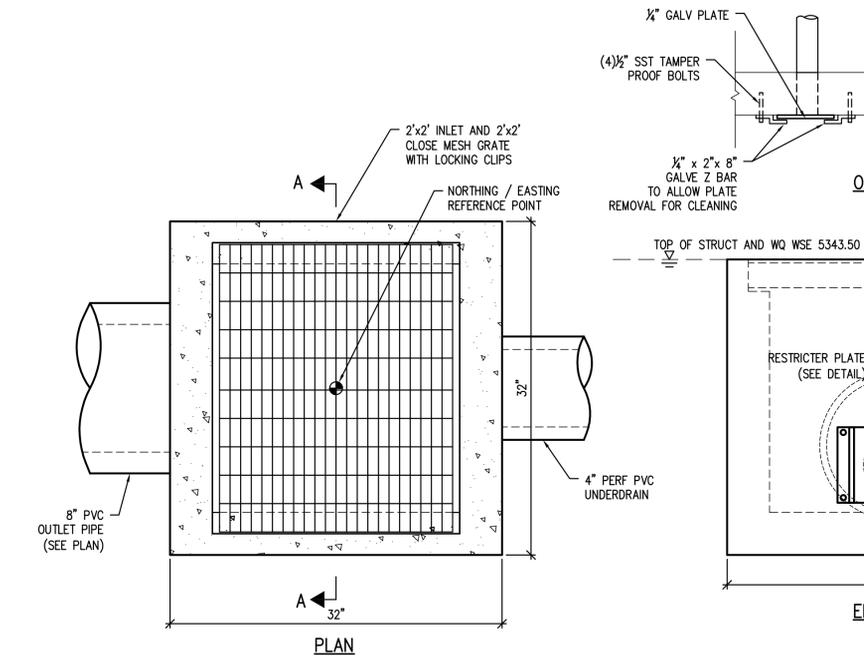
- RAIN GARDEN COMPOST MIXTURE
 - 50% CLASS 1 STA REGISTERED COMPOST (APPROXIMATE BULK DENSITY 1000 LBS/CY)
 - 50% LOOSELY PACKED SHREDDED PAPER (APPROXIMATE BULK DENSITY 50 TO 100 LBS/CY)
- MATERIAL SPECIFICATIONS SHALL BE AS FOLLOWS:
 - WOVEN MONOFILAMENT GEOTEXTILE FABRIC BY CARTHAGE MILLS- CARTHAGE 15% W/ 12%-15% OPEN AREA.
 - NONWOVEN GEOTEXTILE FABRIC BY MARIFI - 140N, OR APPROVED EQUAL.
 - 4" PERFORATED PVC AND 4" PVC SHALL BE SDR-35.
- MAINTENANCE REQUIREMENTS:
 - ROUTINE: REMOVE WEEDS, DEBRIS, AND LITTER FROM BASIN AND KEEP THE AREA CLEAN FOR AESTHETIC REASONS, WHICH ALSO REDUCES FLOATABLES BEING FLUSHED DOWNSTREAM.
 - BIANNUALLY & AFTER LARGE STORM EVENTS: INSPECT AND REPAIR AREAS IF DAMAGED DUE TO HIGH FLOWS. CHECK THE BASINS SIDES FOR FILTER MATERIAL LAYER COVERAGE.
 - EVERY 5-10 YEARS: THE SANDY LOAM FILTER LAYER WILL CLOG WITH TIME. FILTER LAYER REMOVAL IS REQUIRED WHEN THE WATER IN THE BASIN FAILS TO INFILTRATE DUE TO HIGH SEDIMENT DEPOSITS IN THE FILTER LAYER. REMOVE AND DISPOSE OF ALL VEGETATION GROWING ON THE SURFACE OF THE RAIN GARDEN MEDIA. REMOVE AND REPLACE THE 18" OF SAND/COMPOST MIX. RESOW THE TOP LAYER OF SAND/COMPOST MIX PER SEEDMIX PROVIDED BY LANDSCAPE ARCHITECT.
- INSTALL PERFORATED DRAINAGE PIPE WITH PERFORATIONS FACING DOWN

RAIN GARDEN BASIN DETAIL
NTS



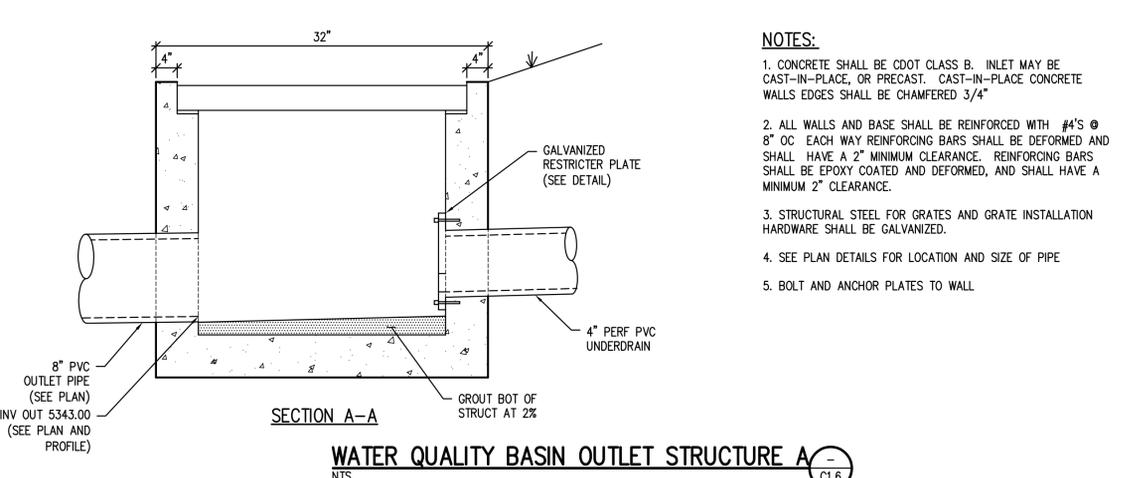
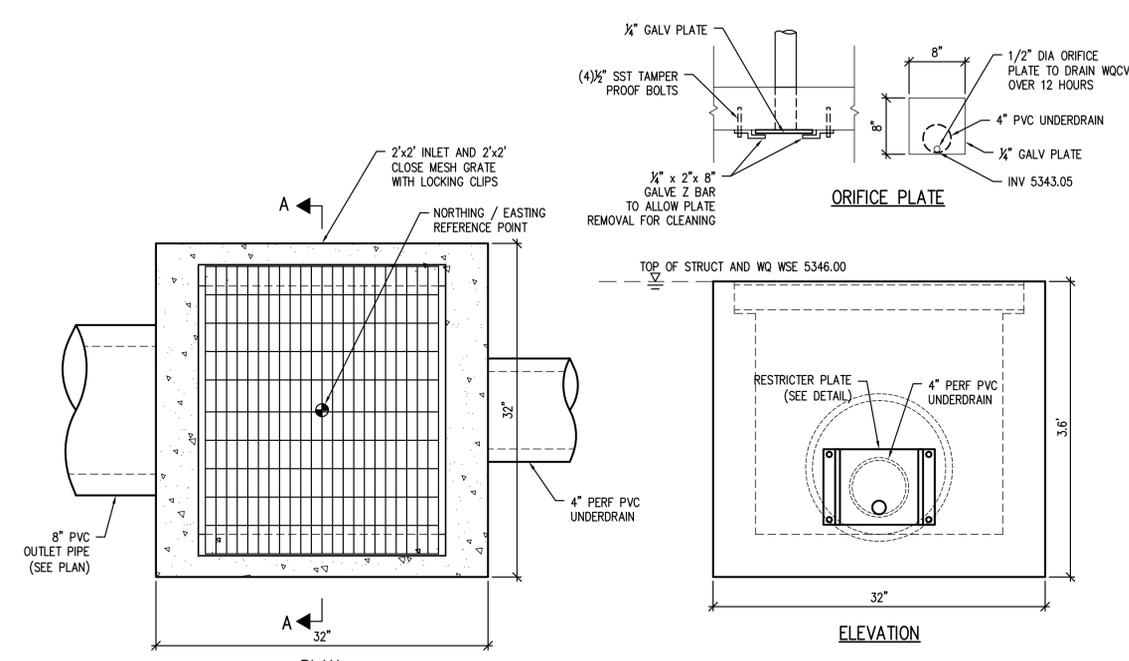
CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

FINAL ENGINEERING PLANS



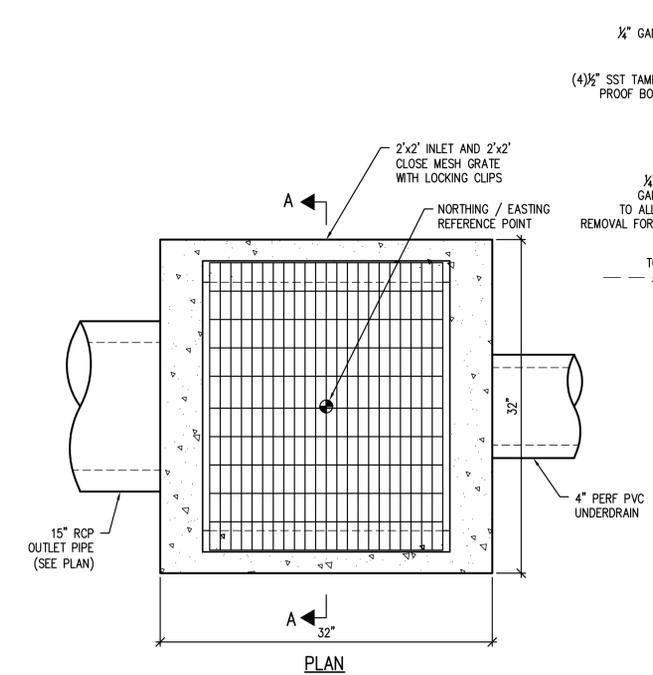
WATER QUALITY BASIN OUTLET STRUCTURE B (C1.6)

- NOTES:**
1. CONCRETE SHALL BE CDOT CLASS B. INLET MAY BE CAST-IN-PLACE, OR PRECAST. CAST-IN-PLACE CONCRETE WALLS EDGES SHALL BE CHAMFERED 3/4"
 2. ALL WALLS AND BASE SHALL BE REINFORCED WITH #4'S @ 8" OC EACH WAY REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2" MINIMUM CLEARANCE. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE A MINIMUM 2" CLEARANCE.
 3. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED.
 4. SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE
 5. BOLT AND ANCHOR PLATES TO WALL



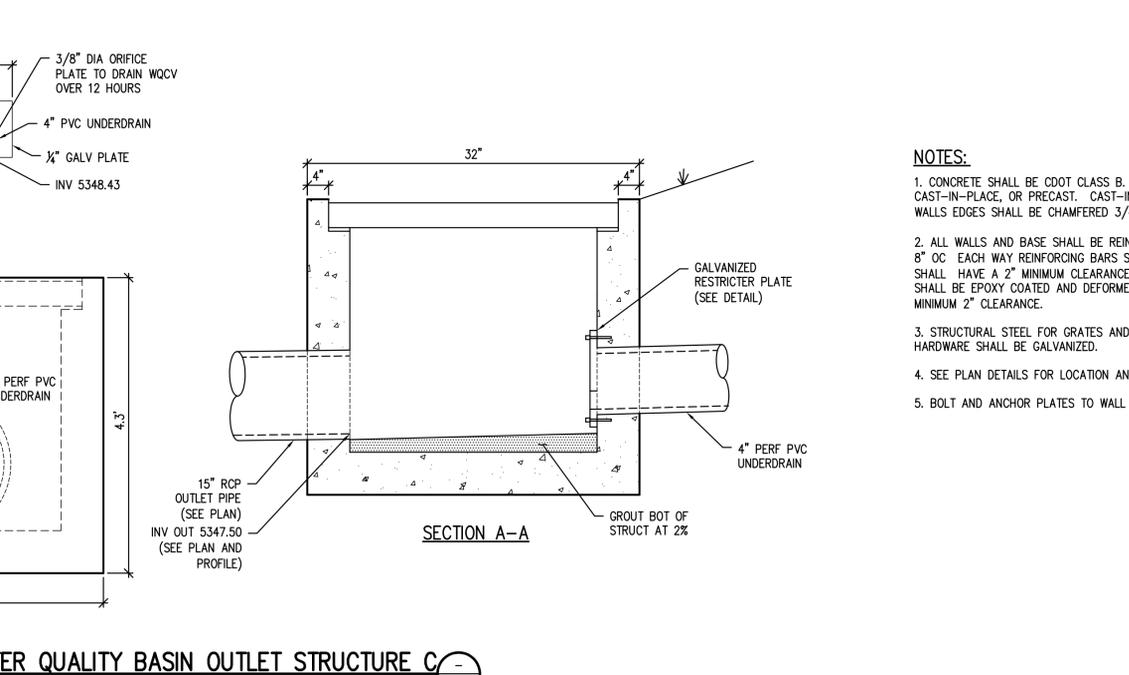
WATER QUALITY BASIN OUTLET STRUCTURE A (C1.6)

- NOTES:**
1. CONCRETE SHALL BE CDOT CLASS B. INLET MAY BE CAST-IN-PLACE, OR PRECAST. CAST-IN-PLACE CONCRETE WALLS EDGES SHALL BE CHAMFERED 3/4"
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 4. SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE
 5. BOLT AND ANCHOR PLATES TO WALL

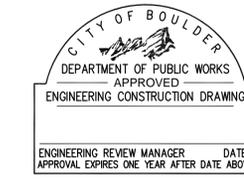


WATER QUALITY BASIN OUTLET STRUCTURE C (C1.5)

- NOTES:**
1. CONCRETE SHALL BE CDOT CLASS B. INLET MAY BE CAST-IN-PLACE, OR PRECAST. CAST-IN-PLACE CONCRETE WALLS EDGES SHALL BE CHAMFERED 3/4"
 2. ALL WALLS AND BASE SHALL BE REINFORCED WITH #4'S @ 8" OC EACH WAY REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2" MINIMUM CLEARANCE. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE A MINIMUM 2" CLEARANCE.
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 4. SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE
 5. BOLT AND ANCHOR PLATES TO WALL



- NOTES:**
1. CONCRETE SHALL BE CDOT CLASS B. INLET MAY BE CAST-IN-PLACE, OR PRECAST. CAST-IN-PLACE CONCRETE WALLS EDGES SHALL BE CHAMFERED 3/4"
 2. ALL WALLS AND BASE SHALL BE REINFORCED WITH #4'S @ 8" OC EACH WAY REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2" MINIMUM CLEARANCE. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE A MINIMUM 2" CLEARANCE.
 3. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED.
 4. SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE
 5. BOLT AND ANCHOR PLATES TO WALL



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

CIVIC AREA PARK DEVELOPMENT PLAN
Boulder, CO

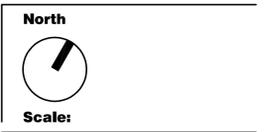
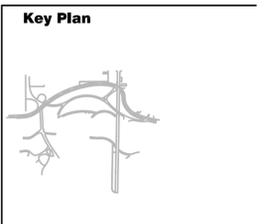
TOM LEADER STUDIO
1015 Comello Street, Berkeley, CA 94710 | 510.524.3363

JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
Phone: 303.444.1951
Web: www.jva.com
e-mail: info@jva.com

CONSULTING ENGINEERS
JOB# 23000

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Seal/Signature



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05.02.2016 SUBMITTAL

Phase
TECHNICAL DOCUMENTS

Case Number
TEC 2016XXXX

Drawing Title
GRADING AND DRAINAGE DETAILS

Drawing Number

CD1.2

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FINAL ENGINEERING PLANS

CANYON BLVD

SHEET C3.1

SHEET C3.2

PUBLIC LIBRARY

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1001 ARAPAHOE AVE.
(MULTI-LEVEL CONCRETE, STEEL
AND QUARRY STONE BUILDING)

MUNICIPAL BLDG

CITY HALL
1739 BROADWAY
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AND QUARRY STONE BUILDING)

BOULDER CREEK

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SHEET C3.3

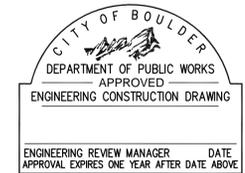
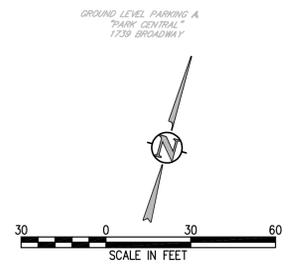
SHEET C3.4

NEW BRITAIN

"NEW BRITAIN" BUILDING
1101 ARAPAHOE AVE.

ARAPAHOE AVENUE

ARAPAHOE AVENUE
(60' R.O.W.)



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

WATER/SEWER _____

TRANSPORTATION _____

DRAINAGE _____

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



TOM LEADER STUDIO
1015 Comello Street, Berkeley, CA 94710 | 510.524.3363

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Boulder, CO 80302
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CONSULTING ENGINEERS
e-mail: info@jva.com
JOB# 2300C

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Seal/Signature

Key Plan



North



Scale:

Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

Drawing Title

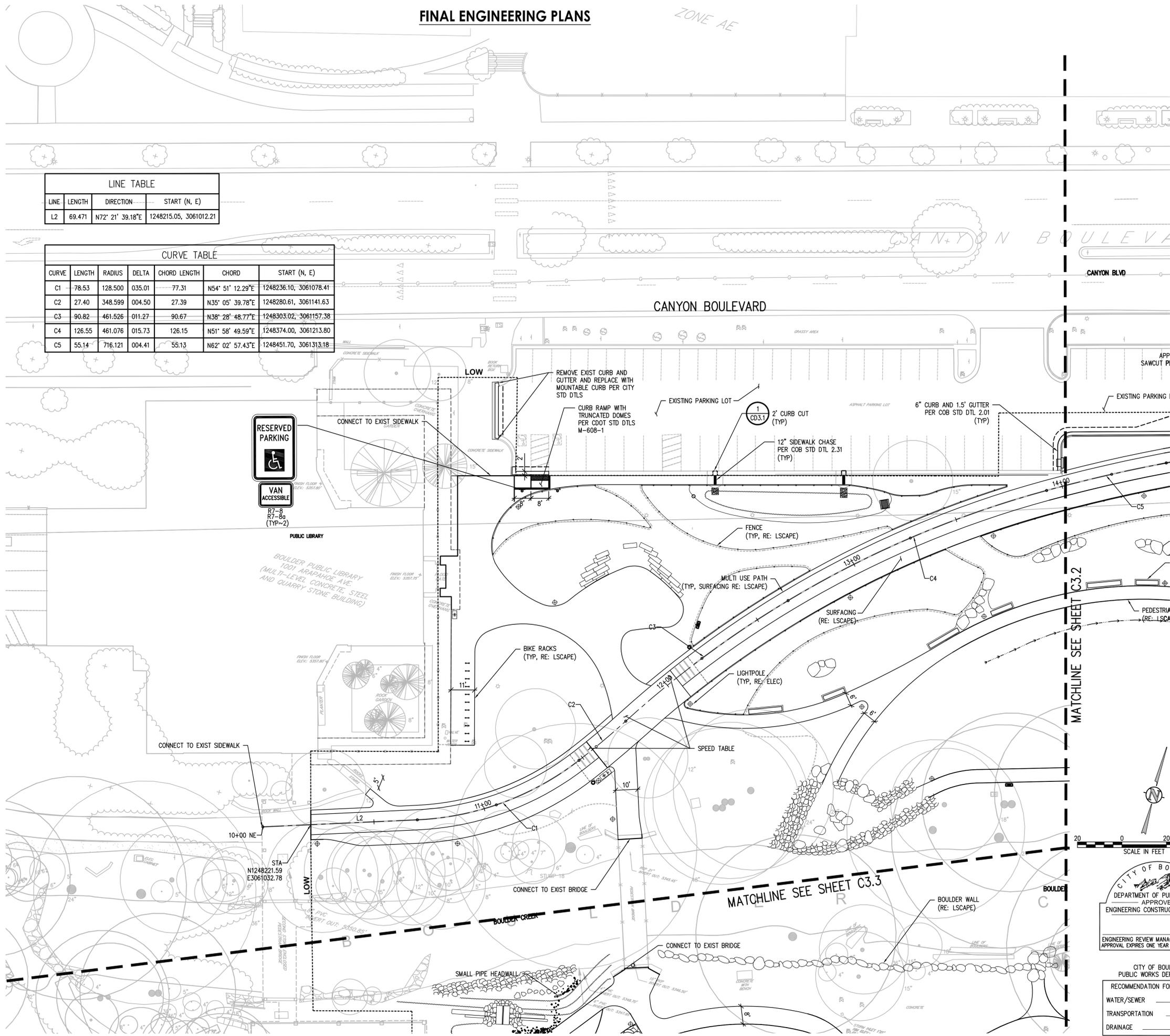
OVERALL HORIZONTAL
CONTROL PLAN

Drawing Number

C3.0

FINAL ENGINEERING PLANS

ZONE AE



LINE TABLE

LINE	LENGTH	DIRECTION	START (N, E)
L2	69.471	N72° 21' 39.18"E	1248215.05, 3061012.21

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD	START (N, E)
C1	78.53	128.500	035.01	77.31	N54° 51' 12.29"E	1248236.10, 3061078.41
C2	27.40	348.599	004.50	27.39	N35° 05' 39.78"E	1248280.61, 3061141.63
C3	90.82	461.526	011.27	90.67	N38° 28' 48.77"E	1248303.02, 3061157.38
C4	126.55	461.076	015.73	126.15	N51° 58' 49.59"E	1248374.00, 3061213.80
C5	55.14	716.121	004.41	55.13	N62° 02' 57.43"E	1248451.70, 3061313.18

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO

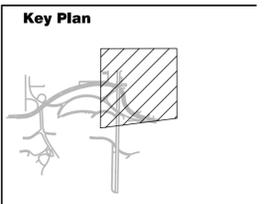
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Seal/Signature



North

Scale:

Date
05.02.2016 SUBMITTAL

Phase
TECHNICAL DOCUMENTS

Case Number
TEC 2016XXXX

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING

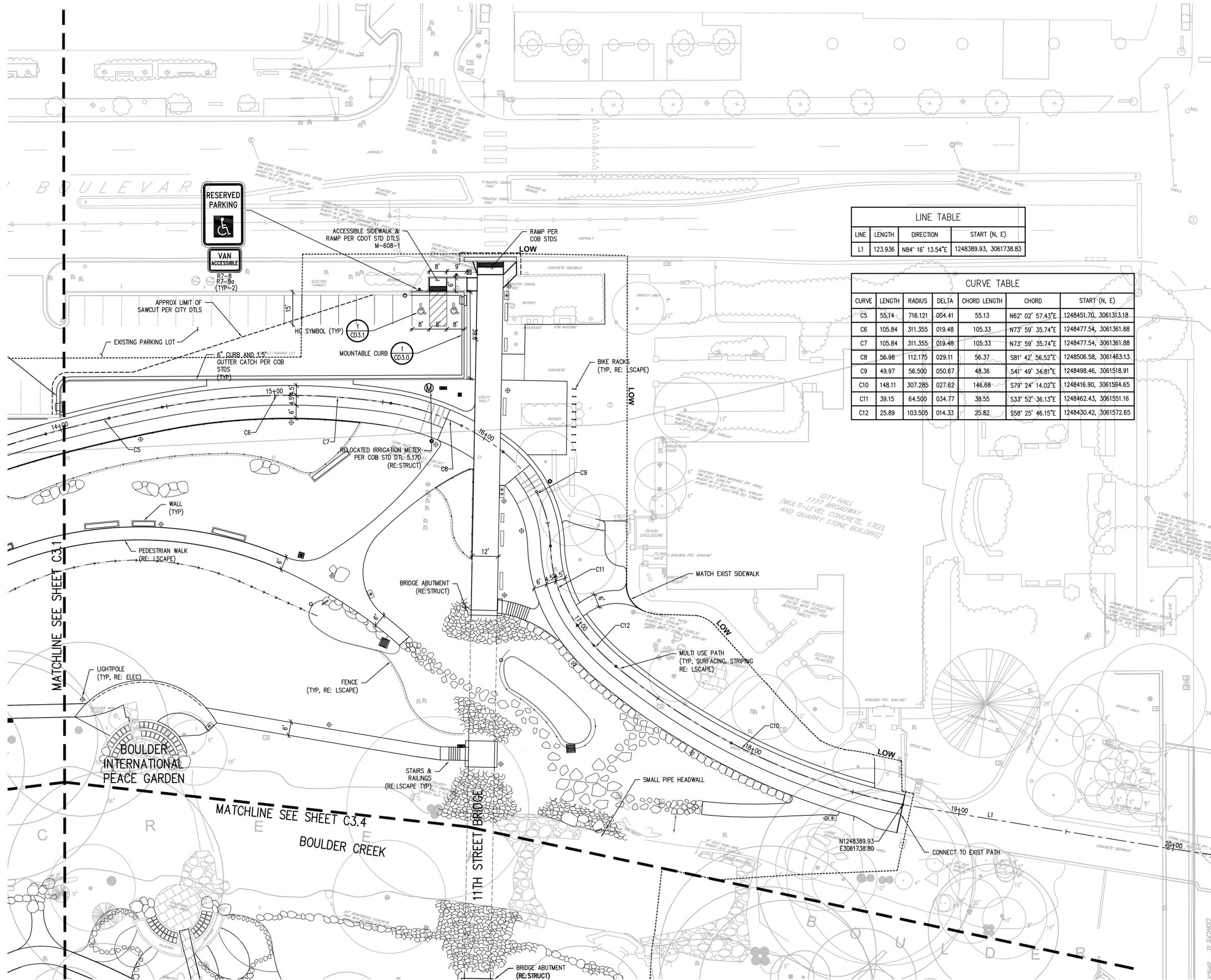
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APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

Drawing Title
HORIZONTAL CONTROL

Drawing Number
C3.1

FINAL ENGINEERING PLANS



LINE TABLE			
LINE	LENGTH	DIRECTION	START (N, E)
L1	123.936	N84° 16' 13.54"E	1248389.93, 3061738.83

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD	START (N, E)
C5	55.14	716.121	004.41	55.13	N62° 02' 57.43"E	1248451.70, 3061313.18
C6	105.84	311.355	019.48	105.33	N73° 59' 35.74"E	1248477.54, 3061361.88
C7	105.84	311.355	019.48	105.33	N73° 59' 35.74"E	1248477.54, 3061361.88
C8	56.98	112.175	029.11	56.37	S81° 42' 56.52"E	1248506.58, 3061463.13
C9	49.97	56.500	050.67	48.36	S41° 49' 34.81"E	1248498.46, 3061518.91
C10	148.11	307.285	027.62	146.88	S79° 24' 14.02"E	1248416.90, 3061594.65
C11	39.15	64.500	034.77	38.55	S33° 52' 36.13"E	1248462.43, 3061551.16
C12	25.89	103.505	014.33	25.82	S58° 25' 46.15"E	1248430.42, 3061572.65

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



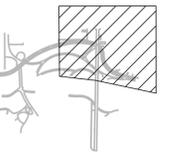
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Seal/Signature

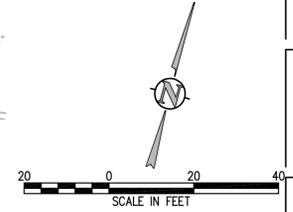
Key Plan



North



Scale:



CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING

ENGINEERING REVIEW MANAGER _____ DATE _____
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

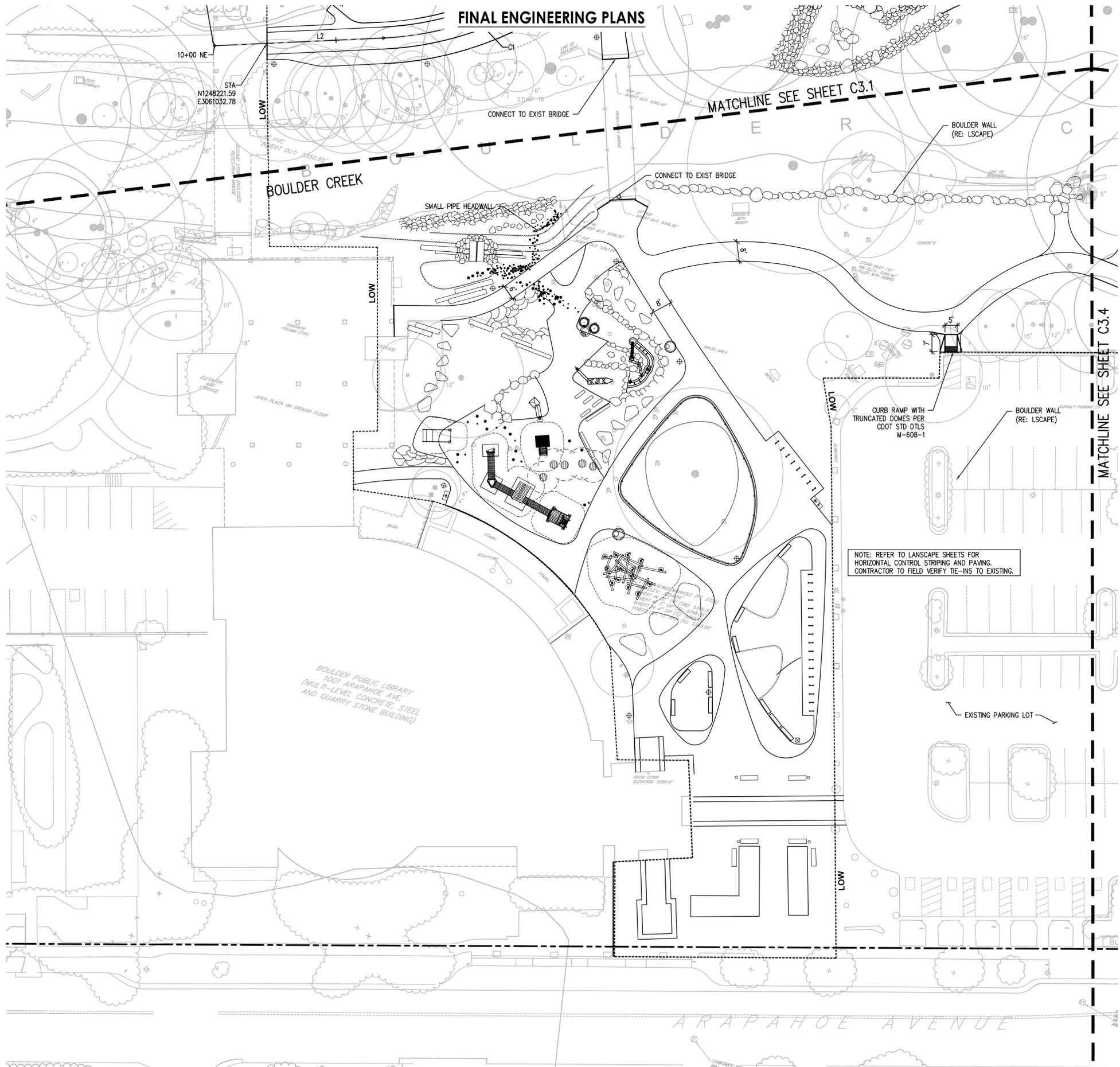
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

Drawing Title
HORIZONTAL CONTROL PLAN

Drawing Number

C3.2



FINAL ENGINEERING PLANS

MATCHLINE SEE SHEET C3.1

MATCHLINE SEE SHEET C3.4

NOTE: REFER TO LANDSCAPE SHEETS FOR HORIZONTAL CONTROL STRIPING AND PAVING. CONTRACTOR TO FIELD VERIFY TIE-INS TO EXISTING.

BOULDER PUBLIC LIBRARY
1001 ARAPAHOE AVE.
(MULTI-LEVEL CONCRETE, STEEL
AND QUARRY STONE BUILDING)

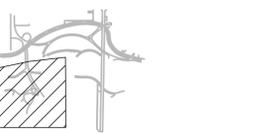
ARAPAHOE AVENUE



Date	Issuance	By	Check
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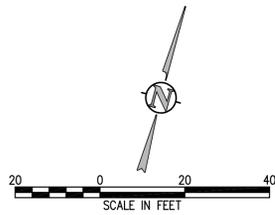
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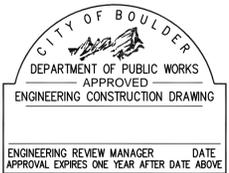
North



Scale:



Date
05.02.2016 SUBMITTAL
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Drawing Title
HORIZONTAL CONTROL PLAN

CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

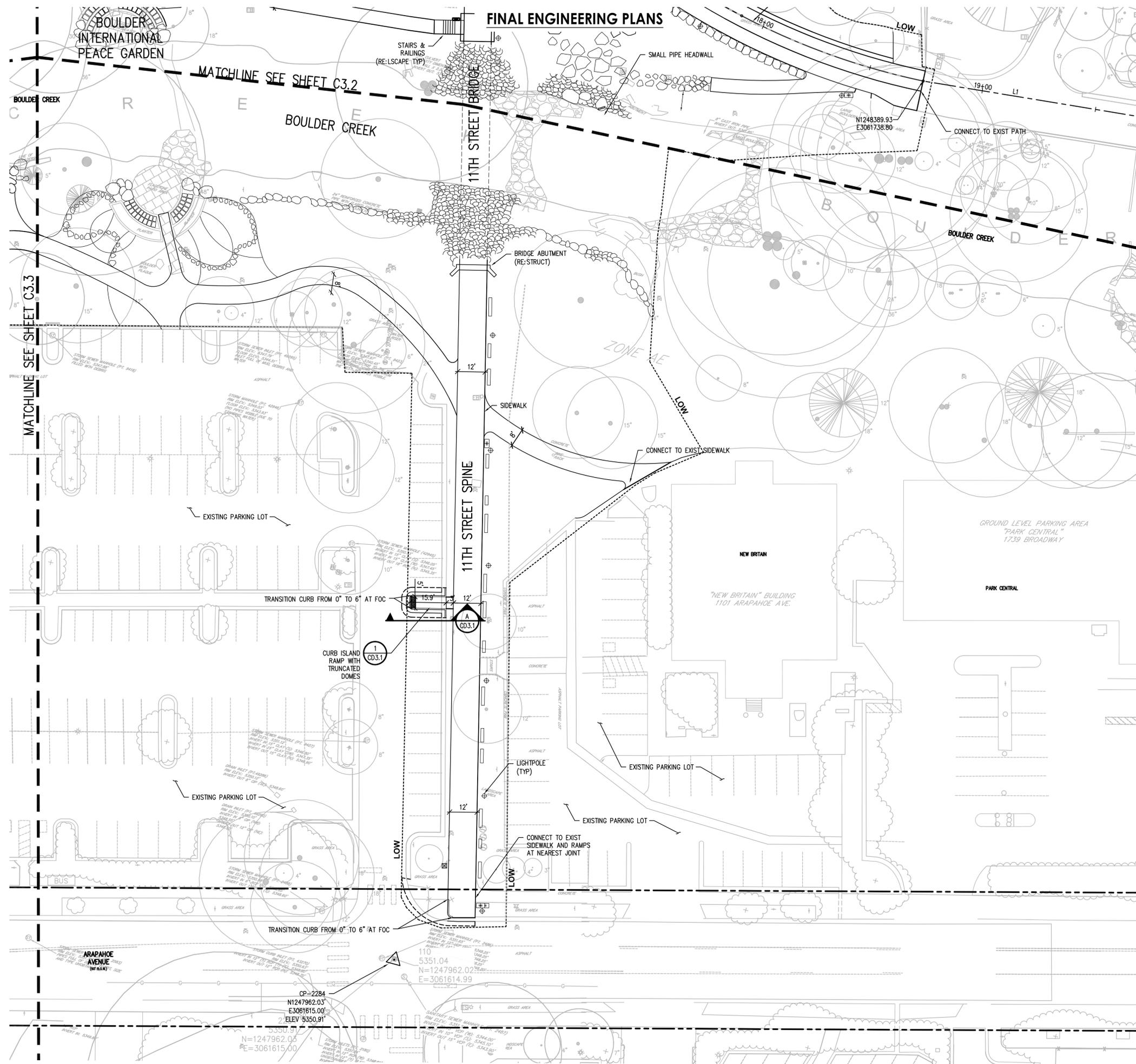
WATER/SEWER _____

TRANSPORTATION _____

DRAINAGE _____

Drawing Number

C3.3



FINAL ENGINEERING PLANS

CIVIC AREA PARK DEVELOPMENT PLAN
Boulder, CO

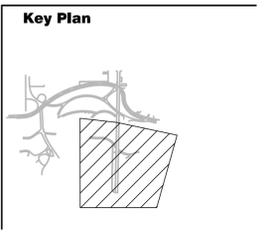
TOM LEADER STUDIO
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CONSULTING ENGINEERS
JOB# 2300C

Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature



North

Scale:

Date
05.02.2016 SUBMITTAL

Phase
TECHNICAL DOCUMENTS

Case Number
TEC 2016XXXX

Drawing Title
HORIZONTAL CONTROL PLAN

Drawing Number
C3.4

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING

ENGINEERING REVIEW MANAGER DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

CITY OF BOULDER
PUBLIC WORKS DEPARTMENT

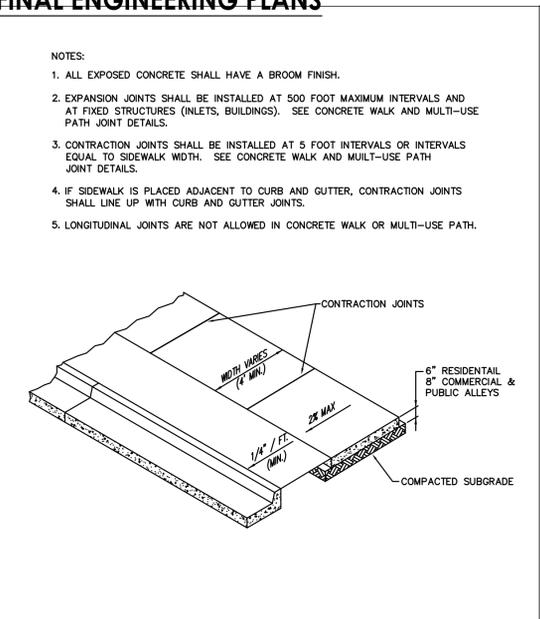
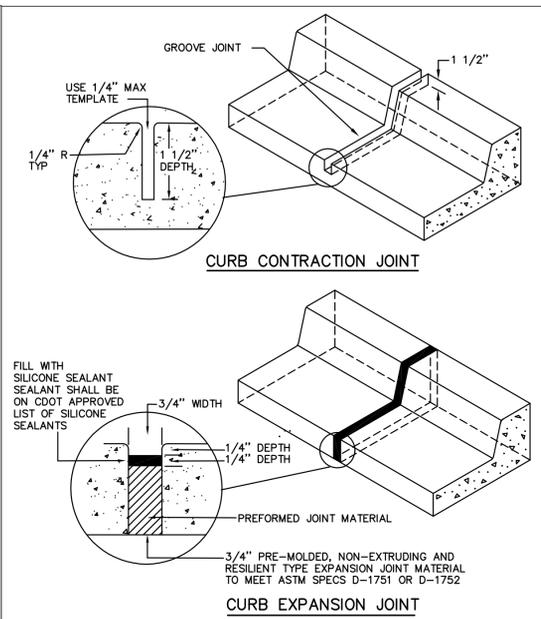
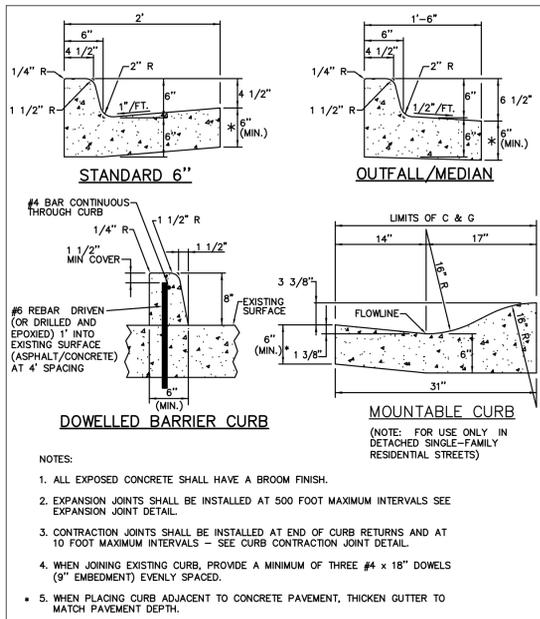
RECOMMENDATION FOR APPROVAL

WATER/SEWER _____

TRANSPORTATION _____

DRAINAGE _____

FINAL ENGINEERING PLANS



NOTES:
 1. ALL EXPOSED CONCRETE SHALL HAVE A BROOM FINISH.
 2. EXPANSION JOINTS SHALL BE INSTALLED AT 500 FOOT MAXIMUM INTERVALS SEE EXPANSION JOINT DETAIL.
 3. CONTRACTION JOINTS SHALL BE INSTALLED AT END OF CURB RETURNS AND AT 10 FOOT MAXIMUM INTERVALS - SEE CURB CONTRACTION JOINT DETAIL.
 4. WHEN JOINING EXISTING CURB, PROVIDE A MINIMUM OF THREE #4 x 18" DOWELS (9" EMBEDMENT) EVENLY SPACED.
 5. WHEN PLACING CURB ADJACENT TO CONCRETE PAVEMENT, THICKEN GUTTER TO MATCH PAVEMENT DEPTH.

DRAWN BY: JSH
 CHECKED BY: RJH
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO
CURB AND GUTTER

ISSUED: JULY 2, 1998
 REVISED: OCT 6, 2009
 DRAWING NO. 2.01.A

DRAWN BY: JSH
 CHECKED BY: WGH
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

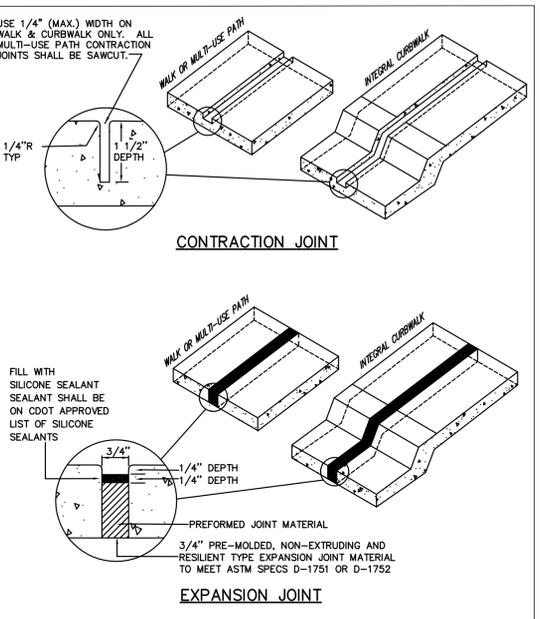
CITY OF BOULDER, COLORADO
CURB AND GUTTER JOINTS

ISSUED: JULY 2, 1998
 REVISED: OCT 6, 2009
 DRAWING NO. 2.01.B

DRAWN BY: JSH
 CHECKED BY: WGH
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO
CONCRETE WALK AND MULTI-USE PATHS

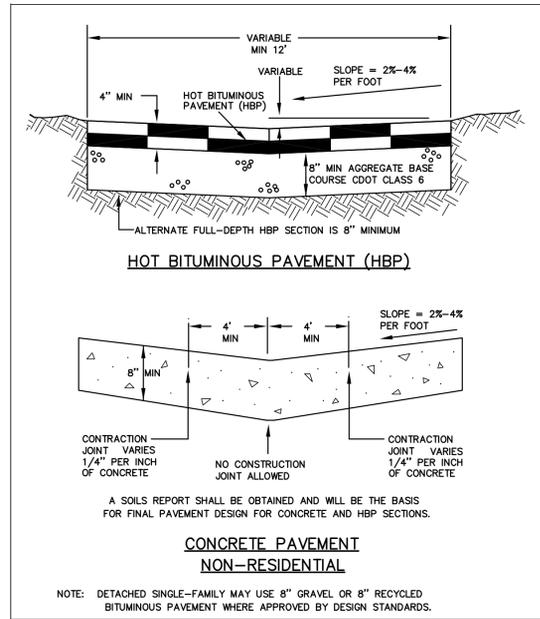
ISSUED: JULY 2, 1998
 REVISED: OCT 6, 2009
 DRAWING NO. 2.02.A



DRAWN BY: JSH
 CHECKED BY: WGH
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO
CONCRETE WALK AND MULTI-USE PATH JOINTS

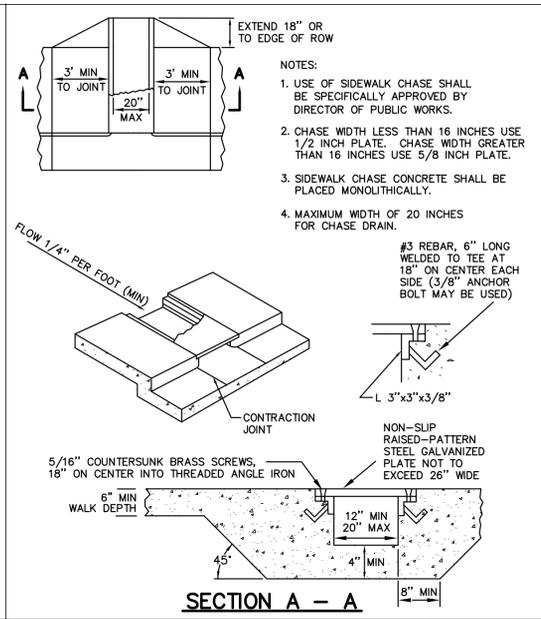
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 REVISED: OCT 6, 2009
 DRAWING NO. 2.02.C



DRAWN BY: JSH
 CHECKED BY: RJH
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO
TYPICAL ALLEY PAVING SECTION

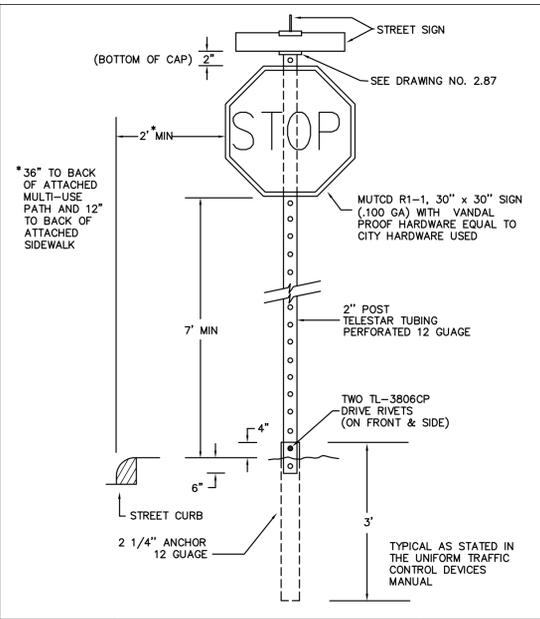
ISSUED: JULY 2, 1998
 REVISED: OCT 17, 2000
 DRAWING NO. 2.06



DRAWN BY: JSH
 CHECKED BY: RJH
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO
CHASE DRAIN CURB WALK

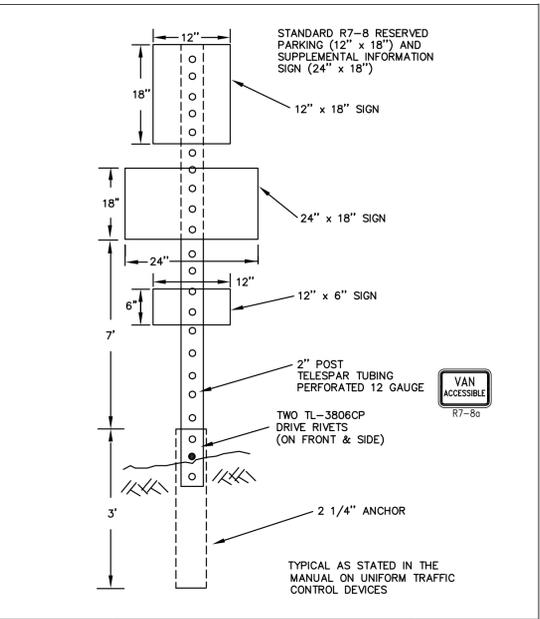
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 DRAWING NO. 2.31



DRAWN BY: JSH
 CHECKED BY: MGS
 APPROVED BY: DIRECTOR OF PUBLIC WORKS

CITY OF BOULDER, COLORADO
SIGN INSTALLATION DETAILS

ISSUED: JULY 2, 1998
 REVISED: OCT 6, 2009
 DRAWING NO. 2.81



DRAWN BY: JSH
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CITY OF BOULDER, COLORADO
ACCESSIBLE PARKING SIGN DETAILS

ISSUED: JULY 2, 1998
 REVISED: OCT 6, 2009
 DRAWING NO. 2.86

CIVIC AREA PARK DEVELOPMENT PLAN
 Boulder, CO

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 1015 Comello Street, Berkeley, CA 94710 | 510.524.3363

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 Boulder, CO 80302
 Phone: 303.444.1951
 Web: www.jva.com
 e-mail: info@jva.com
 JOB# 2300C

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01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature

Key Plan

North

Scale:

Date
 05.02.2016 SUBMITTAL

Phase
 TECHNICAL DOCUMENTS

Case Number
 TEC.2016XXXX

Drawing Title
 SITE DETAILS

Drawing Number
 CD3.0

CITY OF BOULDER
 DEPARTMENT OF PUBLIC WORKS
 APPROVED
 ENGINEERING CONSTRUCTION DRAWING

ENGINEERING REVIEW MANAGER DATE
 APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

CITY OF BOULDER
 PUBLIC WORKS DEPARTMENT

RECOMMENDATION FOR APPROVAL

WATER/SEWER _____

TRANSPORTATION _____

DRAINAGE _____

FINAL ENGINEERING PLANS

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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JOB# 2300C

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			(TECH DOC 01)

Seal/Signature

Key Plan



North



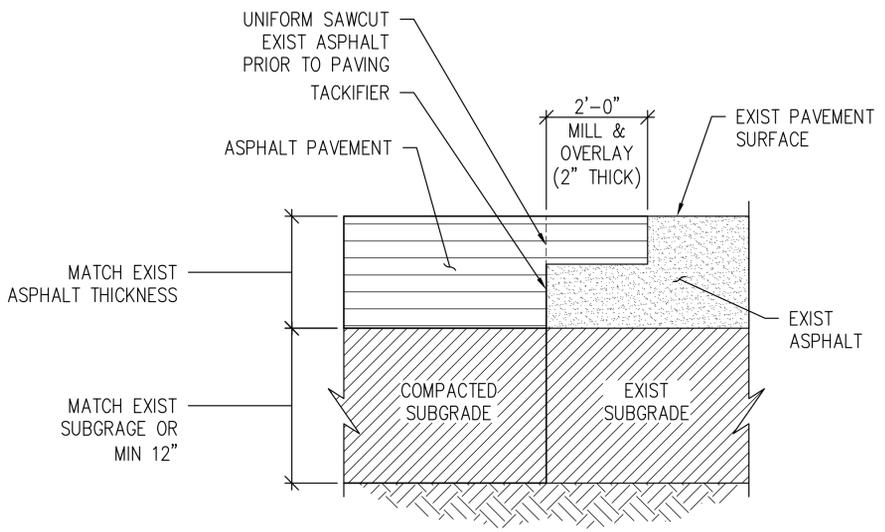
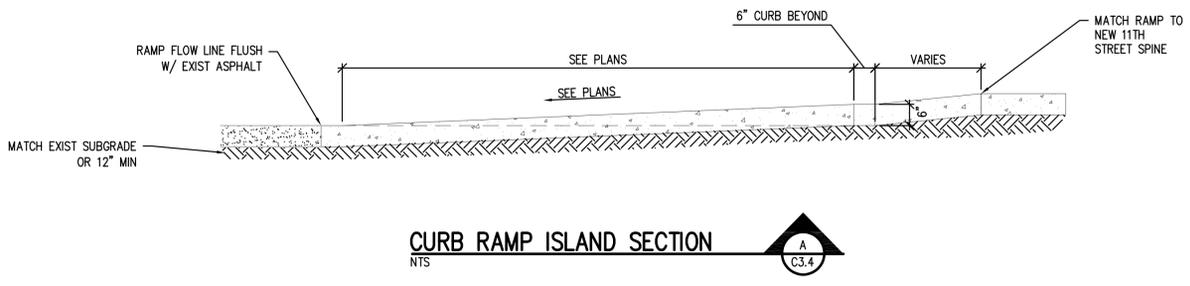
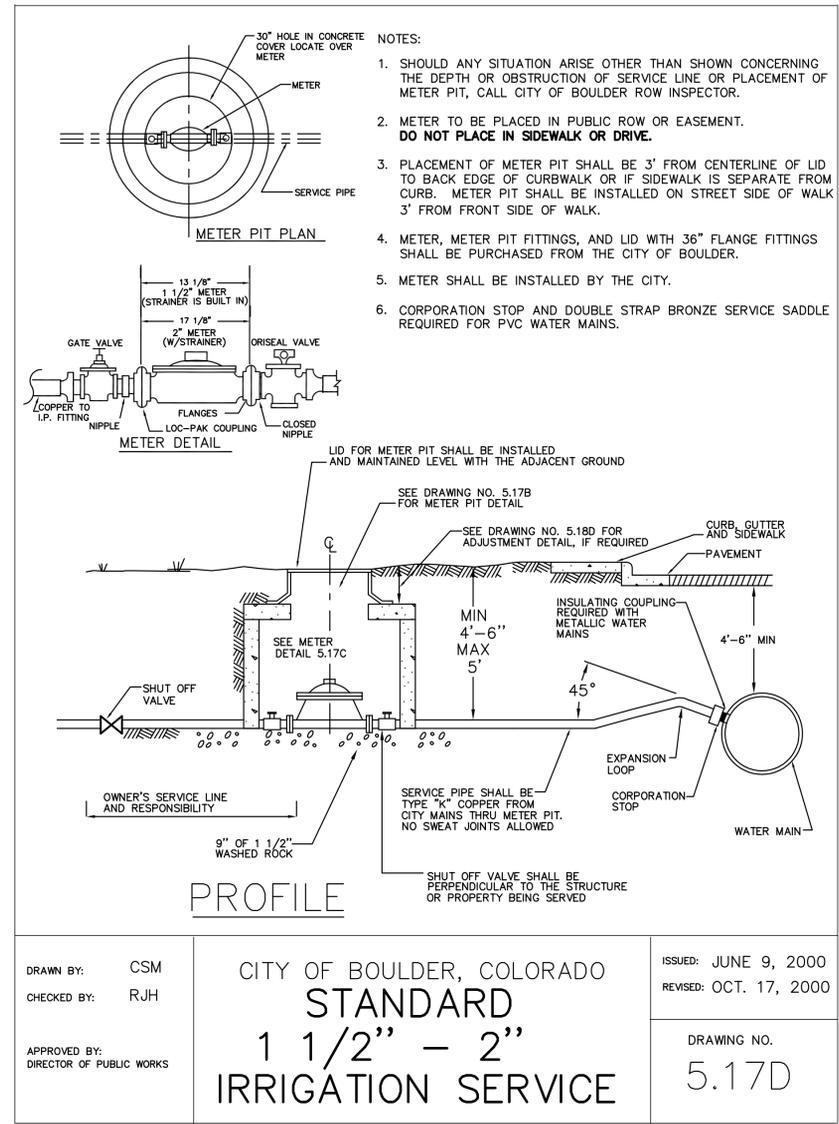
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Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC.2016XXXX

Drawing Title
SITE DETAILS

Drawing Number

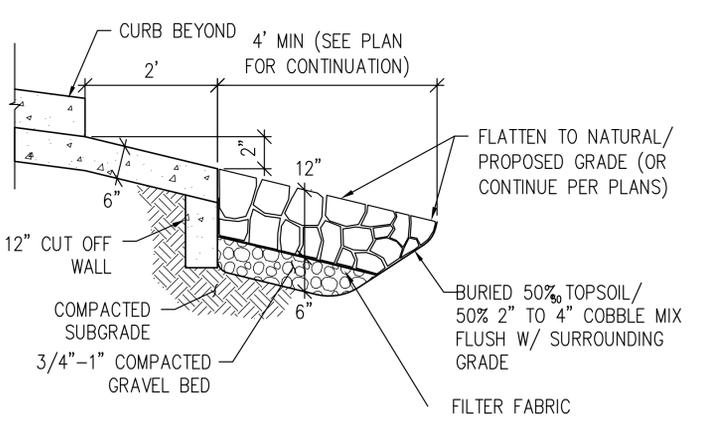
CD3.1



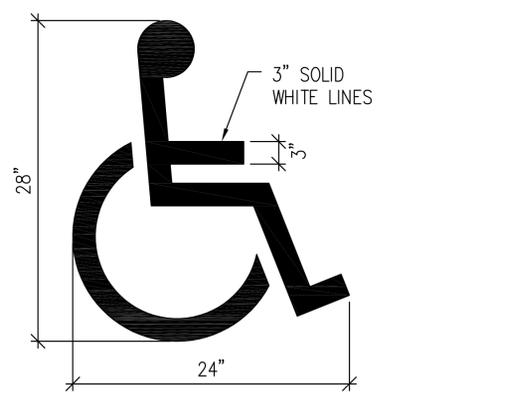
NOTE:

- MATCH EXIST ASPHALT DEPTH UNLESS OTHERWISE SPECIFIED.
- COMPACT SUBGRADE PER SPECIFICATIONS.

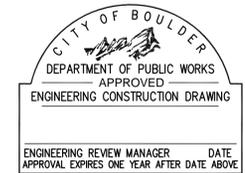
ASPHALT "T" PATCH DETAIL (1)
C3.1



CHASE OUTLET PAN W/ COBBLE PROTECTION (2)
NTS



HANDICAP SYMBOL DETAIL (3)
NTS



CITY OF BOULDER PUBLIC WORKS DEPARTMENT	RECOMMENDATION FOR APPROVAL
WATER/SEWER	_____
TRANSPORTATION	_____
DRAINAGE	_____

FINAL ENGINEERING PLANS

GENERAL NOTES

1. THE DETECTABLE WARNING SHALL BE INSTALLED AT SIDEWALK TO STREET TRANSITIONS. THEY SHALL HAVE A TRUNCATED DOME SURFACE. THE DOMES SHALL BE IN A SQUARE GRID PATTERN.
2. ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 8 IN. FROM THE FLOW LINE OF THE CURB AND NOT BE MORE THAN A MAXIMUM OF 8 IN. WITHIN EXISTING ROW FOR TYPE 1B MODIFIED AND TYPE 2B MODIFIED AS THIS DIMENSION MAY BE GREATER THAN 8 INCHES ON ONE SIDE OF THE RADIUS FROM ANY POINT ON THE FLOW LINE OF THE CURB. ALL DETECTABLE WARNING AREAS SHALL BE 2 FT. IN LENGTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
3. RAMP SLOPES SHALL BE 8.33 OR FLATTER. THE DETECTABLE WARNING SLOPES SHALL BE 5% OR FLATTER.
4. MINIMUM SIDEWALK WIDTH IS 4 FT.
5. DO NOT INSTALL OBSTACLES, STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS IN FRONT OF THE RAMP ACCESS AREAS.
6. CONSTRUCTION OF THE CONCRETE PEDESTRIAN CURB ADJACENT TO THE RAMP AREAS SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE CURB RAMP.
7. DETECTABLE WARNING SHALL MEET SECTION 705 OF THE USDOT ADA STANDARDS FOR TRANSPORTATION FACILITIES.
8. IF THE PLACEMENT OF A PEDESTRIAN PUSH BUTTON ASSEMBLY ON A TRAFFIC SIGNAL MAST POLE WILL NOT BE WITHIN EASY REACH (10' OR LESS AND UNOBSTRUCTED) OF PEDESTRIANS IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT, THEN A SEPARATE PEDESTRIAN PUSH BUTTON ASSEMBLY (PPBPA) SHALL BE INSTALLED WITHIN EASY REACH. THE PPBPA SHALL MEET THE PROVISIONS FOUND IN SECTION 400 THROUGH 403.3 - PEDESTRIAN DETECTORS OF THE 2009 MICHIGAN MANUAL WITH REVISIONS 1 AND 2.
9. WHERE SPACE IS LIMITED OR GRADE IS AN ISSUE, A 10% SLOPE MAY BE USED ON FLARED SIDES.
10. THE SLOPES CAN BE LOWER THAN WHAT IS SHOWN BUT THEY SHALL NOT EXCEED THESE VALUES.
11. CURB RAMP TYPE 1A DIAGONAL (ON THE APX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMP AS IN TYPE 1B, MUST BE PROVIDED AT EACH STREET CORNER. ADA TITLE II OR C.F.R. SECTION 305.100 STATES: ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF). THEREFORE, A SINGLE DIAGONAL CURB RAMP TYPE 1A WILL ONLY BE PERMITTED IN ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO COOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.
12. THE CURB RAMP EXCLUDING ANY FLARED SIDES OR BLENDED TRANSITION SHALL BE CONTAINED WHOLLY WITHIN THE WIDTH OF THE CROSSWALK AND/OR PEDESTRIAN STREET CROSSING THE RAMP SURVAYS.

Computer File Information
 Creation Date: 07/04/12 Initials: DLM
 Last Modification Date: 05/06/14 Initials: LTA
 Full Path: www.colorado.gov/info/business/designsupport
 Drawing File Name: 60801007.dgn
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date	Comments

Colorado Department of Transportation
 4201 East Arkansas Avenue
 COOT, HQ, 4th Floor
 Denver, CO 80222
 Phone: 303-757-9021 FAX: 303-757-9868
 Division of Project Support DLM/LTA

CURB RAMPS
 STANDARD PLAN NO. M-608-1
 Sheet No. 1 of 7

NOTES

1. CURB RAMP TYPE 2A MAY BE USED IN MID-BLOCK.
2. SEE PLANS FOR SIDEWALK WIDTH. THE MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 2A DIAGONAL (ON THE APX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 2B, MUST BE PROVIDED AT EACH STREET CORNER. ADA TITLE II OR C.F.R. SECTION 305.100 STATES: ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF). THEREFORE, A SINGLE DIAGONAL CURB RAMP TYPE 2A WILL ONLY BE PERMITTED IN ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO COOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.

Computer File Information
 Creation Date: 07/04/12 Initials: DLM
 Last Modification Date: 04/28/14 Initials: LTA
 Full Path: www.colorado.gov/info/business/designsupport
 Drawing File Name: 60801007.dgn
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date	Comments
04/22/14	Made ramps perpendicular in 2B. Added note 3.

Colorado Department of Transportation
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CURB RAMPS
 STANDARD PLAN NO. M-608-1
 Sheet No. 2 of 7

NOTES

1. CURB RAMP TYPE 3A MAY BE USED IN MID-BLOCK.
2. SEE PLANS FOR SIDEWALK WIDTH. THE MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 3A DIAGONAL (ON THE APX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 3B, MUST BE PROVIDED AT EACH STREET CORNER. ADA TITLE II OR C.F.R. SECTION 305.100 STATES: ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF). THEREFORE, A SINGLE DIAGONAL CURB RAMP TYPE 3A WILL ONLY BE PERMITTED IN ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO COOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.

Computer File Information
 Creation Date: 07/04/12 Initials: DLM
 Last Modification Date: 04/28/14 Initials: LTA
 Full Path: www.colorado.gov/info/business/designsupport
 Drawing File Name: 60801007.dgn
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date	Comments

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 COOT, HQ, 4th Floor
 Denver, CO 80222
 Phone: 303-757-9021 FAX: 303-757-9868
 Division of Project Support DLM/LTA

CURB RAMPS
 STANDARD PLAN NO. M-608-1
 Sheet No. 3 of 7

NOTES

1. PERPENDICULAR AND PARALLEL CURB RAMPS SHOWN ON THIS DRAWING ARE ACCEPTABLE FOR USE AT MID-BLOCK INSTALLATIONS.
2. SITE CONDITIONS WILL VARY CONFIGURATION OF RAMPS, LANDINGS, AND TRANSITIONS MAY BE CHANGED BUT THEY MUST MEET THE DIMENSIONS AND SLOPES SHOWN HERE. THE USE OF FLARES, CURB WALLS, ETC. ARE AT THE DISCRETION OF THE ENGINEER.
3. PROVIDE DETECTABLE WARNING SURFACE FOR FULL WIDTH OF CURB CUT. SEE PLAN VIEW OF DETECTABLE WARNING DETAIL ON SHEET 9 FOR DETECTABLE WARNING SURFACE DIMENSIONS.
4. LOCATE CURB CUT WITHIN CROSSWALK.
5. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.

Computer File Information
 Creation Date: 07/04/12 Initials: DLM
 Last Modification Date: 04/28/14 Initials: LTA
 Full Path: www.colorado.gov/info/business/designsupport
 Drawing File Name: 60801007.dgn
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date	Comments

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 Denver, CO 80222
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 Division of Project Support DLM/LTA

CURB RAMPS
 STANDARD PLAN NO. M-608-1
 Sheet No. 4 of 7

CIVIC AREA PARK DEVELOPMENT PLAN
 Boulder, CO



TOM LEADER STUDIO
 1015 Comello Street, Berkeley, CA 94710 | 510.524.3363



JVA, Incorporated
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05.02.2016	90% CD		

(TECH DOC 01)

Seal/Signature

Key Plan



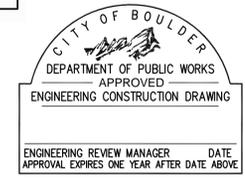
North
 Scale:

Date: 05.02.2016 SUBMITTAL
 Phase: TECHNICAL DOCUMENTS
 Case Number: TEC 2016XXXX

Drawing Title: SITE DETAILS

Drawing Number

CD3.2



CITY OF BOULDER
 PUBLIC WORKS DEPARTMENT
 RECOMMENDATION FOR APPROVAL
 WATER/SEWER _____
 TRANSPORTATION _____
 DRAINAGE _____

FINAL ENGINEERING PLANS

NOTES

1. THE TRUNCATED DOME PLATE SHALL BE EMBEDDED IN THE CONCRETE CURB RAMP WHILE CONCRETE IS PLASTIC.
2. THE TRUNCATED DOME PLATE TO BE USED SHALL BE ON THE COOT APPROXIMATE PRODUCT LIST.
3. WHEN THE DETECTABLE WARNING SURFACE IS CUT, GRIND OFF REMAINING PORTION OF ANY CUT DOMES, SEAL ALL CUT PANEL EDGES TO PREVENT WATER DAMAGE.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DETECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.

DETAIL FOR TYPES 1 AND 3 CURB RAMPS
P.L. = PERMISSIBLE JOINT WITH EPXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

DETAIL FOR TYPE 2 CURB RAMP

ELEVATION VIEW OF DETECTABLE WARNING PLATE

FRONT SECTION VIEW OF DETECTABLE WARNING, CURB, AND GUTTER CURB RAMP WITH A TRUNCATED DOME SURFACE PLATE

Computer File Information	Sheet Revisions	Colorado Department of Transportation	CURB RAMPS	STANDARD PLAN NO.
Creation Date: 07/04/12 Last Modification Date: 4/28/14 Full Path: www.colorado.gov/info/business/design/support Drawing File Name: 608010607.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	Includes: DLM (ECB) Includes: LTA (ECB)	4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9866 Division of Project Support DLM/LTA	Issued By: Project Development Branch on July 4, 2012	M-608-1 Sheet No. 5 of 7

NOTES

1. THE DETECTABLE WARNING SHALL BE MADE OF PAVERS WITH A TRUNCATED DOME SURFACE.
2. THE TOP OF THE DRAINAGE WELL HOLE SHALL BE LOCATED AT THE LOWEST POINT OF THE DETECTABLE WARNING WELL.
3. RAMP SLOPES SHALL BE 3% OR FLATTER. THE DETECTABLE WARNING AND WELL AREA SLOPES SHALL BE 2% OR FLATTER.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DETECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.

DETAIL FOR TYPES 1 AND 3 CURB RAMPS
P.L. = PERMISSIBLE JOINT WITH EPXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

DETAIL FOR TYPE 2 CURB RAMP

ELEVATION VIEW OF SINGLE DOME

FRONT SECTION VIEW OF DETECTABLE WARNING, WELL, CURB, AND GUTTER CURB RAMP WITH DOME PAVER OPTION

Computer File Information	Sheet Revisions	Colorado Department of Transportation	CURB RAMPS	STANDARD PLAN NO.
Creation Date: 07/04/12 Last Modification Date: 4/28/14 Full Path: www.colorado.gov/info/business/design/support Drawing File Name: 608010607.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	Includes: DLM (ECB) Includes: LTA (ECB)	4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9866 Division of Project Support DLM/LTA	Issued By: Project Development Branch on July 4, 2012	M-608-1 Sheet No. 6 of 7

NOTES

1. IF THE EXISTING SIDEWALK WIDTHS ARE DIFFERENT, MATCH THE SMALLEST WIDTH TO 4 FT. MIN.
2. SLOPES SHOWN AS TYPICAL IN SECTION A-A MAY BE ADJUSTED IF NECESSARY TO FIT EXISTING CONDITIONS, BUT MAY NOT EXCEED 3% SLOPE UNDER ANY CONDITIONS.
3. ALL TRUNCATED DOME PANELS OR PAVERS PLACED AT THE SAME CORNER SHALL BE MADE UP OF THE SAME UNIFORM MATERIAL TYPE.

SECTION A-A
(PBP/PA NOT SHOWN IN SECTION VIEWS AS IT MAY NOT BE REQUIRED.)

RAMP PAY AREA
FOR CORNER BLENDED TRANSITION CURB RAMP

Computer File Information	Sheet Revisions	Colorado Department of Transportation	CURB RAMPS	STANDARD PLAN NO.
Creation Date: 07/04/12 Last Modification Date: 04/24/14 Full Path: www.colorado.gov/info/business/design/support Drawing File Name: 608010707.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	Includes: DLM (ECB) Includes: LTA (ECB)	4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9866 Division of Project Support DLM/LTA	Issued By: Project Development Branch on July 4, 2012	M-608-1 Sheet No. 7 of 7

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



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05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature

Key Plan



North



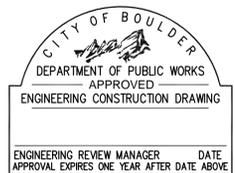
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Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

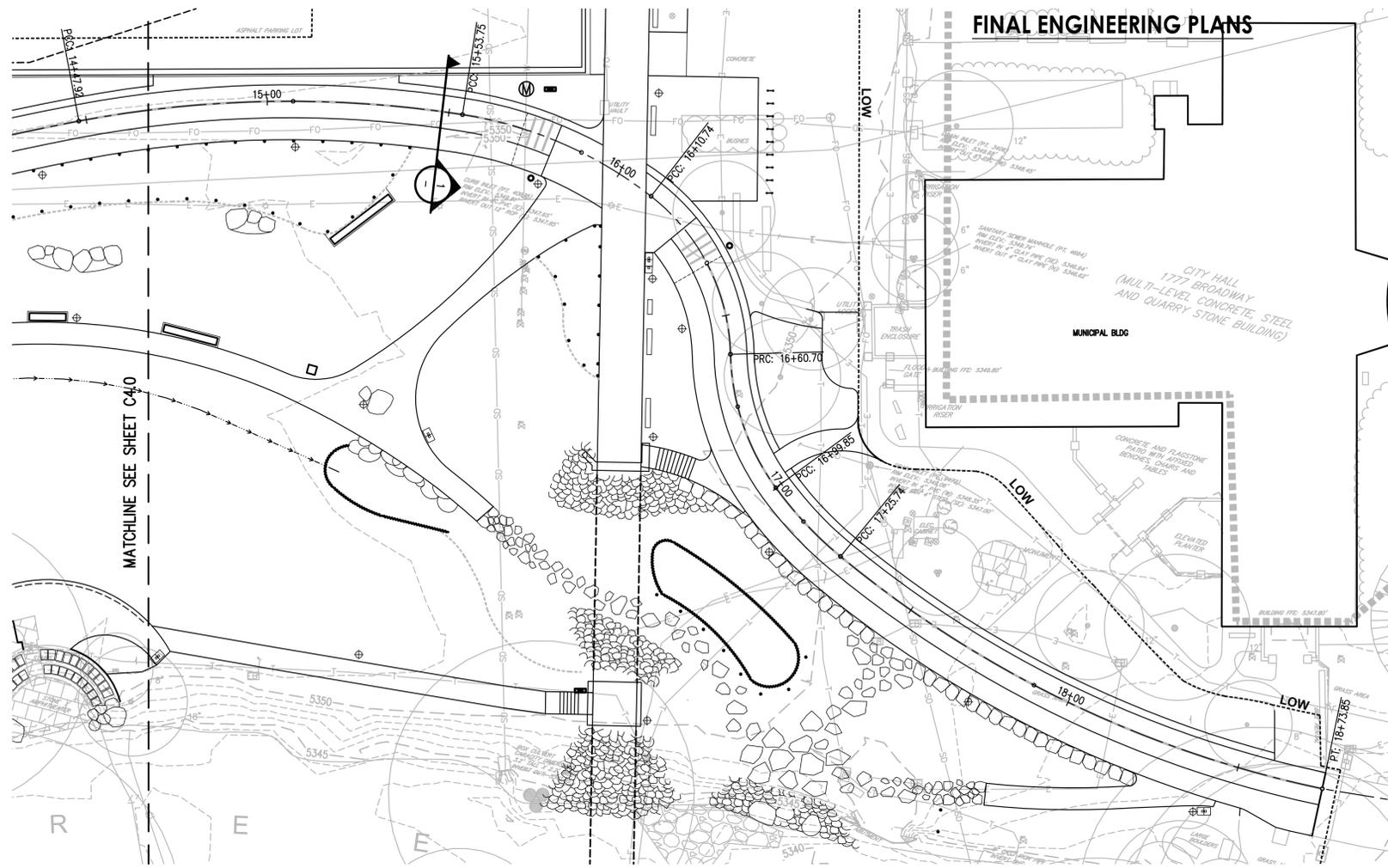
Drawing Title
SITE DETAILS

Drawing Number

CD3.3

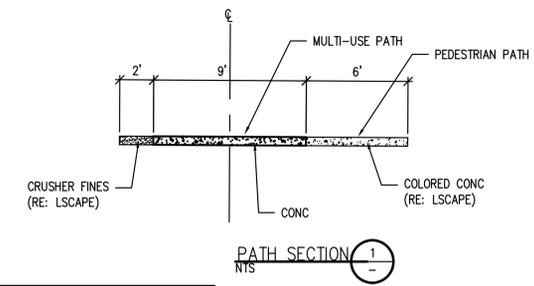


CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

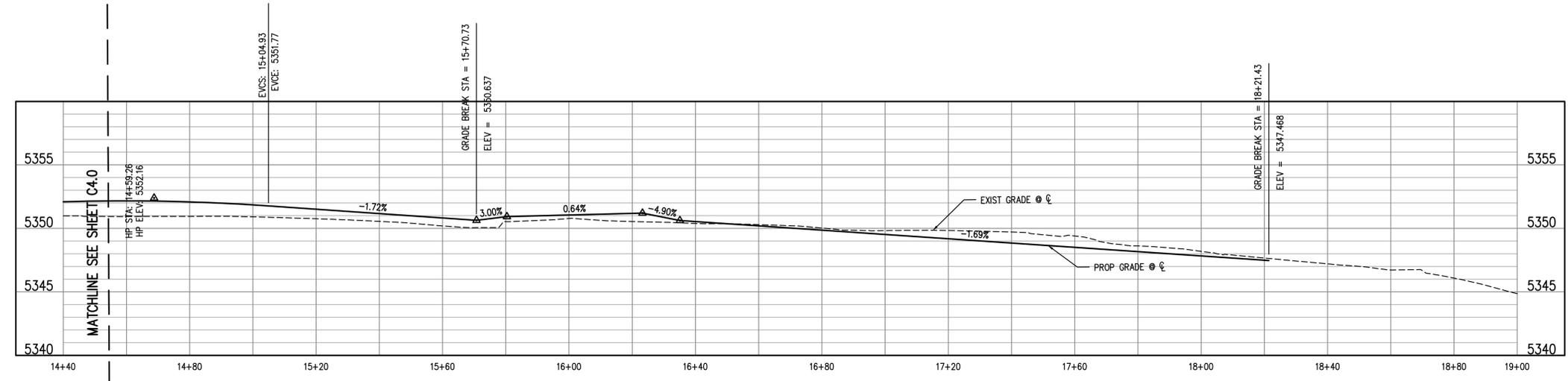
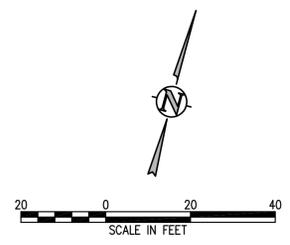


FINAL ENGINEERING PLANS

MULTI-USE PATH PLAN
SCALE: 1"=20'



NOTE:
REFER TO LANDSCAPING PLANS FOR STRIPING AND PAVING DETAILS.



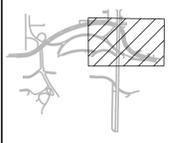
MULTI-USE PATH PROFILE
SCALE: 1"=20' HORIZ
1"=5' VERT



Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
03.07.2016	50% CD		
05.02.2016	90% CD		
			(TECH DOC 01)

Seal/Signature

Key Plan



North

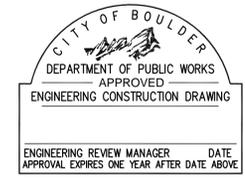


Scale:

Date
05.02.2016 SUBMITTAL
Phase
TECHNICAL DOCUMENTS
Case Number
TEC 2016XXXX

Drawing Title
MULTI-USE PATH PLAN AND PROFILE

Drawing Number



CITY OF BOULDER
PUBLIC WORKS DEPARTMENT
RECOMMENDATION FOR APPROVAL
WATER/SEWER _____
TRANSPORTATION _____
DRAINAGE _____

C4.1

STRUCTURAL GENERAL NOTES

DESIGN LOADS: 2012 International Building Code (IBC) with City of Boulder Amendments, ASCE 7-10, AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges, End Ed.

Bridge Live Loads			
	Uniformly Distributed (psf)	Concentrated (lbs)	Live Load Reduction
Pedestrian Vehicle	90 HS	N/A	Yes
Wind:			
Basic Wind Speed (3-second gust)	130 mph		
Wind Exposure	C		
Design Wind Pressure	30 PSF		

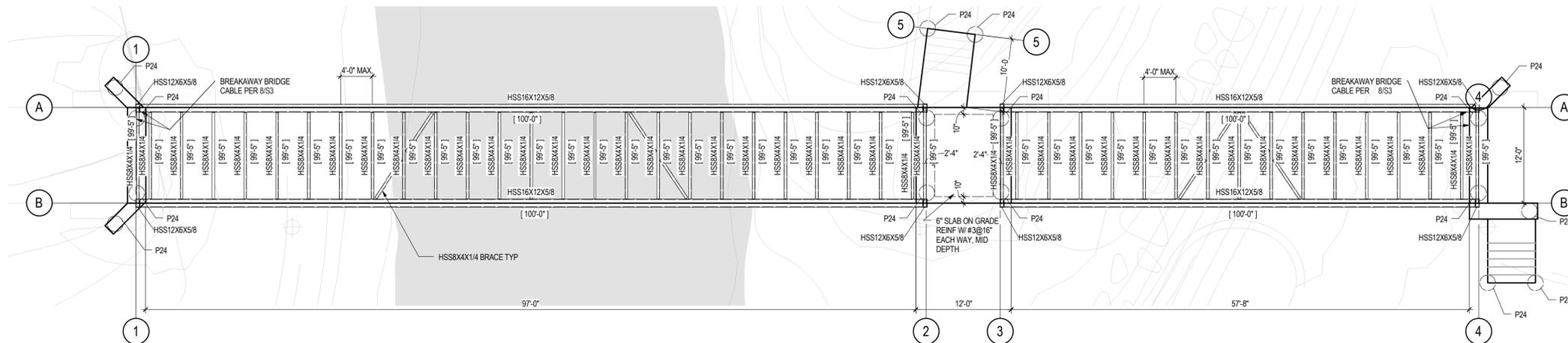
FOUNDATION DESIGN:
Refer to Soils Report no. _____, dated _____.
Geotechnical Engineer shall verify soil conditions and types during excavation and prior to placement of formwork or concrete.

DRILLED PIERS (CAST-IN-PLACE DEEP FOUNDATIONS):
Straight shaft drilled piers are designed for maximum end bearing pressure 20,000 psf allowable side shear 2,000 psf minimum penetration into bedrock 14 feet minimum total length _____ feet
See plans for additional penetration and length requirements.
See boring logs in the soils report for indicated variation in bedrock surface.
Mushrooming at the tops of piers is not permitted.
Provide for overrun or under-run in drilling lengths and installed quantities of concrete and reinforcing.
Pier holes shall be thoroughly cleaned and dewatered and shall be inspected by the geotechnical engineer prior to concrete placement. Casing of drilled pier holes may be required.

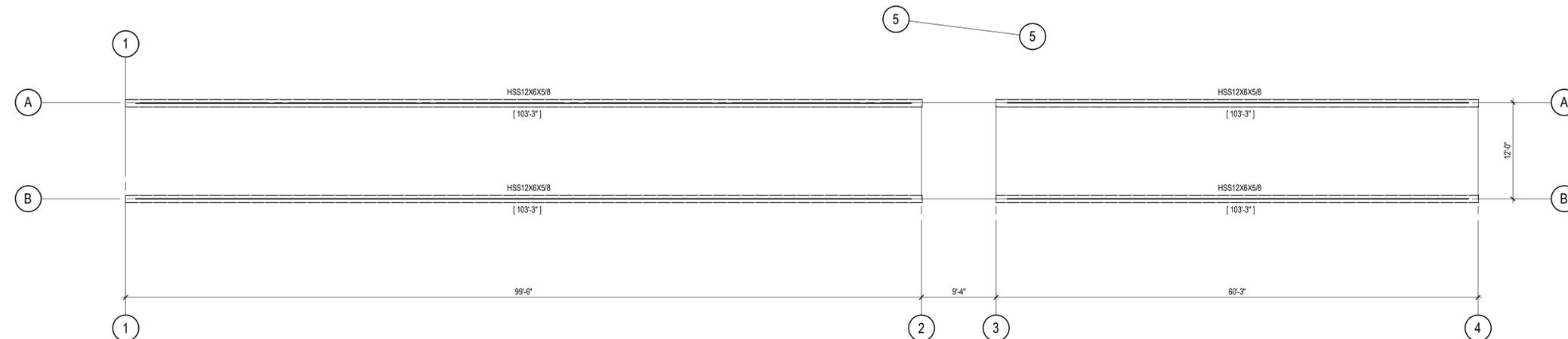
REINFORCED CONCRETE:
Design is based on ACI 318 "Building Code Requirements for Reinforced Concrete." Concrete work shall conform to ACI 301 "Standard Specifications for Structural Concrete."

Intended Use	f'c, psi	Max w/c Ratio	Maximum Aggregate (+/- 1")	Slump, inches	Entrained Air, percent (+/- 1.5%)	Cement Type	Admixtures, Comments
	3,000	0.55	3/4" Stone	7	3	I/II	
	4,000	0.45	3/4" Stone	4	3	I/II	

Structural concrete shall have the following properties:
Detailing, fabrication, and placement of reinforcing steel shall be in accordance with ACI 318 "Details and Detailing of Concrete Reinforcement."
Reinforcing bars shall conform to ASTM A633, Grade 60, except ties or bars shown to be field-bent, which shall be Grade 40.
Epoxy coated reinforcing bars shall conform to ASTM 775.
Bars to be welded shall conform to ASTM 706.
Unless noted otherwise on the Structural Drawings, lap bars 50 diameters (minimum).
At corners and intersections, make horizontal bars continuous or provide matching corner bars for each layer of reinforcement.
Trim openings in walls and slabs with 2-#5 for each layer of reinforcement, fully developed by extension or hook.
In continuous members, splice top bars at mid-span and splice bottom bars over supports.
Form intermittent shear keys at all construction joints and as shown on the Structural Drawings.
Except as noted on the drawings, concrete protection for reinforcement in cast-in-place concrete shall be as follows:
cast against and permanently exposed to earth: 3"
Exposed to earth or weather:
#6 through #18 bars 2"
#5 bar, #31 or #31 wire, and smaller 1-1/2"
Anchor bolts and rods for beam and column-bearing plates shall be placed with setting templates.



FOUNDATION AND DECK FRAMING PLAN
1/8" = 1'-0"
0 2' 4' 8' 16'



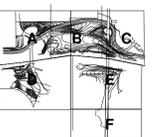
TOP RAIL PLAN
1/8" = 1'-0"
0 1' 2' 4' 8'



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01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	50% DD (TECH DOC 01)		

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Key Plan



North



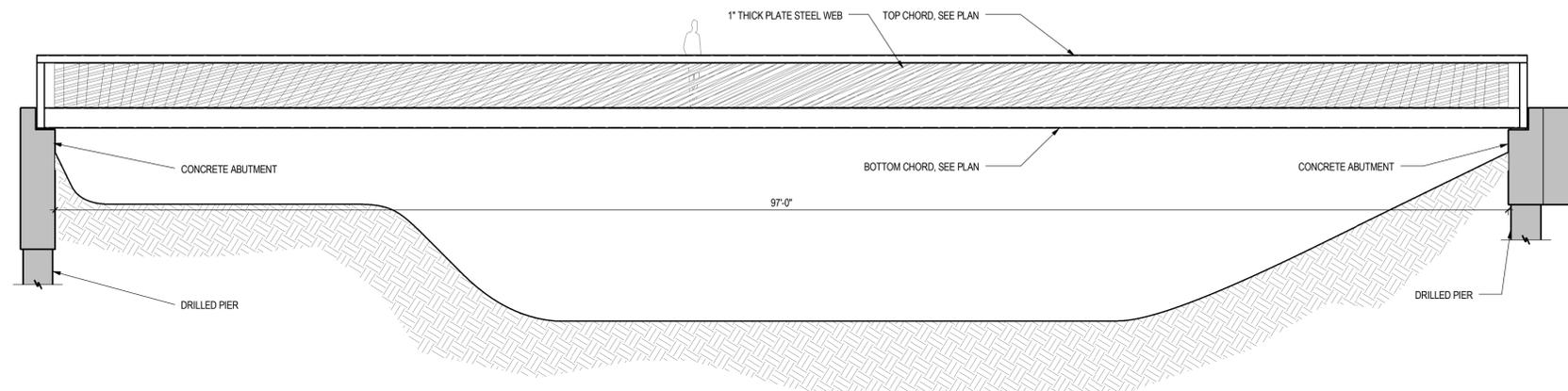
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Date
2016-01-08 SUBMITTAL
Phase
DESIGN DEVELOPMENT
Job Number
TLS-JOB#COB401

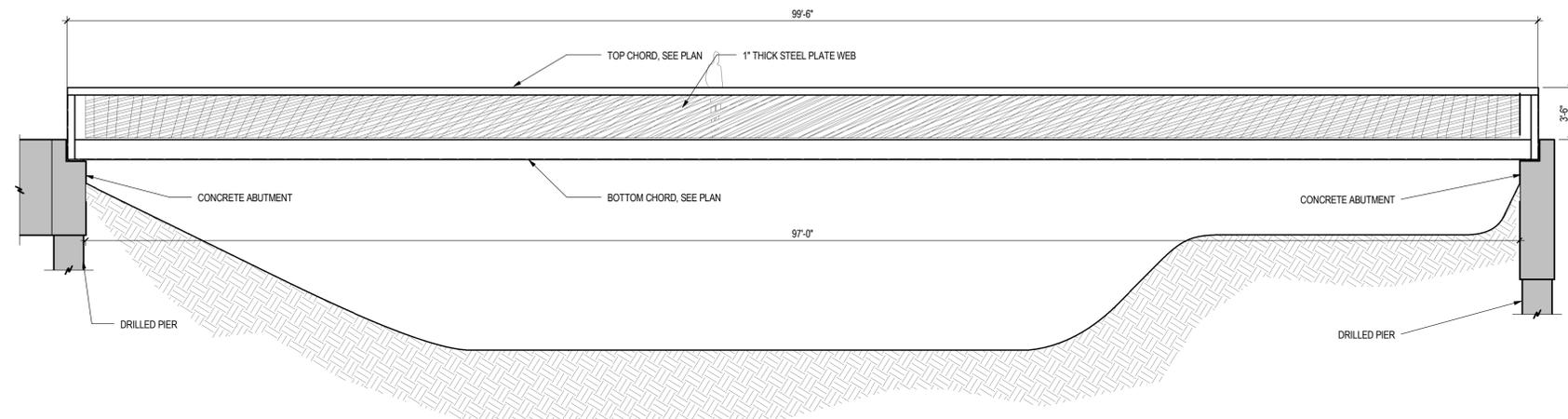
Drawing Title
BRIDGE PLANS

Drawing Number

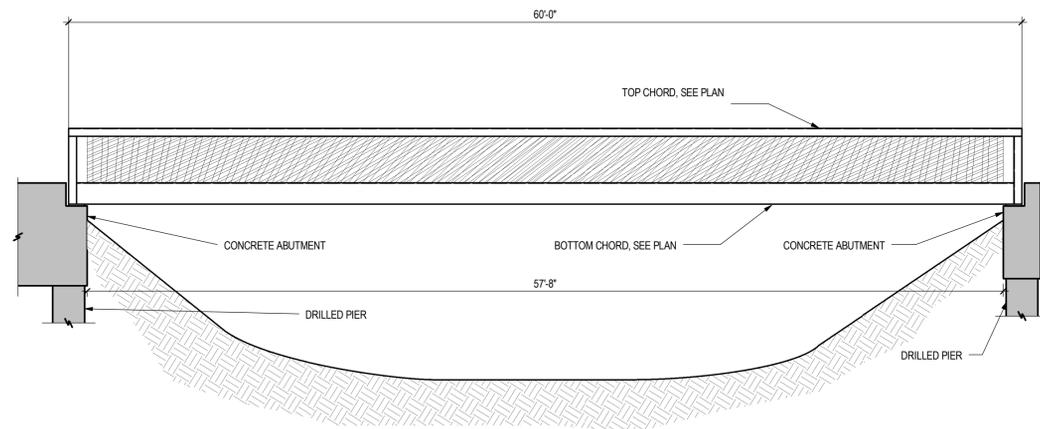
S1



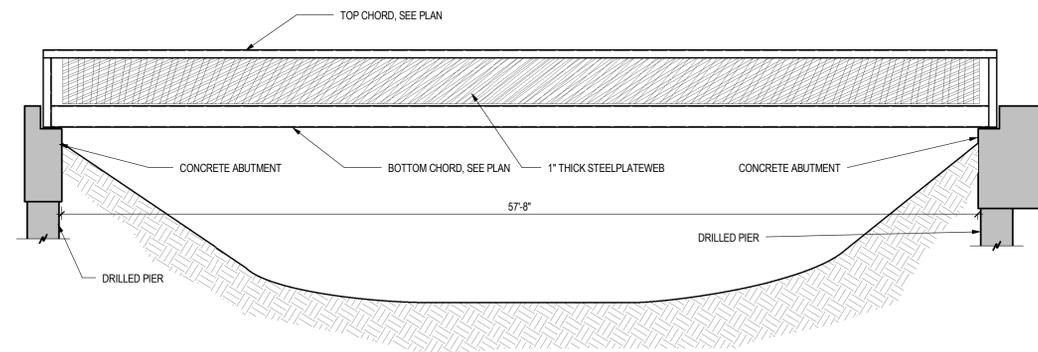
3 SOUTH BRIDGE EAST ELEVATION
S2 3/16" = 1'-0"



4 SOUTH BRIDGE WEST ELEVATION
S2 3/16" = 1'-0"



1 NORTH BRIDGE EAST ELEVATION
S2 3/16" = 1'-0"

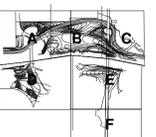


2 NORTH BRIDGE WEST ELEVATION
S2 3/16" = 1'-0"

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Key Plan



North



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2016-01-08 SUBMITTAL
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Drawing Title
**BRIDGE
ELEVATIONS**

Drawing Number

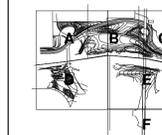
S2



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01.28.2016	100% DD		
05.02.2016	50% DD (TECH DOC 01)		

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Key Plan



North



Scale:

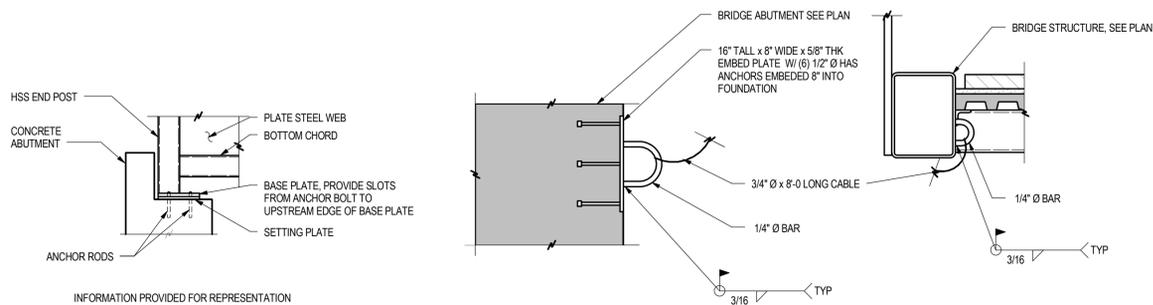
Date
2016-01-08 SUBMITTAL
Phase
DESIGN DEVELOPMENT
Job Number
TLS-JOB#COB401

Drawing Title

**BRIDGE AND
ABUTMENT
DETAILS**

Drawing Number

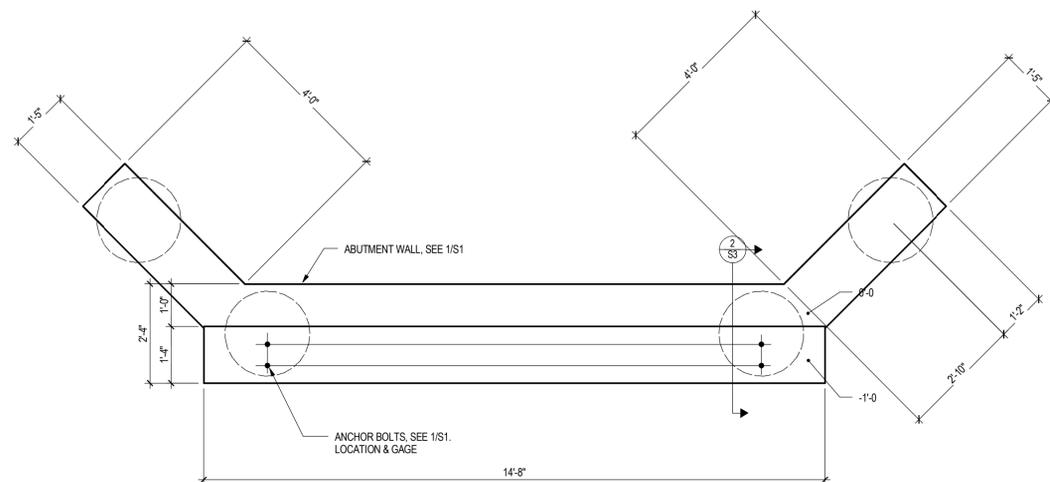
S3



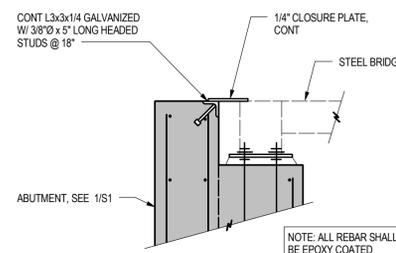
INFORMATION PROVIDED FOR REPRESENTATION ONLY. ACTUAL BEARING DIAGRAMS TO BE BASED ON FINAL DESIGN

7 BEARING SIDE VIEW
S3 3/4" = 1'-0"

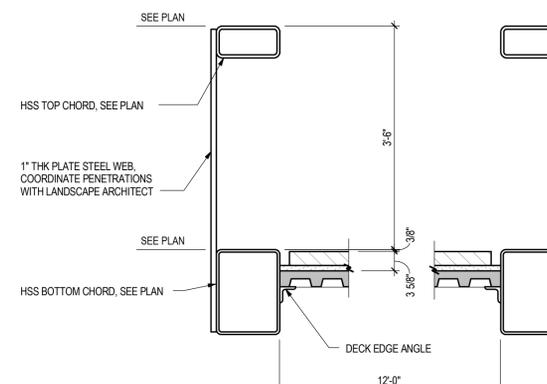
8 BREAKAWAY DETAIL
S3 3/4" = 1'-0"



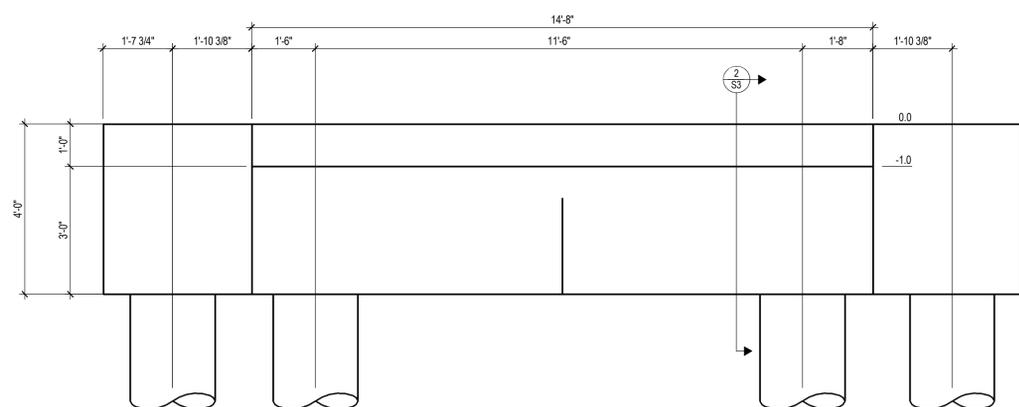
4 ABUTMENT PLAN
S3 1/2" = 1'-0"



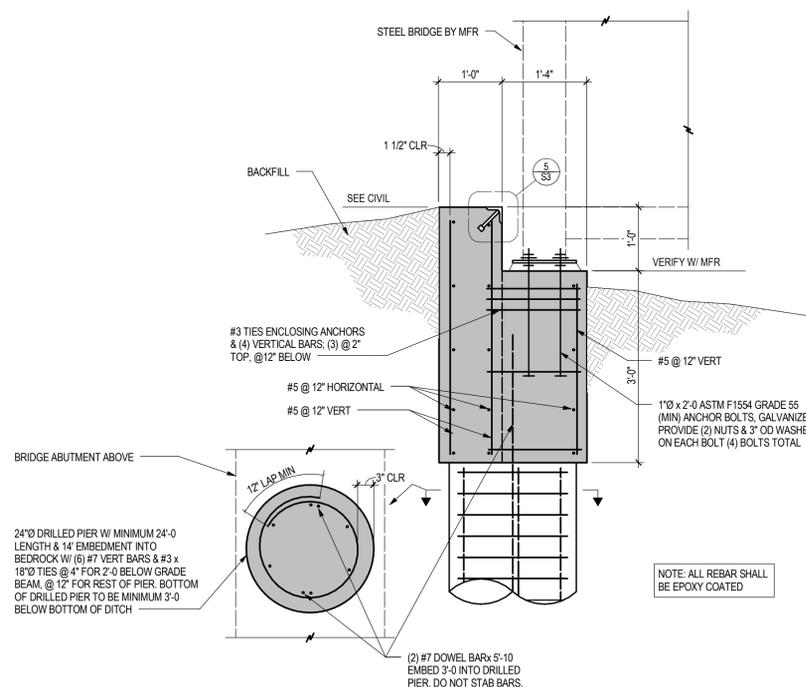
5 DETAIL2
S3 3/4" = 1'-0"



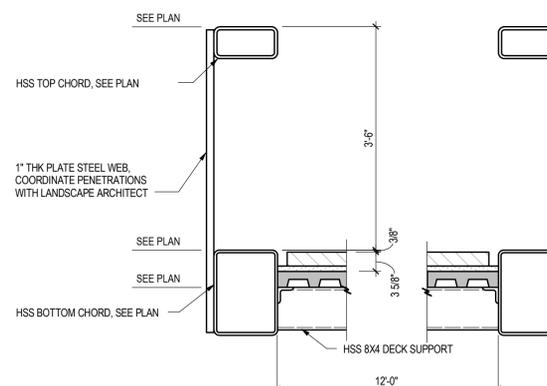
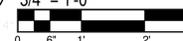
6 BRIDGE SECTION
S3 3/4" = 1'-0"



1 ABUTMENT ELEVATION
S3 1/2" = 1'-0"



2 DETAIL1
S3 3/4" = 1'-0"



3 BRIDGE SECTION AT DECK SUPPORT
S3 3/4" = 1'-0"

BOULDER CIVIC AREA PARK LIGHTING IMPROVEMENTS

CITY OF BOULDER PARKS AND RECREATION
BOULDER, COLORADO

**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



TOM LEADER STUDIO
1015 Comella Street, Berkeley, CA 94710 | 510.524.3363

CLANTON & ASSOCIATES

LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80501
303-440-7229

SHEET INDEX

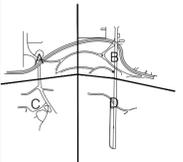
LT1.0	TITLE SHEET
LS1.0	SUMMARY OF APPROXIMATE QUANTITIES
LG1.0	GENERAL NOTES AND KEY MAP
LE.01 - LE.04	LIGHTING PLAN SHEETS
LE.05 - LE.07	LIGHTING DETAILS, PANEL SCHEDULES AND ONE-LINE DIAGRAM

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05.02.2016	90% CD (TECH DOC 01)		

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NOT FOR CONSTRUCTION

Key Plan



North



Scale:

FINAL LIGHTING PLANS

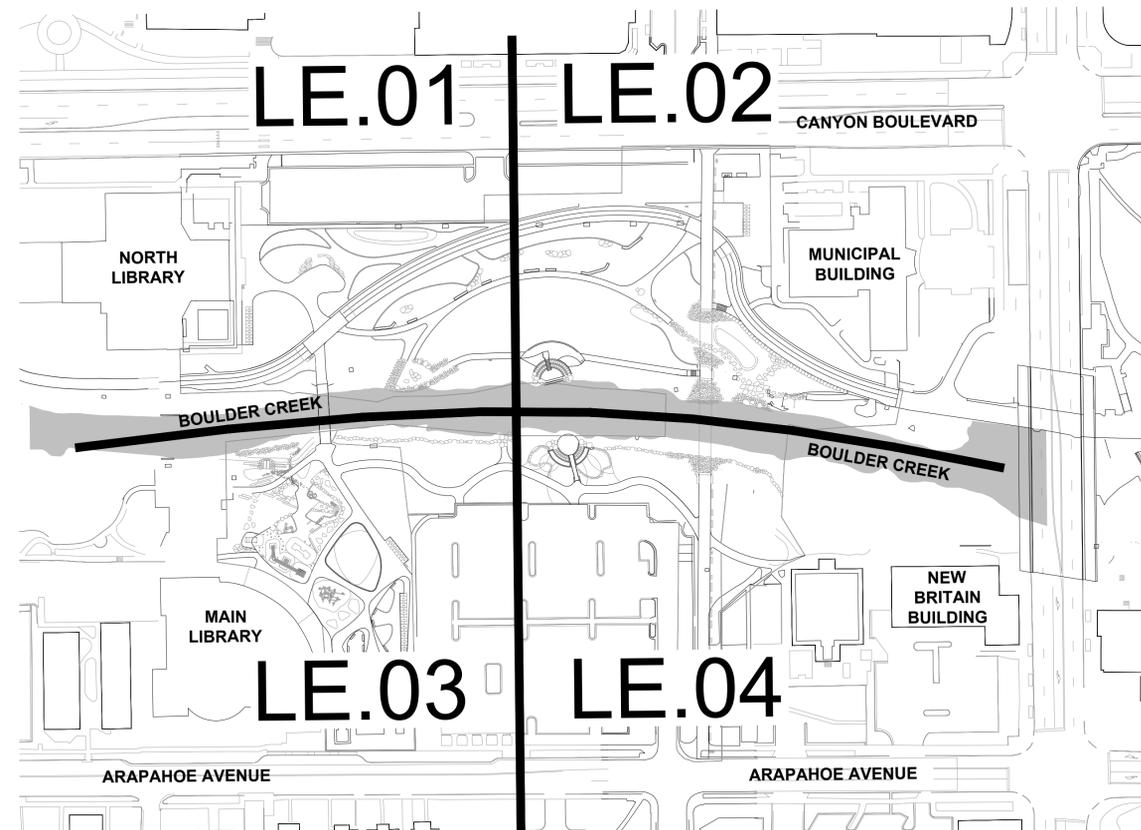
Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

LIGHTING & ELECTRICAL PLAN
GREEN VALLEY WEST

Drawing Number

LT.01



VICINITY MAP
NOT TO SCALE

OWNER:
City of Boulder, Parks and Recreation
3198 Broadway
Boulder, Colorado 80304
Contact: Jennifer P...
Phone: 303-413-7233

TABULATION OF APPROXIMATE QUANTITIES



**CIVIC AREA
PARK
DEVELOPMENT
PLAN**
Boulder, CO



TOM LEADER STUDIO
1015 Comella Street, Berkeley, CA 94710 | 510.524.3363

CLANTON & ASSOCIATES

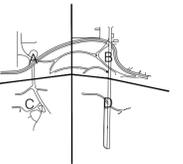
LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80501
303-430-7229

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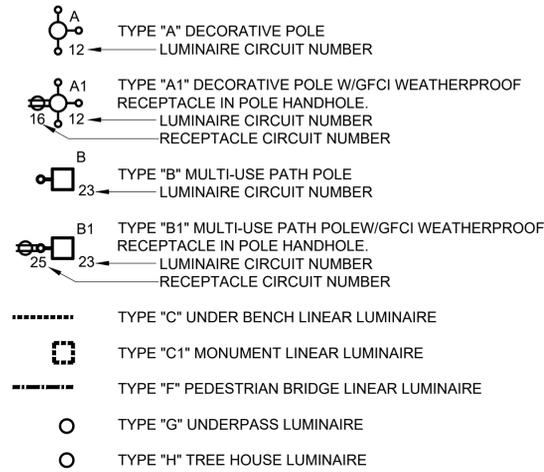
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CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title
LIGHTING PLAN –
GREEN VALLEY WEST

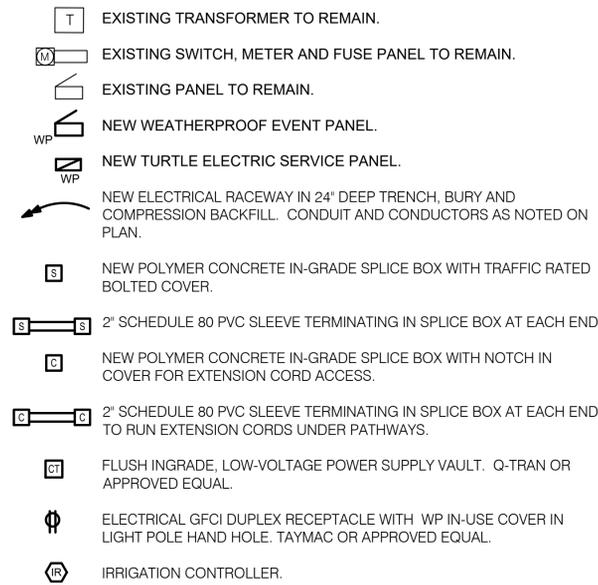
Drawing Number

LS.01

LIGHTING LEDGEND



ELECTRICAL LEGEND



GENERAL NOTES:

- ALL DEVICES, CONDUIT AND CONDUCTORS SHOWN ON THESE AS PROVIDE, SHALL BE IN NEW UN-USED CONDITION WITH NO DEFECTS OR DAMAGE.
- ALL DAMAGED PRODUCTS FROM NOTE 1 ABOVE SHALL BE REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
- ALL ELECTRICAL COMPONENTS AND INSTALLATION SHALL BE TO THE NFPA'S NEC 2014 EDITION AND TO THE LOCAL AUTHORITY HAVING JURISDICTION'S SPECIFICATIONS AND REQUIREMENTS.
- ALL CONDUCTORS SHALL BE COPPER MINIMUM SIZE 12 AWG.
- ALL CONDUIT SHALL BE MINIMUM 3/4" EMT WITH COMPRESSION TYPE FITTINGS FOR ABOVE GRADE AND 2" SCHEDULE 80 PVC CONDUIT AND FITTING WHERE INSTALL BELOW GRADE. UNLESS OTHERWISE NOTED (UON) ON PLANS.

BOULDER CIVIC AREA PARK LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	SOURCE	INPUT WATTS	VOLT	MANUFACTURE R	CATALOG NUMBER
A	POLE MOUNTED MULTI-LUMINAIRE ASSEMBLY POLE MOUNTED LED LUMINAIRE (3 LUMINAIRES PER POLE) FLOOD DISTRIBUTION 70" 28" CAST ALUMINUM MOUNTING ARM TILT-SWIVEL RANGE FROM 0° TO 175° AND 360° ROTATION MOUNTING HEIGHT VARIES. SEE DETAILS FOR HEIGHTS NOMINAL 9" DIAMETER DIE CAST ALUMINUM HOUSING BAKED ENAMEL FINISH TO BE SELECTED TEMPERED CLEAR GLASS LENS INTEGRAL ELECTRONIC 0-10V DIMMING BALLAST LUMINAIRE MUST BE UL LISTED FOR WET LOCATION MODIFIED FOR MAXIMUM 899 LUMEN OUTPUT 20" ROUND TAPERED POLE WITH WITH ANSI C136.41 RECEPTACLE	3000K LED	44 (BEFORE MODIFICATION)	120	SELUX	Olivio Medio Universal (Qty 3) OLM-ASM-SSx-L23-3K-TBD-120-DM-MOD: 899 Lumens + (Qty 1) AT64-156-MOD: WITH ANSI C136.41 RECEPTACLE
A1	SAME AS TYPE A, EXCEPT WITH CONVENIENCE OUTLET					
B	POLE MOUNTED MULTI-USE PATH LUMINAIRE POLE MOUNTED LED LUMINAIRE TYPE II PATH DISTRIBUTION BAKED ENAMEL FINISH TO BE SELECTED INTEGRAL ELECTRONIC BALLAST ANSI C136.41 RECEPTACLE LUMINAIRE MUST BE UL LISTED FOR WET LOCATION.	3000K LED	14	120	WEFF	VFL520 661-7721 MOD: ANSI C136.41 RECEPTACLE + Round straight 14' pole
B1	SAME AS TYPE B, EXCEPT WITH CONVENIENCE OUTLET					
C	SEAT WALL LIGHTING SURFACE MOUNTED LINEAR LUMINAIRE NOMINAL 3/4" SQUARE FLEXBLE WATER TIGHT UV & IMPACT RESISTANT ACRYLIC DIFFUSER LENGTH(S) AS SHOWN ON PLANS MOUNTED UNDER OVERHANG OF SEAT WALLS LUMINAIRE MUST BE UL LISTED FOR WET LOCATION, IP 67 POWER SUPPLY WIRING TO BE DETAILED BY MANUFACTURER'S SHOP DRAWINGS SUPPLY COMPLETE SYSTEM WITH IN-GRADE POWER SUPPLY (CT), CABLES AND CONNECTORS 22AWG FEMALE WHIPS, 16' LONG 3 YEAR WARRANTY	3000K LED	2 W/FOOT	24VDC	LED LINEAR	VarioLED FLEX VENUS TV IP 67 KMWG-X-30K-HO-20-A-BZ
CT	SEAT WALL LIGHTING POWER SUPPLY IN-GRADE POWER SUPPLY 10X17X12" DEEP COMPOSITE HOUSING, BRONZE LID PROVIDE DRAINAGE PER MANUFACTURER'S REQUIREMENTS			UNIV	Q-TRAN	Q-SET-eLED Q-SET-MLED-100-120/12VDC Q-VAULT-5-BZ-FR
C1	MONUMENT LIGHTING SAME AS TYPE C, EXCEPT DISTIRBUTION	3000K LED	TBD	24VDC	LED LINEAR	VarioLED TBD
D	NOT USED					
E	NOT USED					
F	BRIDGE LIGHTING SURFACE MOUNTED LINEAR GRAZE LUMINAIRE NOMINAL 10 DEGREE DISTRIBUTION FOR CONTINUOUS END-TO-END MOUNTING WITHOUT LIGHT GAPS NOMINAL 1" SQUARE WATER TIGHT UV & IMPACT RESISTANT ACRYLIC DIFFUSER LENGTH(S) AS SHOWN ON PLANS MOUNTED UNDER OVERHANG OF BRIDGE RAIL LUMINAIRE MUST BE UL LISTED FOR WET LOCATION POWER SUPPLY WIRING TO BE DETAILED BY MANUFACTURER'S SHOP DRAWINGS SUPPLY COMPLETE SYSTEM WITH IN-GRADE POWER SUPPLY (CT), CABLES AND CONNECTORS 5 YEAR WARRANTY	2700K LED	5.4 W/FOOT	24VDC	LED LINEAR ALTERNATE: LUMINII	KALYPSO HYDRA HD6 IP67 KENDO WET GRAZE KMWG-12-2700K-HO-20-F-BK-?
FT	BRIDGE LIGHTING POWER SUPPLY SURFACE MOUNTED POWER SUPPLY LINE DIMMING WET LOCATION HOUSING				LUMINII	TBD
G	PEDESTRAIN TUNNEL SURFACE MOUNTED VANDAL PROOF SOLID STATE LUMINAIRE NOMINAL 13" ROUND X 4" DEEP POLYCARBONATE HOUSING OPAL PRISMATIC POLYCARBONATE LENS BLACK FINISH INTEGRAL ELECTRONIC 0-10V DIMMING DRIVER STAINLESS STEEL TAMPER RESISTANT HARDWARE SUITABLE FOR WET LOCATION LIFETIME VANDAL WARRANTY	3000K LED	17	120	LUMINAIRE ALTERNATE: KENALL	ANYX13 ARV13-15W-3000K-120-277-OP-BLK-DIM-TX/SD MILLENIUM EDGE MR13FFL-PP-MB-20L30K-DCC-120-9500
H	TREE HOUSE LUMINAIRE SURFACE MOUNTED VANDAL PROOF SOLID STATE LUMINAIRE NOMINAL 16.5" LONG X 9.4" WIDE X 3.5" DEEP POLYCARBONATE HOUSING OPAL PRISMATIC POLYCARBONATE LENS BLACK FINISH INTEGRAL ELECTRONIC 0-10V DIMMING DRIVER FOR USE WITH INTEGRAL OCCUPANCY SENSOR - SET LOW LEVEL TO 10% STAINLESS STEEL TAMPER RESISTANT HARDWARE SUITABLE FOR WET LOCATION LIFETIME VANDAL WARRANTY	3000K LED	15	120	LUMINAIRE ALTERNATE: KENALL	STAIR LIGHTER TSL9-1-15-3000K-M7-120-OP-BLK TBD

BOULDER CIVIC AREA PARK CONTROL STRATEGIES

Zone	Function	Control	Sequence of Operation*
Type A	11th Street Spine	Single node per pole	Dusk to Dawn with curfew set-back
Type B	Multi-Use Path	Single node per luminaire	Dusk to Dawn with curfew set-back
Type C	Bench Lighting	Dimming at Control Center	Static dim level, on/off
Type C1	Monument Lighting	Dimming at Control Center	Static dim level, on/off
Type F	bridge Lighting	Dimming at Control Center	Static dim level, on/off
Type G	Pedestrian Tunnel	Dimming at Control Center	Static dim level, on/off
Type H	Tree house Lighting	Dimming at Control Center	Static dim level, on/off

*Sequence of Operation will be similar to other 2A projects

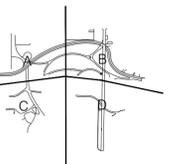


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NOT FOR CONSTRUCTION

Key Plan



North



Scale:

FINAL LIGHTING PLANS

Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

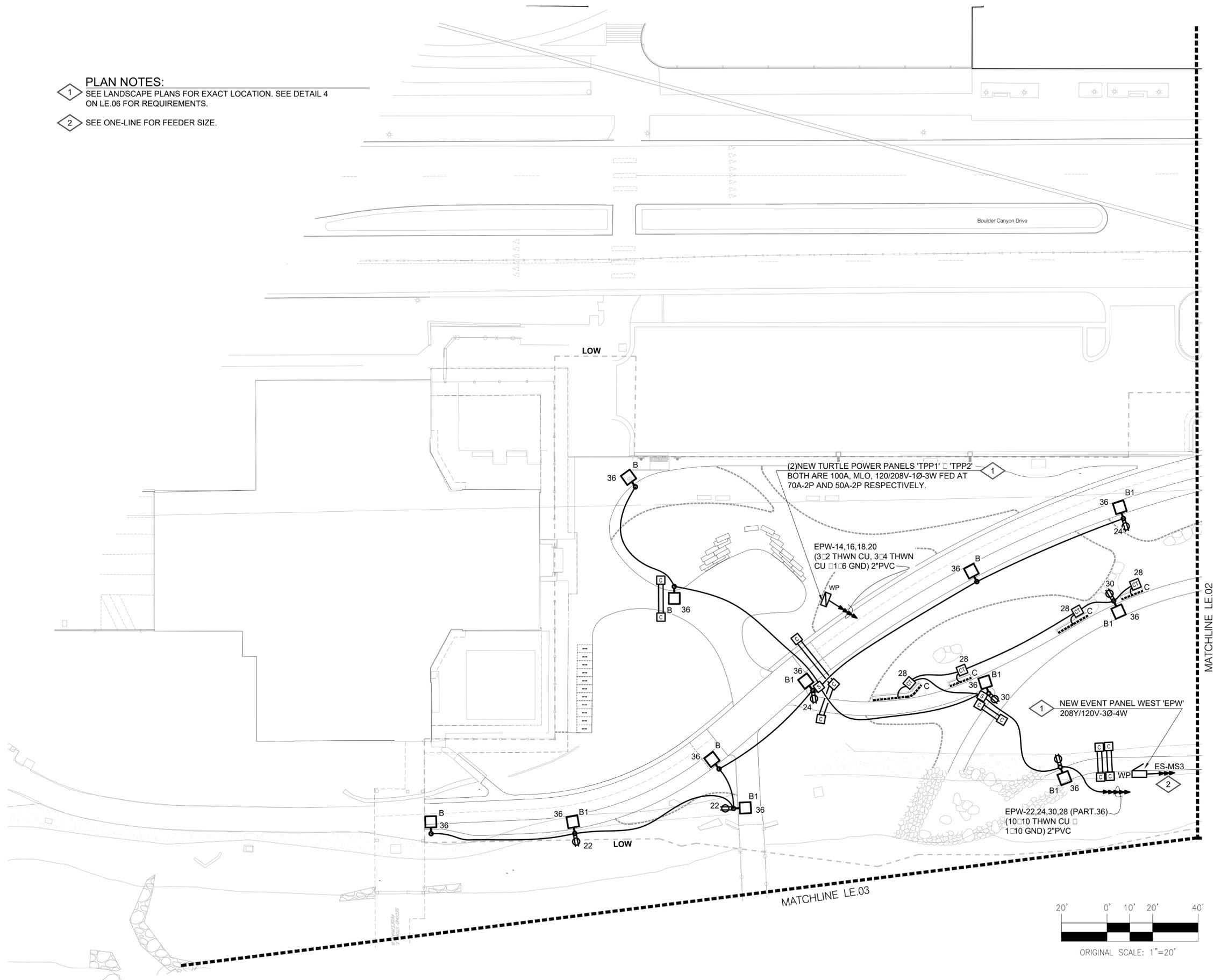
Drawing Title
LIGHTING PLAN –
GREEN VALLEY WEST

Drawing Number

LG.01



- PLAN NOTES:**
- 1 SEE LANDSCAPE PLANS FOR EXACT LOCATION. SEE DETAIL 4 ON LE.06 FOR REQUIREMENTS.
 - 2 SEE ONE-LINE FOR FEEDER SIZE.

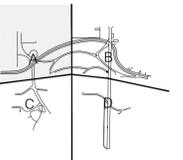


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Key Plan



North



Scale: 1"=20'

FINAL LIGHTING PLANS

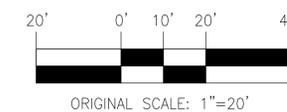
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Drawing Title

LIGHTING PLAN -
GREEN VALLEY WEST

Drawing Number

LE.01



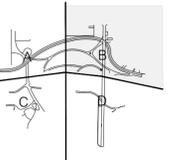


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Key Plan



North



Scale: 1"=20'

FINAL LIGHTING PLANS

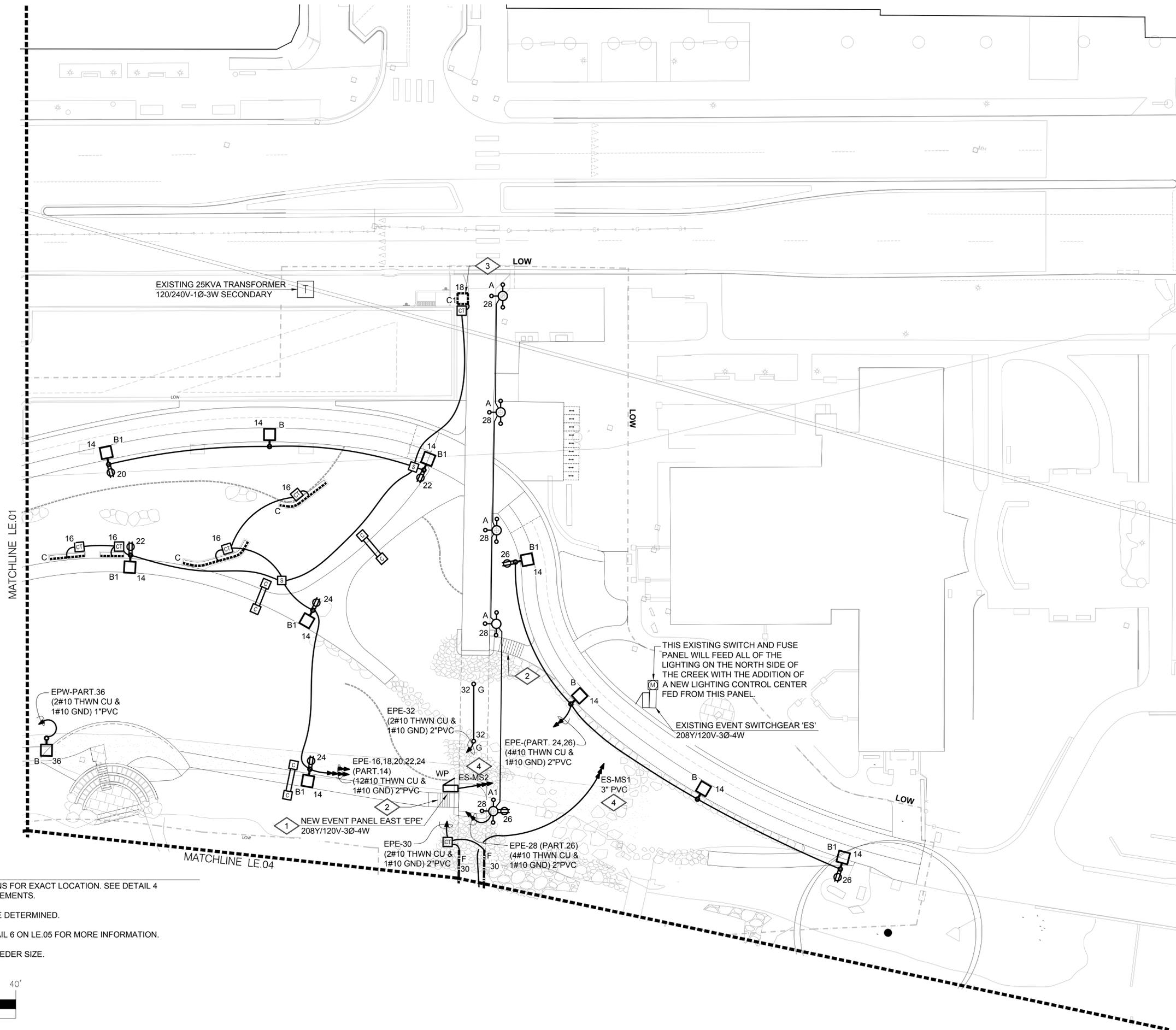
Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

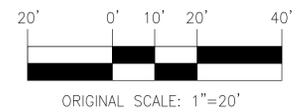
LIGHTING PLAN -
GREEN VALLEY EAST

Drawing Number

LE.02

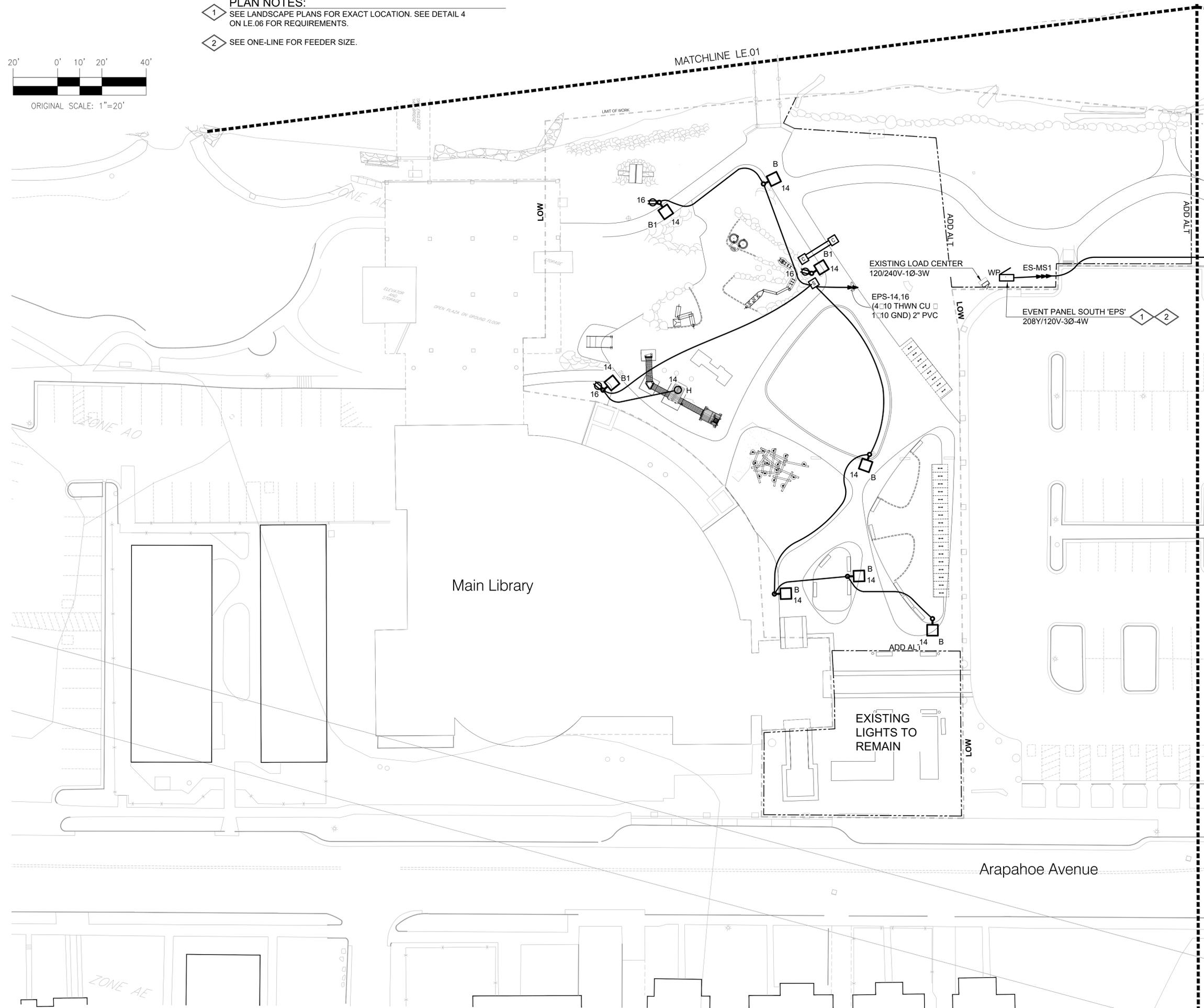


- PLAN NOTES:**
- 1 SEE LANDSCAPE PLANS FOR EXACT LOCATION. SEE DETAIL 4 ON LE.06 FOR REQUIREMENTS.
 - 2 STAIR LIGHTING TO BE DETERMINED.
 - 3 SEE MONUMENT DETAIL 6 ON LE.05 FOR MORE INFORMATION.
 - 4 SEE ONE-LINE FOR FEEDER SIZE.





- PLAN NOTES:**
- 1 SEE LANDSCAPE PLANS FOR EXACT LOCATION. SEE DETAIL 4 ON LE.06 FOR REQUIREMENTS.
 - 2 SEE ONE-LINE FOR FEEDER SIZE.

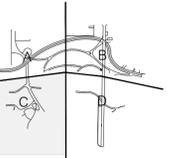


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Seal/Signature

NOT FOR CONSTRUCTION

Key Plan



North



Scale: 1"=20'

FINAL LIGHTING PLANS

Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

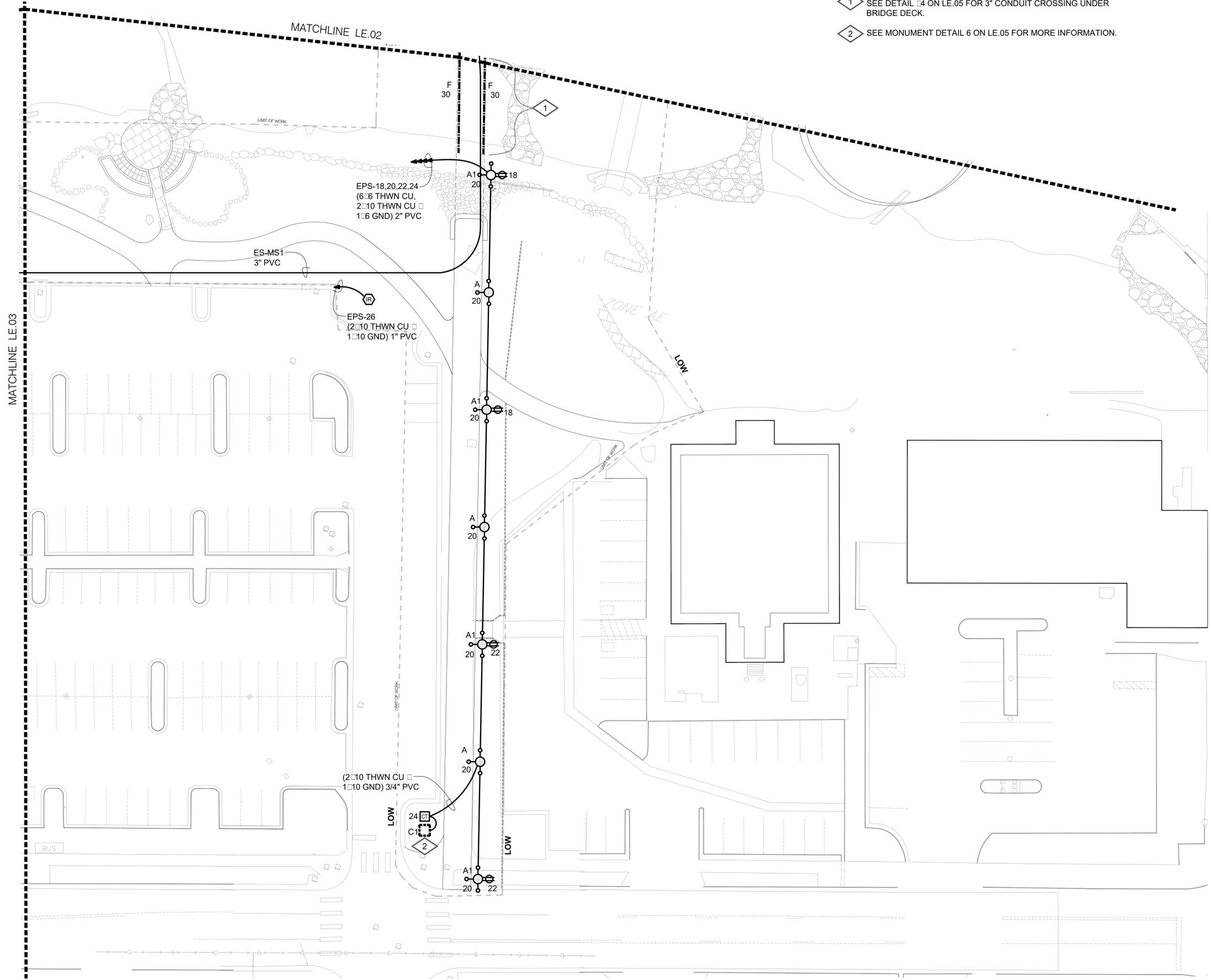
Drawing Title
LIGHTING PLAN -
NATURE PLAY

Drawing Number

LE.03



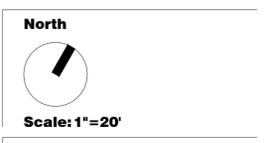
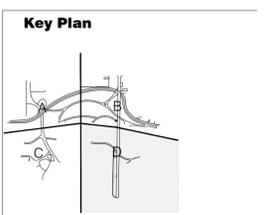
- PLAN NOTES:**
- 1 SEE DETAIL 4 ON LE.05 FOR 3" CONDUIT CROSSING UNDER BRIDGE DECK.
 - 2 SEE MONUMENT DETAIL 6 ON LE.05 FOR MORE INFORMATION.



Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD (TECH DOC 01)		

Seal/Signature

NOT FOR CONSTRUCTION



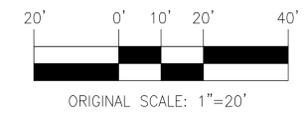
FINAL LIGHTING PLANS

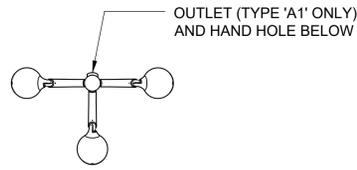
Phase
CONSTRUCTION DOCUMENT

Case Number
TEC 2016XXXX

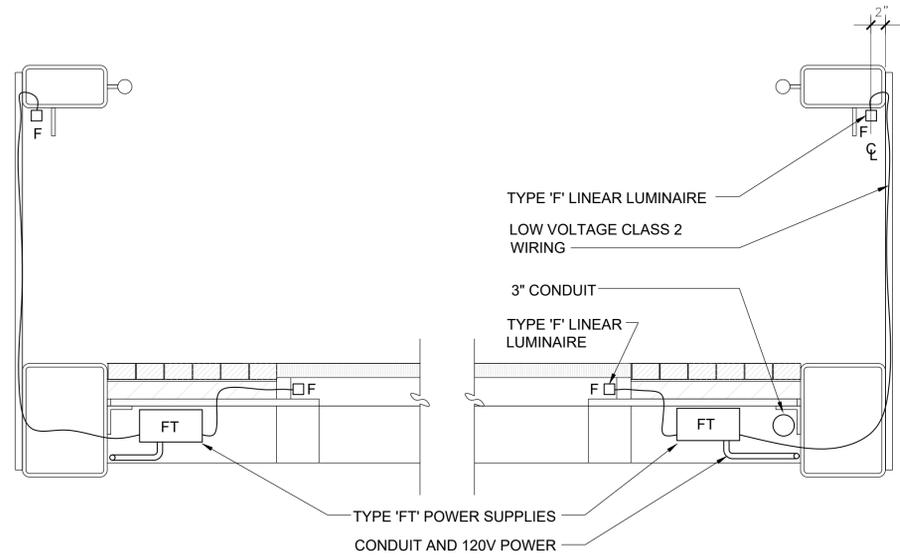
Drawing Title
LIGHTING PLAN -
11TH STREET

Drawing Number
LE.04

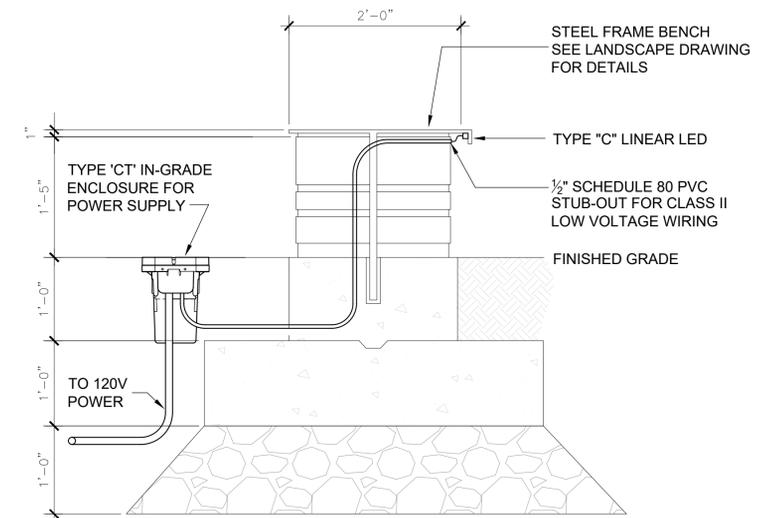




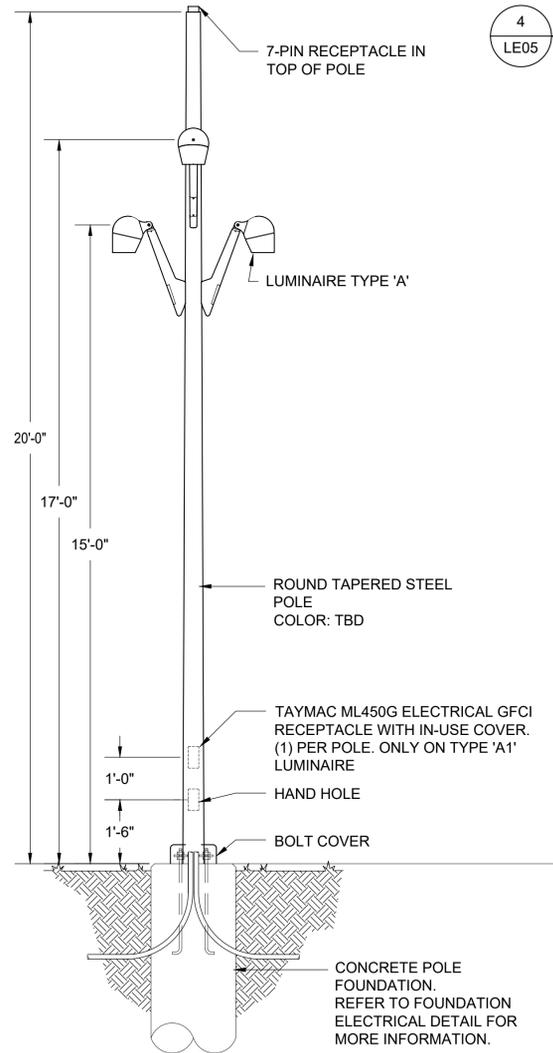
PLAN VIEW



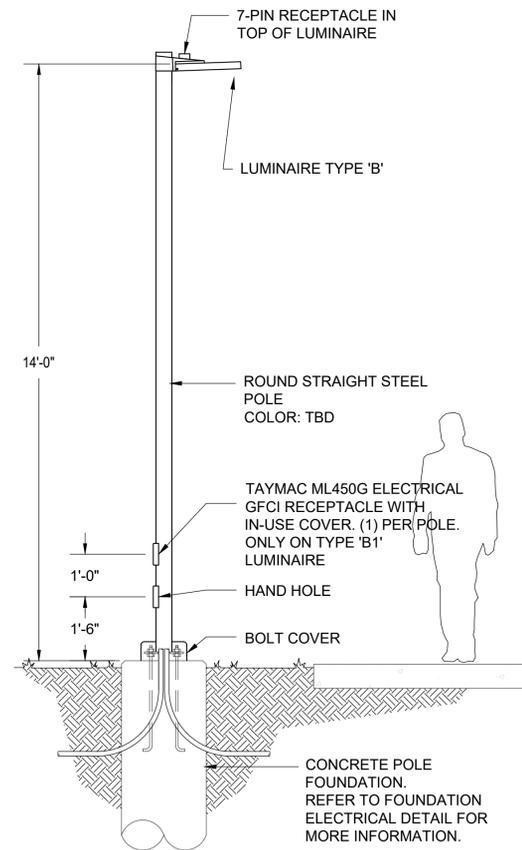
4 BRIDGE LIGHTING DETAIL
LE05 NOT TO SCALE



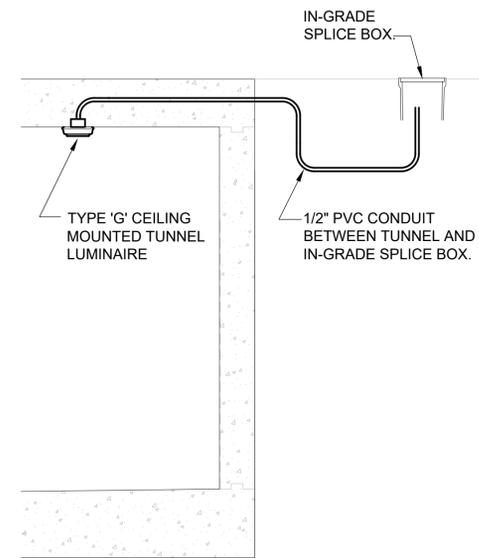
5 BENCH LIGHTING DETAIL - TYPE 'C'
LE05 NOT TO SCALE
NOTE: MONUMENT LIGHTING DETAIL - TYPE 'C1' IS SIMILAR TO BENCH LIGHTING DETAIL - TYPE 'C'.



1 LIGHT STANDARD DETAIL - TYPE 'A' □ 'A1'
LE05 NOT TO SCALE



2 LIGHT STANDARD DETAIL - TYPE 'B' □ 'B1'
LE05 NOT TO SCALE



NOTE: TO BE DEVELOPED

3 TUNNEL LIGHTING DETAIL - TYPE 'G'
LE05 NOT TO SCALE

6 MOUNMENT LIGHTING DETAIL - TYPE 'C1'
LE05 NOT TO SCALE
SIMILAR TO DETAIL 5/LE.05

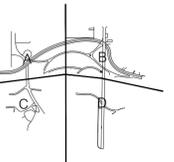
TO BE DEVELOPED

Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD		
	(TECH DOC 01)		

Seal/Signature

NOT FOR CONSTRUCTION

Key Plan



North



Scale: N.T.S.

FINAL LIGHTING PLANS

Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

LIGHTING AND ELECTRICAL
DETAILS

Drawing Number

LE.05

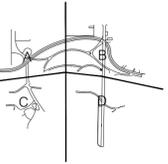


Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD		
	(TECH DOC 01)		

Seal/Signature

NOT FOR CONSTRUCTION

Key Plan



North



Scale: N.T.S.

FINAL LIGHTING PLANS

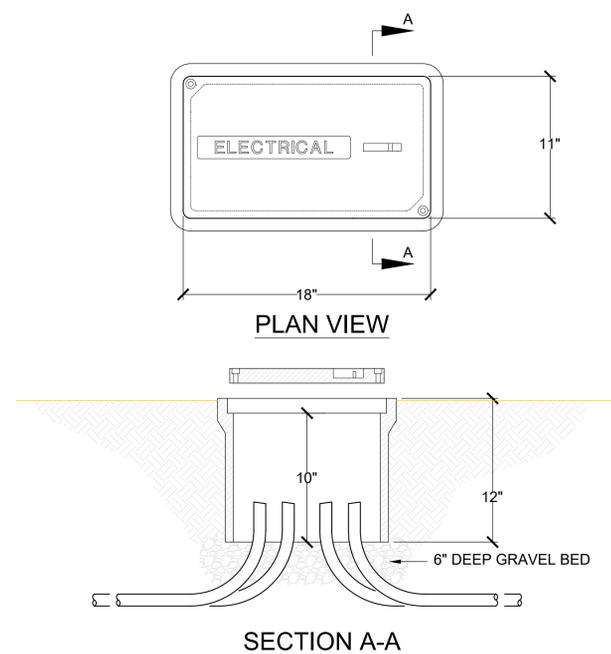
Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

LIGHTING AND ELECTRICAL
DETAILS

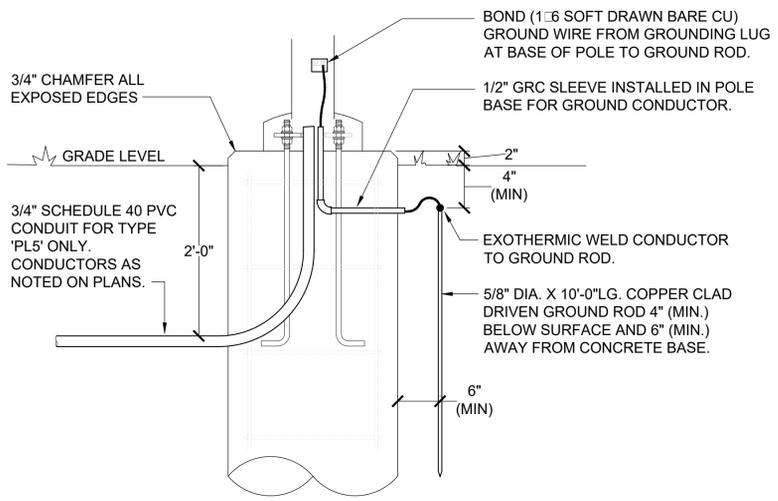
Drawing Number

LE.06



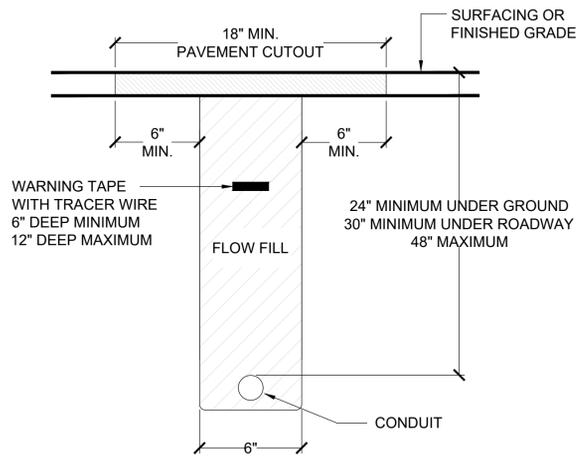
- NOTES:**
- SPLICE BOX SHALL BE CAST POLYMER CONCRETE TYPE WITH HEAVY-DUTY TRAFFIC RATED COVER (ENGRAVED TEXT AS SHOWN) BY QUAZITE OR APPROVED EQUAL.

1 TYPICAL ELECTRICAL SPLICE BOX DETAIL
LE06 NOT TO SCALE



- NOTES:**
- LIGHT STANDARD FOUNDATION REINFORCEMENT PER STRUCTURAL ENGINEER STAMPED FOUNDATION PLAN.
 - DIMENSION FOR ANCHOR BOLT SPACING BY POLE MANUFACTURER.
 - FOUNDATION DETAILS ARE INCLUDED ONLY TO SHOW ELECTRICAL COMPONENTS.
 - CONTRACTOR SHALL ENSURE TOP OF POLE FOUNDATION IS 2" ABOVE GRADE.

2 FOUNDATION ELECTRICAL DETAIL
LE06 NOT TO SCALE

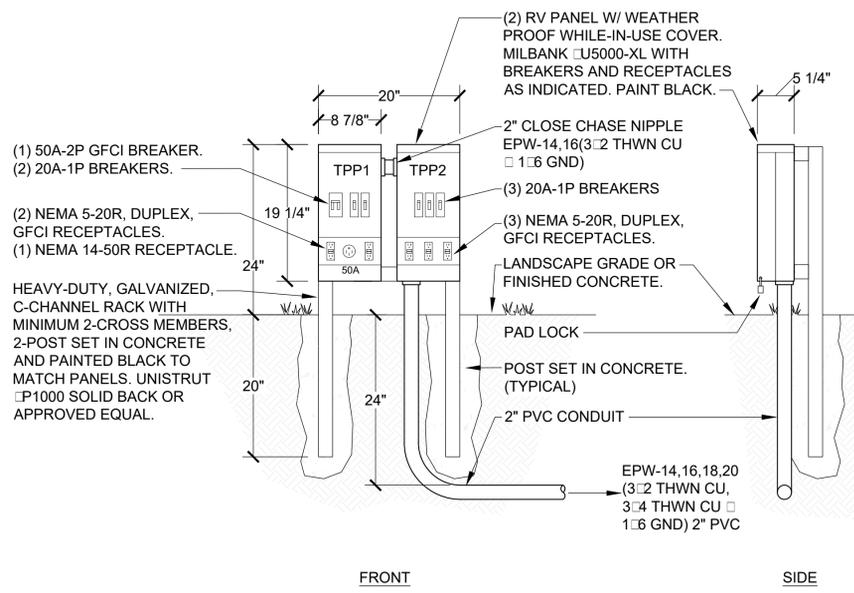


3 CONDUIT TRENCHING DETAIL
LE06 NOT TO SCALE

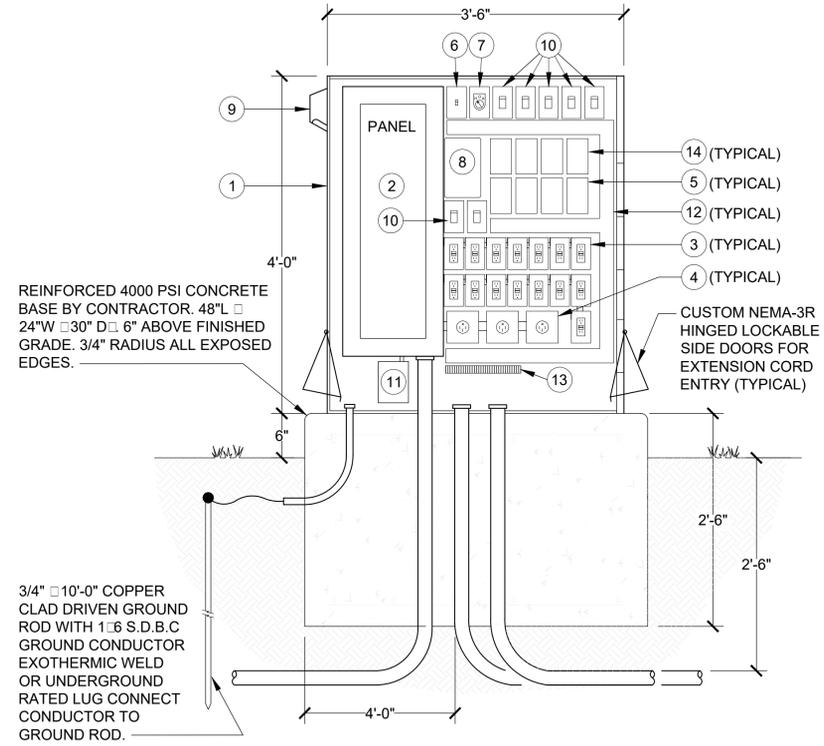
COMPONENTS LIST

- ENCLOSURE - 16" DEEP, NEMA 4, HOT DIPPED GALVANIZED, 12 GA STEEL, HINGED LOCKABLE COVER, OPEN BOTTOM WITH MOUNTING FLANGE AND (6) 1/2"-8" LONG CONCRETE ANCHOR BOLTS. WITH BACK PANEL AND 10"H. 14"L. CUSTOM LOCKABLE SIDE HINGED DOORS FOR EXTENSION CORD ENTRY. SIDE DOORS SHALL ONLY OPEN TO 35°.
- PANEL - NEMA 1, COPPER BUS, 208Y/120V-3Ø-4W WITH NUMBER OF POLES, MAIN AND BRANCH BREAKERS AS INDICATED ON THE PANEL SCHEDULE. SQUARE D QO342MQ200 W/QOC342MQS COVER AND PK23GTA GND. OR APPROVED EQUAL.
- 120V RECEPTACLES - NEMA 5-20R, GFCI, DUPLEX RECEPTACLE IN A 1-GANG BACK BOX WITH COVER PLATE, EACH DUPLEX ON A DEDICATED 20A-1P BREAKER. ROUTE 2 #12 AWG COPPER WITH #12 GROUND TO EACH DUPLEX IN 3/4" CONDUIT. (15) REQUIRED IN EPW □ EPE. ONLY (9) REQUIRED IN EPS.
- 120/208V RECEPTACLES - NEMA 14-15R, RECEPTACLE IN A DEEP, 2-GANG BACK BOX WITH COVER PLATE, EACH RECEPTACLE ON A DEDICATED 50A-2P GFCI BREAKER. ROUTE 3 #6 AWG COPPER WITH #10 GROUND TO EACH OUTLET IN 1 1/2" CONDUIT. (3) REQUIRED.
- LIGHTING CONTACTORS - 3ØA, 3-POLE, ELECTRICALLY HELD, LIGHTING CONTACTOR W/120V COIL. MINIMUM (3) REQUIRED. SQUARE D B903-LO30-VO2 OR APPROVED EQUAL.
- POLE MTD RECEPT.S CONTROL SWITCH - 20A, 120/277V, SPST, TOGGLE SWITCH IN 1-GANG BACK BOX AND COVER PLATE. LABEL "POLE MOUNTED RECEPTACLES' SWITCH".
- HAND-OFF-AUTO SWITCH - 15A, 120V, 2-CONTACT SET, WITH BACK BOX AND LEGEND PLATE. CONTROL FOR THE SITE LIGHTING CONTACTOR SHALL BE WIRED TO THE PHOTOCELL/TIME CLOCK IN THE AUTO POSITION FOR ON/OFF CONTROL.
- TIME SWITCH - 2-CHANNEL, ASTRONOMICAL TIME CLOCK, 120V AND 15A CONTACTS. TORK EWZ201 OR APPROVED EQUAL.
- PHOTOCELL - 120V, TWIST-LOCK RECEPTACLE BASE TYPE PHOTOCELL WITH SURGE PROTECTION UV STABLE HOUSING. MOUNT ON THE EXTERIOR OF THE NEMA 4 ENCLOSURE AND ORIENT THE FACE OF THE PHOTOCELL NORTH.
- BOX DIMMER - LINE-VOLTAGE DIMMER IN 1-GANG BACK BOX AND COVER PLATE. ONE DIMMER FOR EACH LIGHTING CIRCUIT. MINIMUM OF (3) DIMMERS REQUIRED.
- SURGE PROTECTION DEVICE-10KA, 120/240VAC SINGLE PHASE, 3W □ G 200KAIC, PROTECTION MODES L-G, N-G, L-N OR L-L. STANDARD OPTIONS (RED □ GREEN LED'S, AUDIBLE ALARM WITH ENABLE/DISABLE FEATURE) LIEBERT ACV 120SIIIIE OR APPROVED EQUAL. PROVIDE (4) #10 THWN CU □ #10GND IN 3/4" CONDUIT, MAXIMUM CONDUCTOR LENGTH NOT TO EXCEED 18".
- PLASTIC WIREWAY - 2"-2" SLOTTED WITH COVER LENGTH AS REQUIRED.
- TERMINAL STRIP - 30-POINT, 600V RATED, TERMINAL STRIP WITH ALL END CAPS AND MOUNTING HARDWARE, LUGS TO ACCEPT #12 THROUGH 2 AWG COPPER WIRE.
- FUSE HOLDERS - 3ØA, 3-POLE, 240V, WITH FRN-R-30 FUSES.

CONTRACTOR TO ASSURE THAT ALL COMPONENTS LISTED ABOVE WILL FIT INSIDE THE NEMA 4 ENCLOSURE. INCREASE THE SIZE AS NECESSARY.



5 NEW TURTLE POWER PANEL DETAIL - 'TPP1' □ 'TPP2'
LE06 NOT TO SCALE



4 NEW EVENT WEATHERPROOF PANEL DETAIL - 'EPS', 'EPE' □ 'EPW'
LE06 NOT TO SCALE

PLAN SYMBOL □ WP

PLAN SYMBOL □ WP



Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD (TECH DOC 01)		

MOUNTING: CONCRETE PAD
NEMA 1 PANEL INSIDE NEMA 4 BLACK ENCLOSURE
208Y/120V-3PH-4W
FEEDER: BOTTOM
Minimum A.I.C.= 10,000
200 AMP MAIN CIRCUIT BREAKER

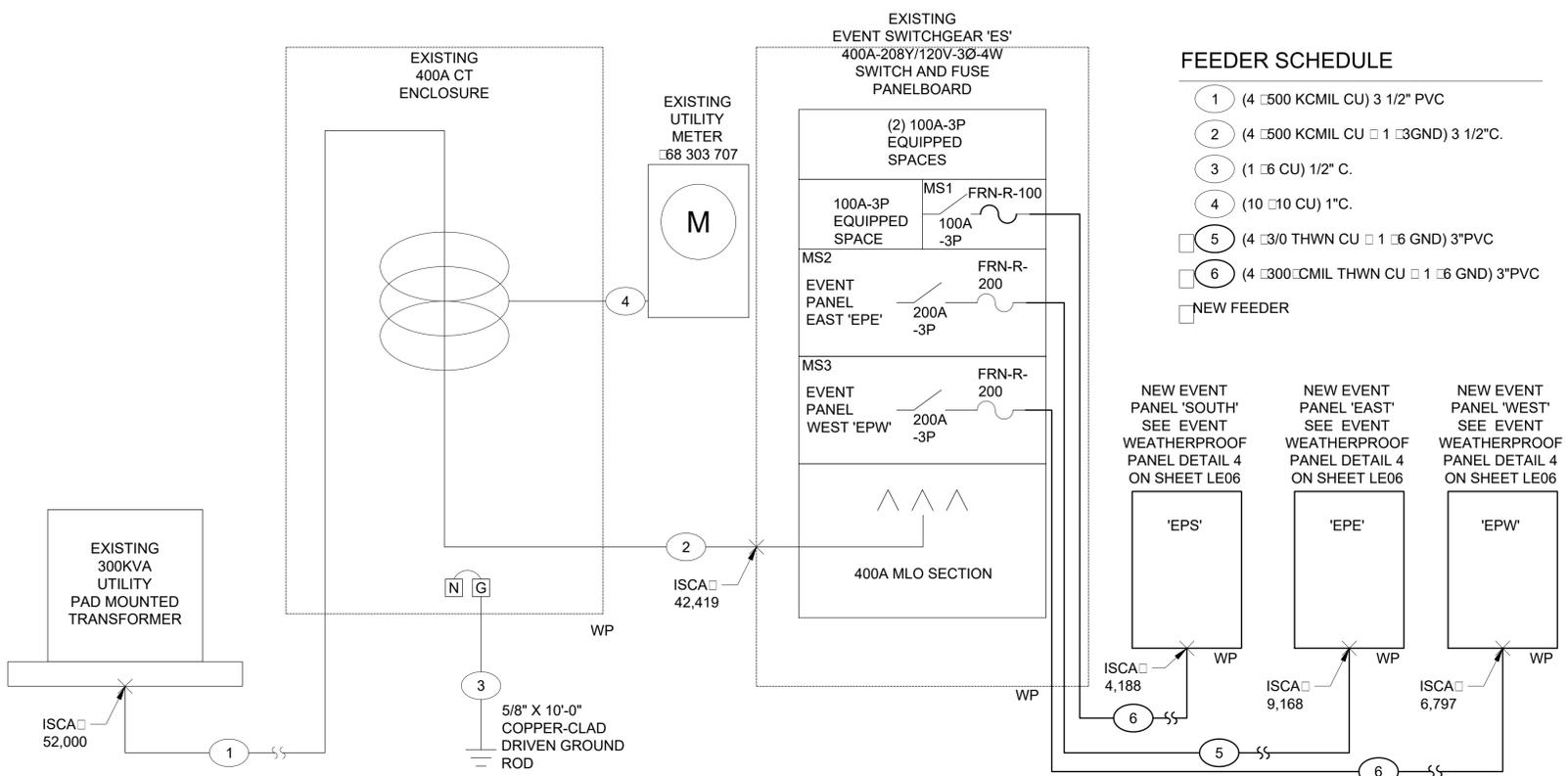
DESCRIPTION	SIZE	P	Ckt#	LEFT PHASE LOAD			RIGHT PHASE LOAD			Ckt#	SIZE	P	DESCRIPTION
				A-PH	B-PH	C-PH	A-PH	B-PH	C-PH				
EVENT RECEPT. IN THIS CABINET	20	1	1	1200			4160			2	50	120/208V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	3		1200			4160		4	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	5			1200			4160	6	50	120/208V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	7	1200			4160			8	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	9		1200			4160		10	50	120/208V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	11			1200			4160	12	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	13	1200			220			14	20	(11) 'B' TYPE PED POLE LTS.	
EVENT RECEPT. IN THIS CABINET	20	1	15		1200			200		16	20	(80)' 'C' TYPE LINEAR BENCH LTS.	
EVENT RECEPT. IN THIS CABINET	20	1	17			1200			120	18	20	(20)' 'C1' TYPE LINEAR MONUMENT	
EVENT RECEPT. IN THIS CABINET	20	1	19	1200			180			20	20	(1) RECEPT. POLE MOUNTED	
EVENT RECEPT. IN THIS CABINET	20	1	21		1200			360		22	20	(2) RECEPT. POLE MOUNTED	
EVENT RECEPT. IN THIS CABINET	20	1	23			1200			360	24	20	(2) RECEPT. POLE MOUNTED	
EVENT RECEPT. IN THIS CABINET	20	1	25	1200			540			26	20	(3) RECEPT. POLE MOUNTED	
EVENT RECEPT. IN THIS CABINET	20	1	27		1200			375		28	20	(5) 'A' TYPE PED POLE LTS.	
EVENT RECEPT. IN THIS CABINET	20	1	29			1200			660	30	20	(110)' 'F' TYPE LINEAR BRIDGE LTS.	
SPARE	20	1	31				34			32	20	(2) 'G' TYPE UNDERDECK LTS.	
SPARE	20	1	33							34	20	SPARE	
SPARE	20	1	35							36	20	SPARE	
SURGE PROTECTION DEVICE	30		37							38	20	SPARE	
-----			39							40	20	SPARE	
-----			3	41						42	15	1 EPE LIGHTING CONTROL CIRCUIT	
				6000	6000	6000	9294	9255	9760				
				15294	15255	15760	Total V.A. This Section						
				46309 =Total Connected VA all (3) Phases in This Section									
LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS									
LIGHTING	1609 VA	1.25	2.01										
RECEPTACLES (1ST 10000)	10000 VA	1.00	10.00										
RECEPTACLES (REMAINING)	34400 VA	0.50	17.20		44400 VA=Total Receptacle Load								
MOTOR (LARGEST)	0 VA	1.25	0.00										
MOTORS (REMAINING)	0 VA	1.00	0.00										
ELECTRICAL HEATING	0 VA	1.25	0.00										
ELECTRICAL MISC.	300 VA	1.00	0.30										
ESTIMATED LOAD THIS SECTION	46309 VA		29.51	82									

MOUNTING: CONCRETE PAD
NEMA 1 PANEL INSIDE NEMA 4 BLACK ENCLOSURE
208Y/120V-3PH-4W
FEEDER: BOTTOM
Minimum A.I.C.= 10,000
200 AMP MAIN CIRCUIT BREAKER

DESCRIPTION	SIZE	P	Ckt#	LEFT PHASE LOAD			RIGHT PHASE LOAD			Ckt#	SIZE	P	DESCRIPTION
				A-PH	B-PH	C-PH	A-PH	B-PH	C-PH				
EVENT RECEPT. IN THIS CABINET	20	1	1	1200			4160			2	50	120/240V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	3		1200			4160		4	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	5			1200			4160	6	50	120/240V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	7	1200			4160			8	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	9		1200			4160		10	50	120/240V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	11			1200			4160	12	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	13	1200			5824			14	70	TURTLE POWER PANEL 1 'TPP1'	
EVENT RECEPT. IN THIS CABINET	20	1	15		1200			5824		16	2	-----	
EVENT RECEPT. IN THIS CABINET	20	1	17			1200			2880	18	50	TURTLE POWER PANEL 2 'TPP2'	
EVENT RECEPT. IN THIS CABINET	20	1	19	1200			2880			20	2	-----	
EVENT RECEPT. IN THIS CABINET	20	1	21		1200			360		22	20	(2) POLE MTD. RECEPT.S	
EVENT RECEPT. IN THIS CABINET	20	1	23			1200			360	24	20	(2) POLE MTD. RECEPT.S	
EVENT RECEPT. IN THIS CABINET	20	1	25	1200						26	20	SPARE	
EVENT RECEPT. IN THIS CABINET	20	1	27		1200			150		28	20	(60)' 'C' TYPE LINEAR BENCH LTS.	
EVENT RECEPT. IN THIS CABINET	20	1	29			1200			360	30	20	(2) POLE MTD. RECEPT.S	
SPARE	20	1	31							32	20	SPARE	
SPARE	20	1	33							34	20	SPARE	
SPARE	20	1	35							36	20	(13) 'B' TYPE PED POLES LTS.	
SURGE PROTECTION DEVICE	30		37							38	20	SPACE ONLY	
-----			39							40	20	SPACE ONLY	
-----			3	41						42	15	1 EPW LTG. CONTROL CIRCUIT	
				6000	6000	6000	17024	14654	12480				
				23024	20654	18480	Total V.A. This Section						
				62158 =Total Connected VA all (3) Phases in This Section									
LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS									
LIGHTING	410 VA	1.25	0.51										
RECEPTACLES (1ST 10000)	10000 VA	1.00	10.00										
RECEPTACLES (REMAINING)	51448 VA	0.50	25.72		61448 VA=Total Receptacle Load								
MOTOR (LARGEST)	0 VA	1.25	0.00										
MOTORS (REMAINING)	0 VA	1.00	0.00										
ELECTRICAL HEATING	0 VA	1.25	0.00										
ELECTRICAL MISC.	300 VA	1.00	0.30										
ESTIMATED LOAD THIS SECTION	62158 VA		36.54	101									

MOUNTING: CONCRETE PAD
NEMA 1 PANEL INSIDE NEMA 4 STAINLESS STEEL ENCLOSURE
208Y/120V-3PH-4W
FEEDER: BOTTOM
Minimum A.I.C.= 10,000
100 AMP MAIN CIRCUIT BREAKER

DESCRIPTION	SIZE	P	Ckt#	LEFT PHASE LOAD			RIGHT PHASE LOAD			Ckt#	SIZE	P	DESCRIPTION
				A-PH	B-PH	C-PH	A-PH	B-PH	C-PH				
EVENT RECEPT. IN THIS CABINET	20	1	1	1200			4160			2	50	120/208V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	3		1200			4160		4	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	5			1200			4160	6	50	120/208V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	7	1200			4160			8	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	9		1200			4160		10	50	120/208V EVENT RECEPT. IN THIS CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	11			1200			4160	12	2	CABINET	
EVENT RECEPT. IN THIS CABINET	20	1	13	1200			180			14	20	(8)' 'B' & (1)' 'H' TYPE PED POLE LTS.	
EVENT RECEPT. IN THIS CABINET	20	1	15		1200			540		16	20	(3) RECEPT.S ON POLES	
EVENT RECEPT. IN THIS CABINET	20	1	17			1200			360	18	20	(2) RECEPT.S ON POLES	
EVENT RECEPT. IN THIS CABINET	20	1	19				1200			20	20	(7) 'A' TYPE PED POLE LTS.	
SPARE	20	1	21					525		22	20	(2) RECEPT.S ON POLES	
SPARE	20	1	23						360	24	20	(20)' LINEAR MONUMENT LTS.	
SURGE PROTECTION DEVICE	30		25					180		26	20	IRRIGATION CONTROLLER	
-----			27							28	20	SPARE	
-----			3	29						30	15	1 EPS LIGHTING CONTROL CIRCUIT	
				3600	3600	3600	9205	9220	9100				
				12805	12820	12700	Total V.A. This Section						
				38325 =Total Connected VA all (3) Phases in This Section									
LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS									
LIGHTING	825 VA	1.25	1.03										
RECEPTACLES (1ST 10000)	10000 VA	1.00	10.00										
RECEPTACLES (REMAINING)	27020 VA	0.50	13.51		37020 VA=Total Receptacle Load								
MOTOR (LARGEST)	0 VA	1.25	0.00										
MOTORS (REMAINING)	0 VA	1.00	0.00										
ELECTRICAL HEATING	0 VA	1.25	0.00										
ELECTRICAL MISC.	480 VA	1.00	0.48										
ESTIMATED LOAD THIS SECTION	38325 VA		25.02	70									



'ES' LOAD CALCULATION

EXISTING EVENT SWITCHGEAR 'ES'
(3) SWITCH □ FUSE MAINS:
 1) SWITCH □ 1 100A-3P □ 25.2 KVA
 2) SWITCH □ 1 OF 2 200A-3P
 NEW EAST WEATHERPROOF PANEL □ 46.4 KVA
 3) SWITCH □ 2 OF 2 200A-3P
 NEW WEST WEATHERPROOF PANEL □ 46.4 KVA
 TOTAL □ 118.0 KVA

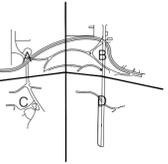
TOTAL ESTIMATED LOAD:
118.0 X 1000 / 360 □ 328 AMPS @ 208V-3Ø

1 EVENT SWITCHGEAR 'ES' METER #68 303 707 ONE-LINE DIAGRAM/ELEVATION
LE07 NOT TO SCALE

Seal/Signature

NOT FOR CONSTRUCTION

Key Plan



North



Scale: N.T.S.

FINAL LIGHTING PLANS

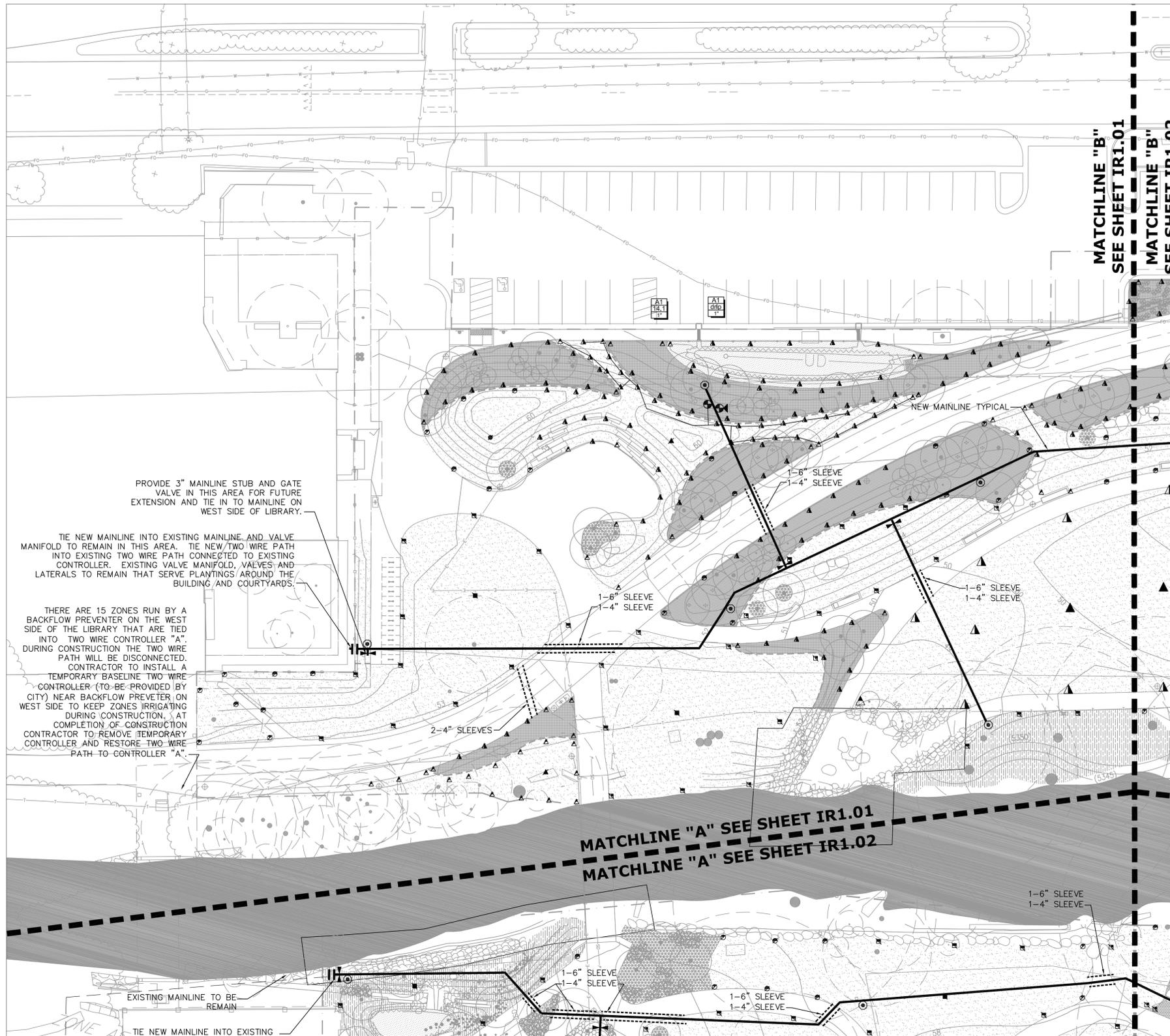
Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

LIGHTING AND ELECTRICAL DETAILS

Drawing Number

LE.07



IRRIGATION LEGEND

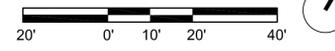
SYMBOL	DESCRIPTION
▲▲▲	SPRAY SPRINKLER: RAINBIRD 1806-SAM-PRS-HE-VAN-8 PRESSURE: 30 PSI RADIUS: 8 FEET FLOW (GPM): Q = 0.29 H = 0.59 F = 1.17 Precip. rate (in/hr): 1.76
▲▲▲	MP ROTATOR SPRINKLER: HUNTER PRS40-06/ MP1000 NOZZLE PRESSURE: 40 PSI RADIUS: 10-14 FEET, SPACED 14' MAX FLOW (GPM): Q = 0.19 H = 0.37 F = 0.75 Precip. rate (in/hr): 0.33
●●●	MP ROTATOR SPRINKLER: HUNTER PRS40-06/ MP2000 NOZZLE PRESSURE: 40 PSI RADIUS: 13-19 FEET, SPACED 19' MAX FLOW (GPM): Q = 0.40 H = 0.74 F = 1.47 Precip. rate (in/hr): 0.33
■ ■ ■	MP ROTATOR SPRINKLER: HUNTER PRS40-06/ MP3000 NOZZLE PRESSURE: 40 PSI RADIUS: 22-27 FEET, SPACED 30' MAX FLOW (GPM): Q = 0.86 H = 1.82 F = 3.64 Precip. rate (in/hr): 0.33
▲▲▲▲	ROTOR SPRINKLER: HUNTER I-25-06-SS WITH 04 NOZZLE PRESSURE: 40 PSI - 40' RADIUS; SPACED 38' FLOW (GPM): F = 3.8 Precip. rate (in/hr): 0.46
■	EXISTING BACKFLOW PREVENTERS, SIZE AS NOTED
⊕	EXISTING RELOCATED WATER METER FOR IRRIGATION TAP
⊕	MASTER VALVE - PER CITY OF BOULDER STANDARD
⊕	FLOW SENSOR - BASELINE LINE SIZE
⊕	BERMAD AIR RELIEF VALVE - MODEL 01-ARA
⊕	ZONE CONTROL VALVE 1", 1 1/2", 2" - HUNTER ICV FILTER SENTRY
⊕	REMOTE CONTROL DRIP VALVE ASSEMBLY: HUNTER ICV-FS WITH ACCU-SYNC AND AGRIFIL WYE FILTER (1-INCH)
⊕	GATE VALVE - MATCO NORCA LINE SIZE
⊕	QUICK COUPLER-RAINBIRD 44LRC WINGED
⊕	EMITTER LATERAL PIPE: UV RADIATION RESISTANT 80 PSI RATED POLYETHYLENE, 1" SIZE (ROUTING IS DIAGRAMMATIC)
⊕	FLUSH PLUG ASSEMBLY - FIGURE 8 END ENCLOSURE
—	MAINLINE PIPE: 3" CLASS 200 PVC UNLESS OTHERWISE NOTED 3" AND ABOVE CLASS 200 PVC RING TIGHT WITH LEEMCO DUCTILE IRON FITTING AND INTEGRAL JOINT RESTRAINTS. 2" AND BELOW 160 PSI HDPE WITH BRASS INSERT FITTING AND STAINLESS STEEL CLAMPS
—	LATERAL PIPE TO SPRINKLERS: 160 PSI HDPE WITH SCHEDULE 89 BARBED FITTING AND STAINLESS STEEL CLAMPS. (1-INCH SIZE UNLESS OTHERWISE INDICATED)
—	UNCONNECTED PIPE CROSSING
—	UNCONNECTED PIPE CROSSING, TWO DIFFERENT PIPES
—	P.O.C. - POINT OF CONNECTION
----	CLASS 200 PVC SLEEVING, 4" UNLESS OTHERWISE NOTED
⊕	INDICATES CONTROLLER AND CONTROLLER STATION NUMBER
⊕	INDICATES LATERAL DISCHARGE IN GPM
⊕	INDICATES REMOTE CONTROL VALVE SIZE IN INCHES
⊕	EXISTING BASELINE CONTROLLER TO REMAIN IN PLACE

IRRIGATION NOTES

- Irrigation system is designed to operate off of existing pressure of 100 psi at the meter (NEED TO CONFIRM THIS WITH CITY AND CIVIL). Contractor to verify pressure **PRIOR TO INSTALLATION** and notify Landscape Architect of any differences. Design pressure at heads to be as noted in legend. Adjust pressure at valves.
- No irrigation work to begin until final grade has been approved.
- Locate all heads 12" min. from any wall, walk, or curb, and 12" min. from any curb adjacent to parking stalls.
- Bury all mainlines 18"-24" underground from invert of pipe. Bury all laterals 12" underground from invert of pipe and no deeper than 36".
- Do not stack pipes in trenches. Pipes in shared trenches to be 4" minimum apart.
- Brand all appropriate box lids with 1" minimum letters with the following abbreviations:
QC Quick Coupler
GV Gate Valve
SV# Section Valve & Corresponding Controller Station #
MCV Master Control Valve
FS Flow Sensor
FP Drip Flush Point
- All pipe under pavement to be sleeved in 4" minimum PVC class 200 sewer pipe, extend 12" beyond each edge of pavement, sloped to drain. Install prior to paving. Sleeve wires separately in 4" min. pipe.
- All valve wire is to be Baseline 12 gauge Paige two wire.
- Heads will be diagrammatic. Contractor to select and install correct arcs as needed for part circle heads. Adjust radii and arc as necessary for no overspray/backwash onto adjacent buildings, walls, or fences.
- Plan has been prepared using limited on-site observation. Plan is diagrammatic and does not reflect all equipment, etc., that could be encountered during construction. All tie locations, mainline locations and lateral locations are approximate and shall require exact location by Contractor.
- See sheet IR2.01 and IR2.02 for irrigation details.
- Hand dig all trenches within dripline of existing trees. Contractor to protect all roots with in dripline of existing trees to remain. Where necessary work with City to reroute lines if it will protect the roots.
- All trenches in existing turf areas to remain to be reseeded at a rate of 8 lbs/1000sf with the following mix: 70-30 mix - 30% Kentucky Bluegrass-Variety A34 and 70% Perennial Rye-Variety Vibrant.
- All mainline change in direction fittings to be Leemco Ductile Iron fittings with integral joint restraints if mainline is 2 1/2" or larger.
- Install drip emitters as described below:

1 gallon material	Rain Bird PC-10	1 ea.
5 gallon material	Rain Bird PC-10	2 ea.
Deciduous Trees (1-1/2"-2 1/2" CAL.)	Rain Bird PC-10	3 ea.
Deciduous Trees (3"-4" CAL.)	Rain Bird PC-10	4 ea.
Evergreen Trees (6"-10')	Rain Bird PC-10	2 ea.
Evergreen Trees (11'-14')	Rain Bird PC-10	3 ea.

1 Irrigation Plan
Scale: 1"=20'

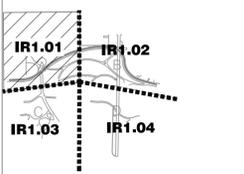


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11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD		

Seal/Signature

NOT FOR CONSTRUCTION

Key Plan



North

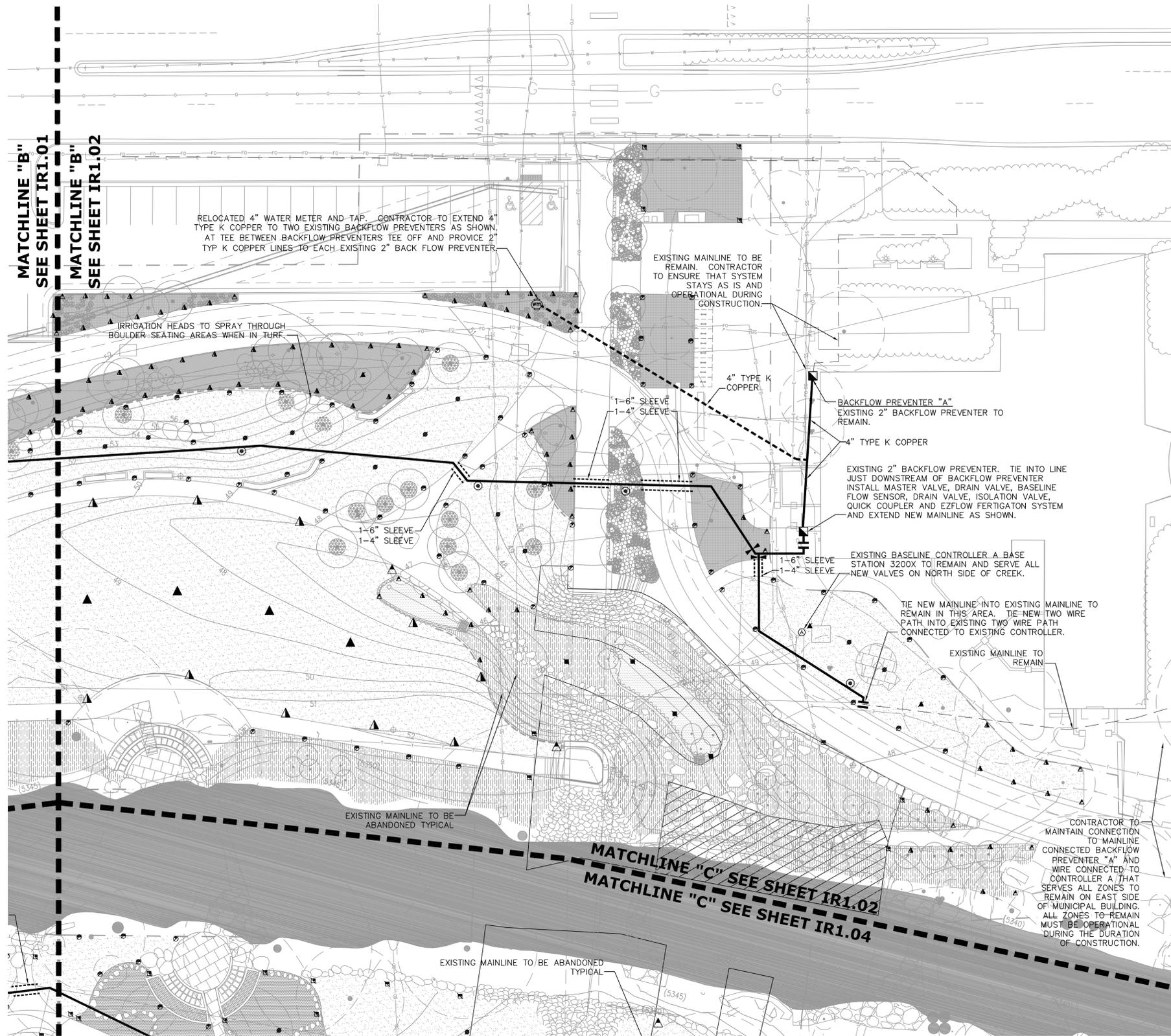
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Date: 03.07.2016 SUBMITTAL
Phase: CONSTRUCTION DOCUMENT
Job Number: TLS-JOB#COB401

Drawing Title: IRRIGATION PLAN - NORTH WEST

Drawing Number

IR1.01



IRRIGATION LEGEND

SYMBOL	DESCRIPTION
▲▲▲	SPRAY SPRINKLER: RAINBIRD 1806-SAM-PRS-HE-VAN-8 PRESSURE: 30 PSI RADIUS: 8 FEET FLOW (GPM): Q - 0.29 H - 0.59 F - 1.17 Precip. rate (in/hr): 1.76
▲▲▲	MP ROTATOR SPRINKLER: HUNTER PRS40-06/ MP1000 NOZZLE PRESSURE: 40 PSI RADIUS: 10-14 FEET, SPACED 14' MAX FLOW (GPM): Q - 0.19 H - 0.37 F - 0.75 Precip. rate (in/hr): 0.33
●●●	MP ROTATOR SPRINKLER: HUNTER PRS40-06/ MP2000 NOZZLE PRESSURE: 40 PSI RADIUS: 13-19 FEET, SPACED 19' MAX FLOW (GPM): Q - 0.40 H - 0.74 F - 1.47 Precip. rate (in/hr): 0.33
■	MP ROTATOR SPRINKLER: HUNTER PRS40-06/ MP3000 NOZZLE PRESSURE: 40 PSI RADIUS: 22-27 FEET, SPACED 30' MAX FLOW (GPM): Q - 0.86 H - 1.82 F - 3.64 Precip. rate (in/hr): 0.33
▲▲▲▲	NOTE: ON ALL RAINBIRD AND HUNTER SPRAY BODIES. FOR TURF AREAS USE 6" POP UP SPRAY BODIES. FOR NATIVE AND WETLAND SEED AREAS USE 12" POP UP SPRAY BODIES WITH BOTTOM FEED INLET. ▲▲▲▲ ROTOR SPRINKLER: HUNTER I-25-06-SS WITH 04 NOZZLE PRESSURE: 40 PSI - 40' RADIUS; SPACED 38' FLOW (GPM): F - 3.8 Precip. rate (in/hr): 0.46
■	EXISTING BACKFLOW PREVENTERS, SIZE AS NOTED
⊕	EXISTING RELOCATED WATER METER FOR IRRIGATION TAP
⊕	MASTER VALVE - PER CITY OF BOULDER STANDARD
⊕	FLOW SENSOR - BASELINE LINE SIZE
⊕	BERMAD AIR RELIEF VALVE - MODEL 01-ARA
⊕	ZONE CONTROL VALVE 1", 1 1/2", 2" - HUNTER ICV FILTER SENTRY
⊕	REMOTE CONTROL DRIP VALVE ASSEMBLY: HUNTER ICV-FS WITH ACCU-SYNC AND AGRIFIL WYE FILTER (1-INCH)
⊕	GATE VALVE - MATCO NORCA LINE SIZE
⊕	QUICK COUPLER-RAINBIRD 44LRC WINGED
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—	UNCONNECTED PIPE CROSSING
—	UNCONNECTED PIPE CROSSING, TWO DIFFERENT PIPES
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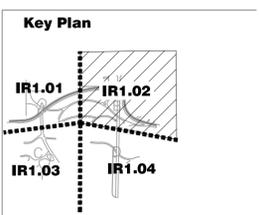
- ### IRRIGATION NOTES
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 - Do not stack pipes in trenches. Pipes in shared trenches to be 4" minimum apart.
 - Brand all appropriate box lids with 1" minimum letters with the following abbreviations:
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 - All valve wire is to be Baseline 12 gauge Paige two wire.
 - Heads will be diagrammatic. Contractor to select and install correct arcs as needed for part circle heads. Adjust radii and arc as necessary for no overspray/backwash onto adjacent buildings, walls, or fences.
 - Plan has been prepared using limited on-site observation. Plan is diagrammatic and does not reflect all equipment, etc., that could be encountered during construction. All tie locations, mainline locations and lateral locations are approximate and shall require exact location by Contractor.
 - See sheet IR2.01 and IR2.02 for irrigation details.
 - Hand dig all trenches within dripline of existing trees. Contractor to protect all roots with in dripline of existing trees to remain. Where necessary work with City to reroute lines if it will protect the roots.
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Deciduous Trees (1-1/2"-2 1/2" CAL.) Rain Bird PC-10 3 ea.
Deciduous Trees (3"-4" CAL.) Rain Bird PC-10 4 ea.
Evergreen Trees (6"-10") Rain Bird PC-10 2 ea.
Evergreen Trees (11"-14") Rain Bird PC-10 3 ea.

1 Irrigation Plan
Scale: 1"=20'

Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD		

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North

Scale: 1"=20'

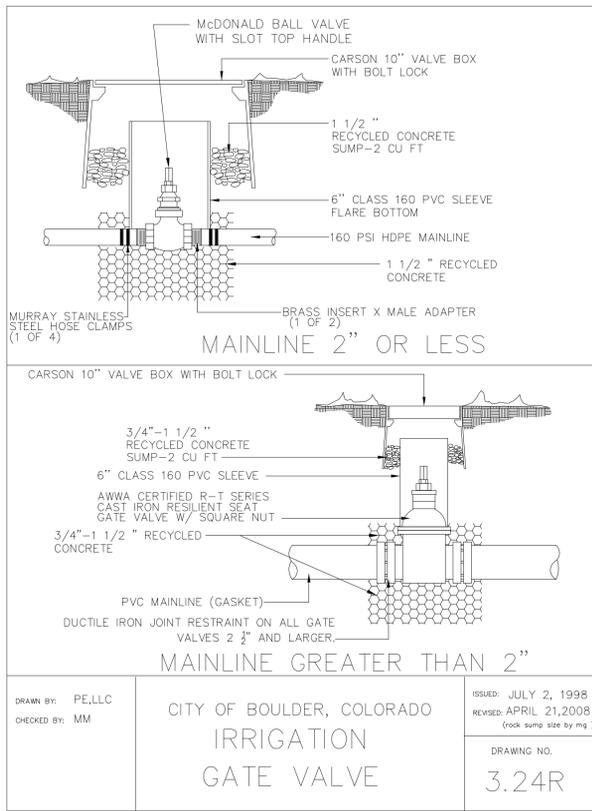
Date
03.07.2016 SUBMITTAL

Phase
CONSTRUCTION DOCUMENT

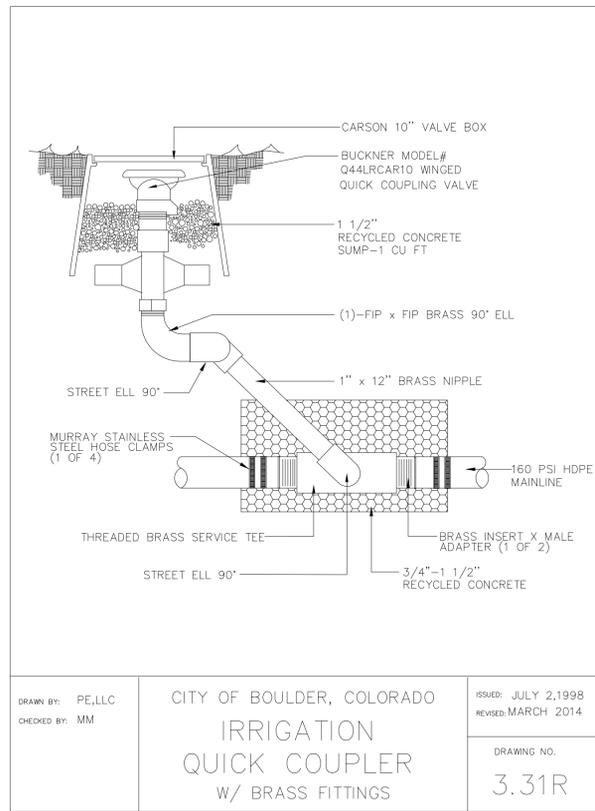
Job Number
TLS-JOB#COB401

Drawing Title
IRRIGATION PLAN - NORTH EAST

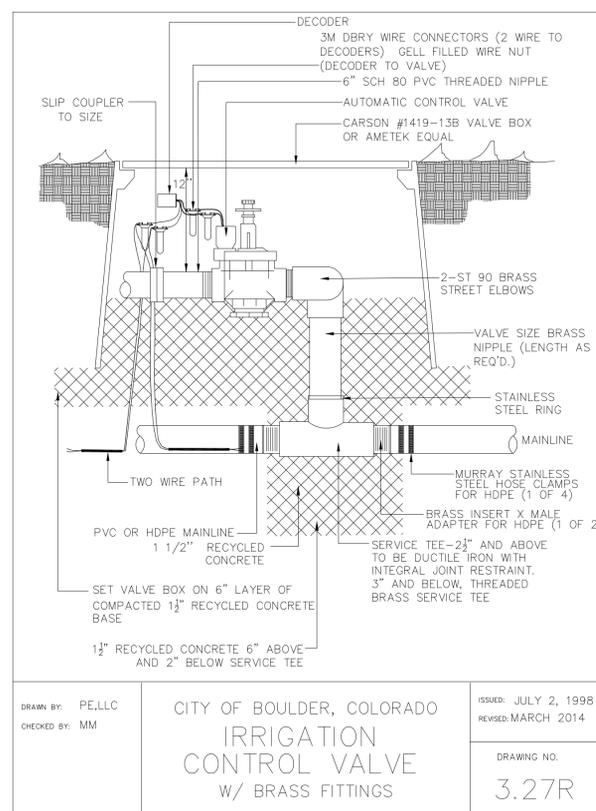
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IR1.02



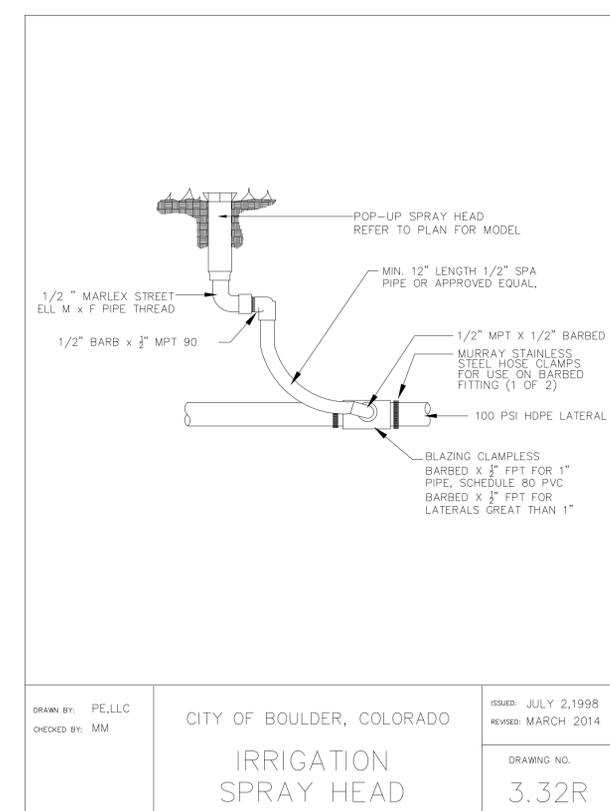
1 ISOLATION GATE VALVE
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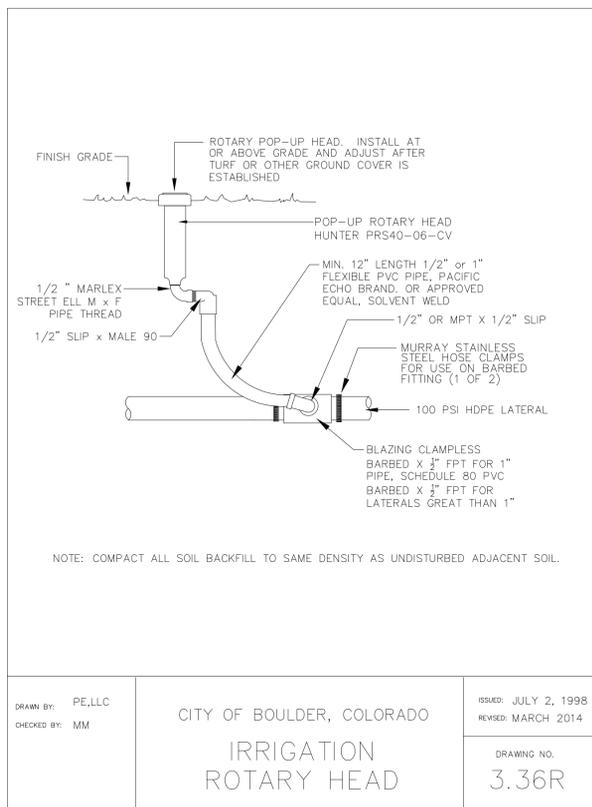
2 QUICK COUPLER
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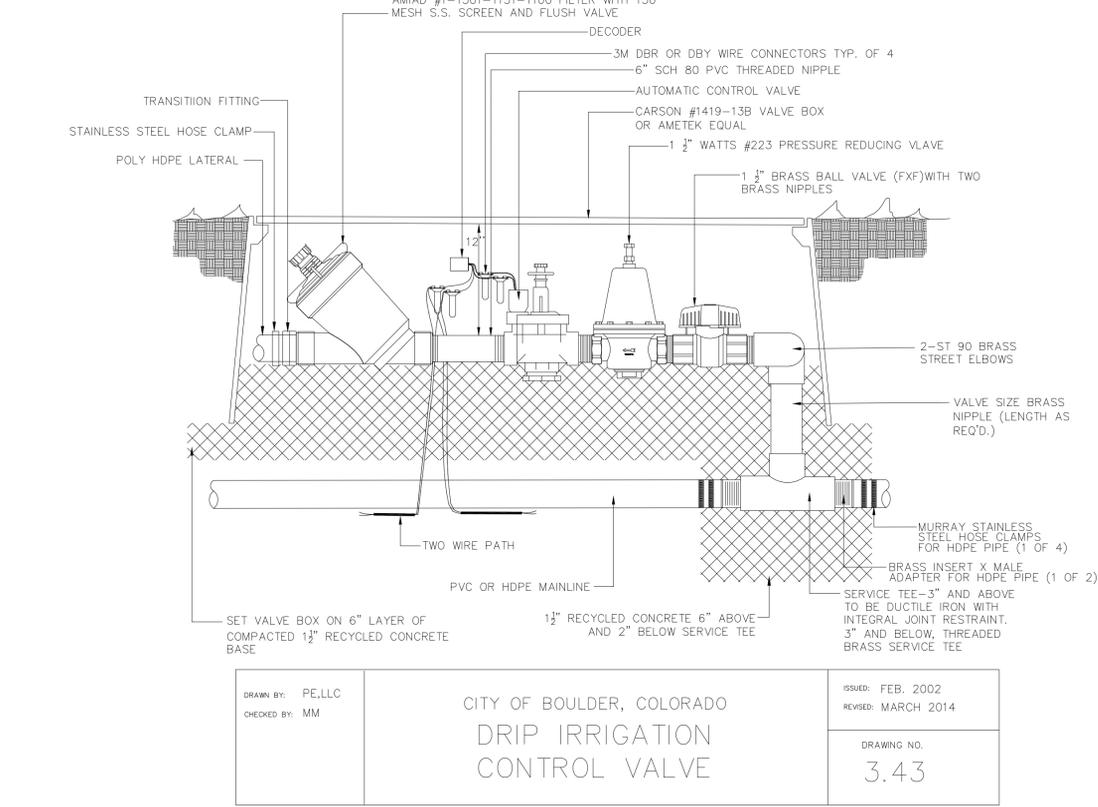
3 AUTOMATIC SECTION VALVE
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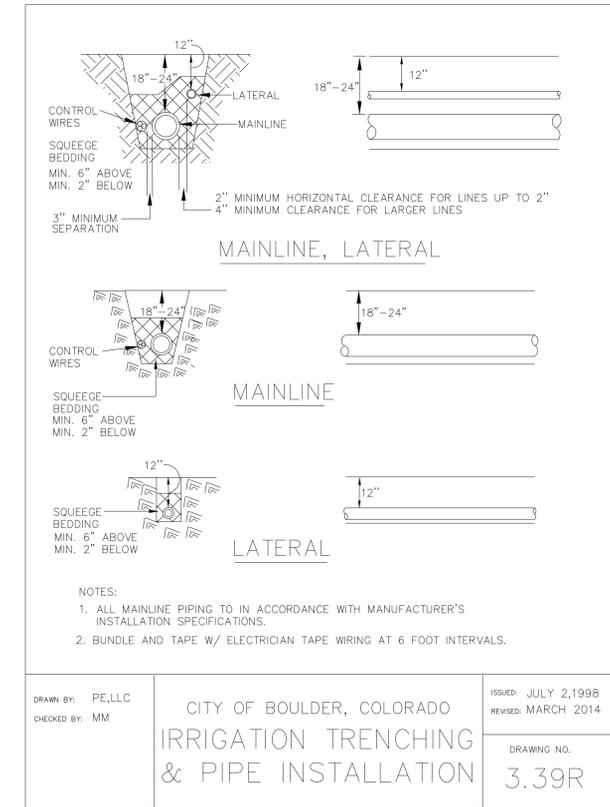
4 POP-UP SPRAY HEAD
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5 ROTOR HEAD
NOT TO SCALE



6 DRIP CONTROL VALVE
NOT TO SCALE



7 PIPE AND WIRE TRENCHING
NOT TO SCALE

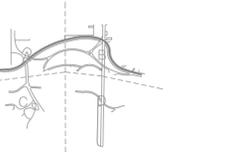


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05.02.2016	90% CD		

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NOT FOR CONSTRUCTION

Key Plan



North

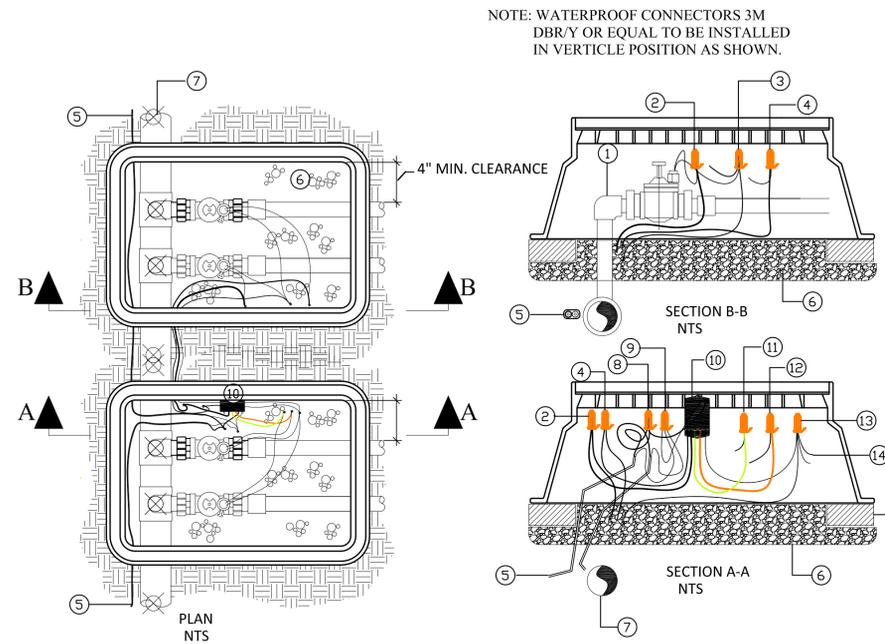
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Date: 03.07.2016 SUBMITTAL
Phase: CONSTRUCTION DOCUMENT
Job Number: TLS-JOB#COB401

Drawing Title: IRRIGATION DETAILS

Drawing Number

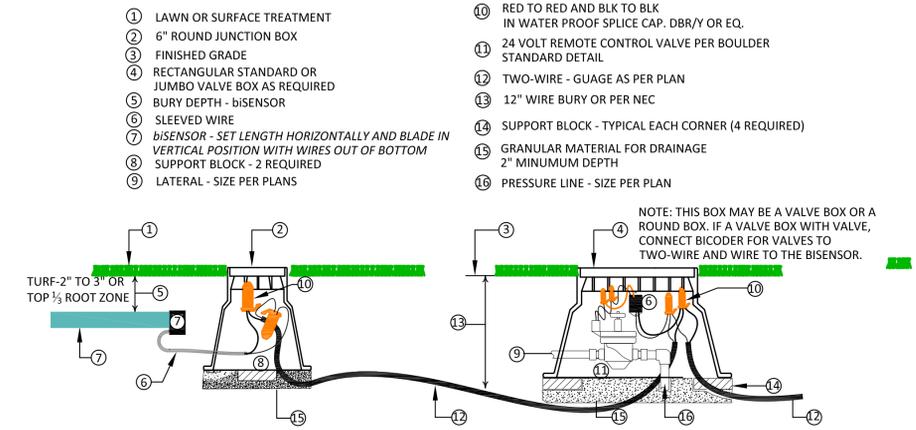
IR2.01



1 **BASELINE TWO-WIRE DECODER
INSTALLATION DETAIL**

NOT TO SCALE

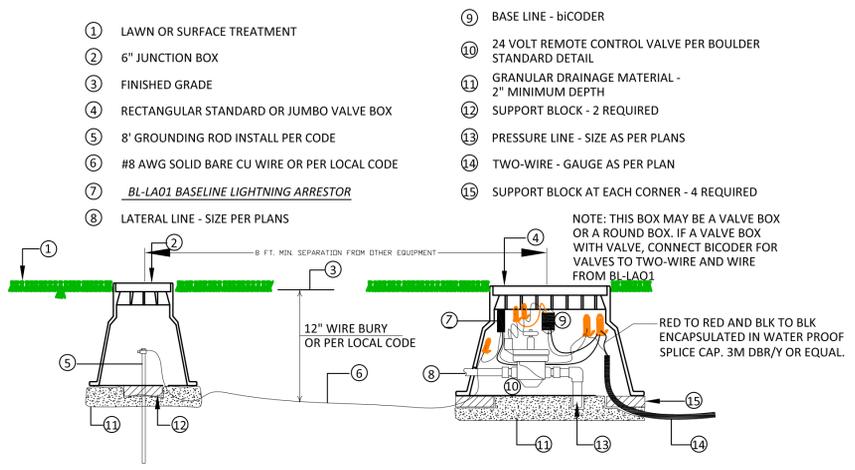
- 1 VALVE AND PIPING PER PLANS
- 2 WATERPROOF CONNECTION TO VALVE #3 (DBR/Y OR EQ.)
- 3 WATERPROOF CONNECTION FOR COMMON WIRES FOR VALVES #3 & #4 (DBR/Y OR EQ.)
- 4 WATERPROOF CONNECTION TO VALVE #4 (DBR/Y OR EQ.)
- 5 TWO-WIRE - GAUGE PER PLANS
- 6 POUROUS MATERIAL FOR DRAINAGE - 3" MINIMUM
- 7 MAINLINE AS PER PLANS
- 8 TWO-WIRE RED TO RED biCODER WATERPROOF CONNECTION (DBR/Y OR EQ.)
- 9 TWO-WIRE BLACK TO biCODER BLACK WATERPROOF CONNECTION (DBR/Y OR EQ.)
- 10 BASELINE BL-5404 VALVE biCODER - ATTACH TO VALVE BOX WITH TIE OR METAL SCREW
- 11 WATERPROOF CONNECTION TO VALVE #2 (DBR/Y OR EQ.)
- 12 WATERPROOF CONNECTION TO VALVE #1 (DBR/Y OR EQ.)
- 13 WATERPROOF CONNECTION FOR COMMON WIRES (DBR/Y OR EQ.)
- 14 COMMON WIRES FOR VALVE #1 & #2
- 15 CORNER VALVE BOX SUPPORT (TYPICAL OF EIGHT)



2 **BASELINE SOIL MOISTURE SENSOR
INSTALLATION AND WIRING DETAIL**

NOT TO SCALE

- 1 LAWN OR SURFACE TREATMENT
- 2 6" ROUND JUNCTION BOX
- 3 FINISHED GRADE
- 4 RECTANGULAR STANDARD OR JUMBO VALVE BOX AS REQUIRED
- 5 BURY DEPTH - biSENSOR
- 6 SLEEVED WIRE
- 7 biSENSOR - SET LENGTH HORIZONTALLY AND BLADE IN VERTICAL POSITION WITH WIRES OUT OF BOTTOM
- 8 SUPPORT BLOCK - 2 REQUIRED
- 9 LATERAL - SIZE PER PLANS
- 10 RED TO RED AND BLK TO BLK IN WATER PROOF SPLICE CAP. DBR/Y OR EQ.
- 11 24 VOLT REMOTE CONTROL VALVE PER BOULDER STANDARD DETAIL
- 12 TWO-WIRE - GAUGE AS PER PLAN
- 13 12" WIRE BURY OR PER NEC
- 14 SUPPORT BLOCK - TYPICAL EACH CORNER (4 REQUIRED)
- 15 GRANULAR MATERIAL FOR DRAINAGE 2" MINIMUM DEPTH
- 16 PRESSURE LINE - SIZE PER PLAN



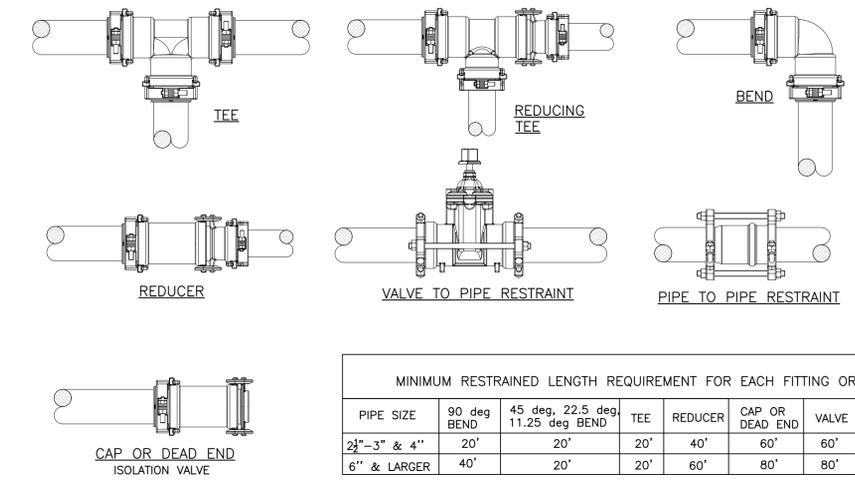
3 **TWO-WIRE LIGHTNING ARRESTOR
INSTALLATION AND WIRING DETAIL**

NOT TO SCALE

- 1 LAWN OR SURFACE TREATMENT
- 2 6" JUNCTION BOX
- 3 FINISHED GRADE
- 4 RECTANGULAR STANDARD OR JUMBO VALVE BOX
- 5 8' GROUNDING ROD INSTALL PER CODE
- 6 #8 AWG SOLID BARE CU WIRE OR PER LOCAL CODE
- 7 BL-LA01 BASELINE LIGHTNING ARRESTOR
- 8 LATERAL LINE - SIZE PER PLANS
- 9 BASE LINE - biCODER
- 10 24 VOLT REMOTE CONTROL VALVE PER BOULDER STANDARD DETAIL
- 11 GRANULAR DRAINAGE MATERIAL - 2" MINIMUM DEPTH
- 12 SUPPORT BLOCK - 2 REQUIRED
- 13 PRESSURE LINE - SIZE AS PER PLANS
- 14 TWO-WIRE - GAUGE AS PER PLAN
- 15 SUPPORT BLOCK AT EACH CORNER - 4 REQUIRED

NOTE: THIS BOX MAY BE A VALVE BOX OR A ROUND BOX. IF A VALVE BOX WITH VALVE, CONNECT BICODER FOR VALVES TO TWO-WIRE AND WIRE FROM BL-LA01

NOTE: RED TO RED AND BLK TO BLK ENCAPSULATED IN WATER PROOF SPLICE CAP. 3M DBR/Y OR EQUAL.



- NOTES:
1. THE RESTRAINT SCHEMES HERE ARE FOR SYSTEM PRESSURES UP TO 125 PSI. FOR HIGHER PRESSURES, EACH FITTING AND VALVE BELL MUST BE RESTRAINED TO THE LENGTH OF PIPE NOTED IN THE TABLE USING FITTING TO PIPE RESTRAINT, VALVE TO PIPE RESTRAINT, AND PIPE TO PIPE RESTRAINT AS REQUIRED.
 2. PIPE JOINTS WITHIN THE RESTRAINED LENGTH REQUIREMENT MUST BE RESTRAINED WITH PIPE TO PIPE RESTRAINTS.
 3. SERVICE TEES AND COUPLINGS WITHIN THE RESTRAINED LENGTH REQUIREMENT MUST BE RESTRAINED WITH FITTING TO PIPE RESTRAINTS.

4 **DUCTILE IRON FITTINGS/JOINT RESTRAINTS-3" AND ABOVE**

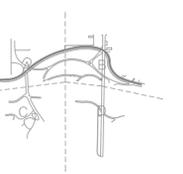
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05.02.2016	90% CD		

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Key Plan



North



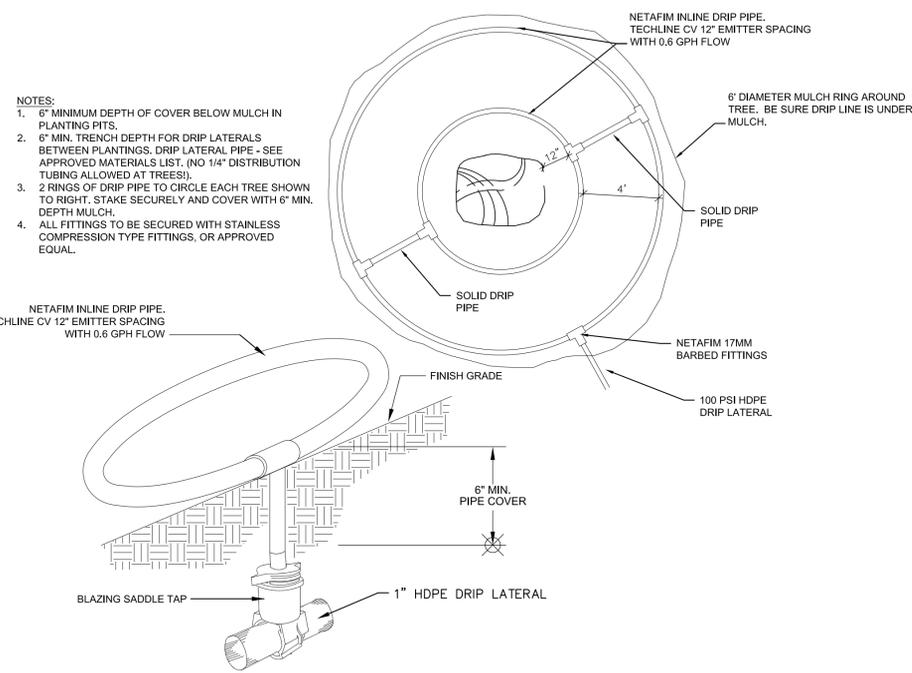
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Date: 03.07.2016 SUBMITTAL
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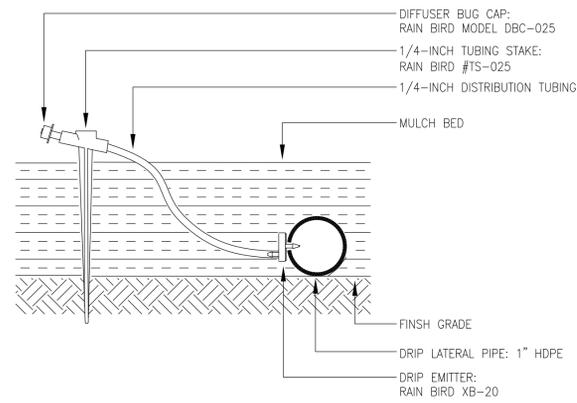
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Drawing Number

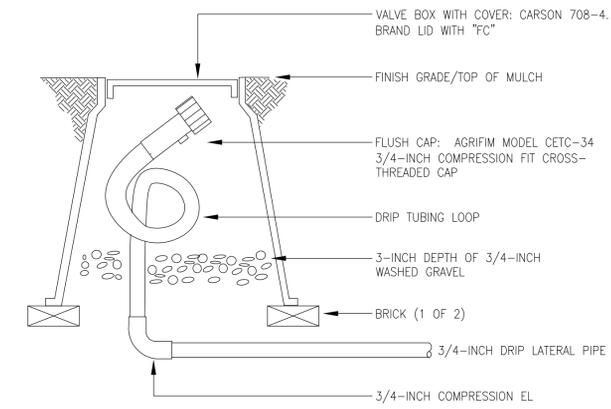
IR2.02



1 DRIP RINGS FOR ALL TREES
NOT TO SCALE



2 IRRIGATION SINGLE OUTLET EMITTER
NOT TO SCALE



NOTE:
1. LOOP IRRIGATION DRIP TUBING INSIDE VALVE BOX FOR EXTENSION OUTSIDE OF BOX DURING BLOWOUT.

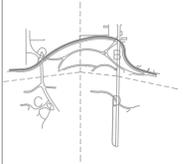
3 IRRIGATION FLUSH CAP ASSEMBLY
NOT TO SCALE

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North



Scale: NTS

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Phase
CONSTRUCTION DOCUMENT
Job Number
TLS-JOB#COB401

Drawing Title
IRRIGATION DETAILS

Drawing Number

IR2.03



City of Boulder
Boulder Parks & Recreation
3198 Broadway
Boulder, CO 80304
Tel: 303.413.7233

TOM LEADER STUDIO
1015 Comello Street, Berkeley, CA 94710 | 510.524.3363



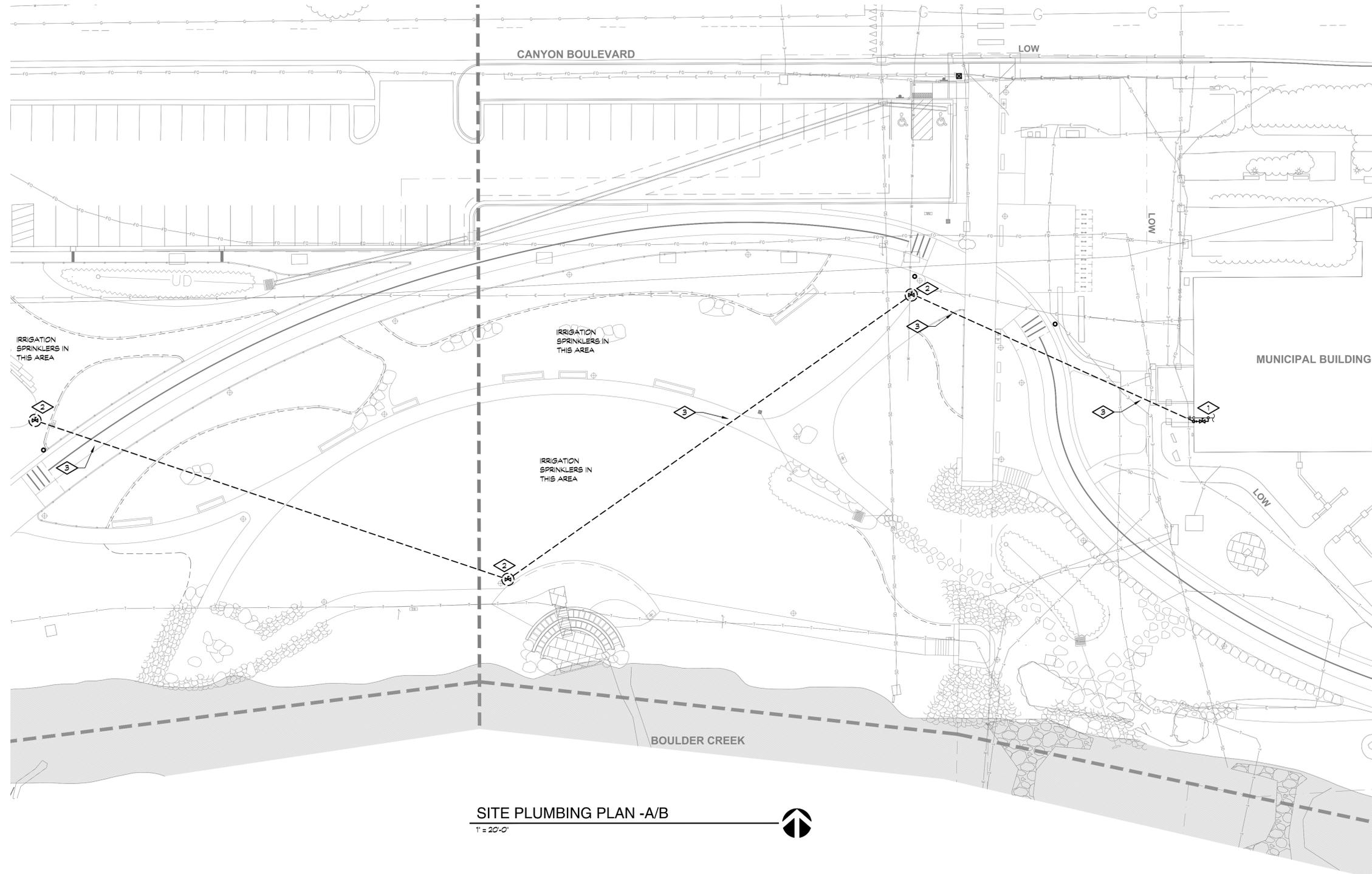
plumbing, mechanical
and electrical
1717 15th Street
Boulder, CO 80302
303.444.6038 phone
303.442.1172 fax
staff@boulderengineering.com

GENERAL NOTES

- A. CONTACT COLORADO UTILITY LOCATE (811) PRIOR TO BEGINNING ANY DIGGING. PROVIDE ADEQUATE TIME IN SCHEDULE TO PERFORM ALL NECESSARY LOCATES. IDENTIFY ALL UTILITIES AND IRRIGATION LINES PRIOR TO BEGINNING WORK. ANY DAMAGED UTILITY OR IRRIGATION LINES WILL BE REPAIRED/REPLACED AT THE EXPENSE OF THE RESPONSIBLE CONTRACTOR.
- B. ALL PIPING SHALL BE BURIED 18-24" BELOW GRADE, COORDINATE EXACT ROUTING AND LOCATIONS WITH EXISTING AND NEW IRRIGATION LINES.
- C. COORDINATE ALL CROSSING OF EXISTING AND NEW UTILITY LINES WITH RESPECTIVE UTILITY COMPANY. FIELD VERIFY EXACT LOCATION OF UTILITY CROSSING.
- D. ALL HDPE PIPE JOINTS SHALL BE BUTT-FUSION JOINTS, WITH THE JOINT ALLOWABLE PRESSURE EQUAL TO THE PIPING. NO FITTINGS ARE PERMITTED BELOW GRADE.

DETAIL NOTES THIS SHEET

- 1. CONNECT TO EXISTING 3/4" CW IN RESTROOM AND EXTEND OUT TO IN-GROUND WATER CONNECTION LOCATIONS. RE: DETAIL #1 ON SHEET P2.01.
- 2. IN-GROUND WATER CONNECTION POINT. RE: DETAIL #2 ON SHEET P2.01.
- 3. COORDINATE ROUTING OF WATER PIPING BELOW EXISTING BIKE/WALKING PATHS IN LOCATION SHOWN. BACK FILL AND COMPACT ANY AND ALL TUNNELING LOCATIONS.



SITE PLUMBING PLAN -A/B

1" = 20'-0"

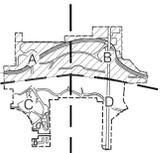


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	(TECH DOC 01)		

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Key Plan



North



Scale: 1"=20'

FINAL LANDSCAPE PLANS

Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

SITE PLUMBING PLAN -
GREEN VALLEY

Drawing Number

P1.01



City of Boulder
Boulder Parks & Recreation
3198 Broadway
Boulder, CO 80304
Tel: 303.413.7233

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1015 Comello Street, Berkeley, CA 94710 | 510.524.3363



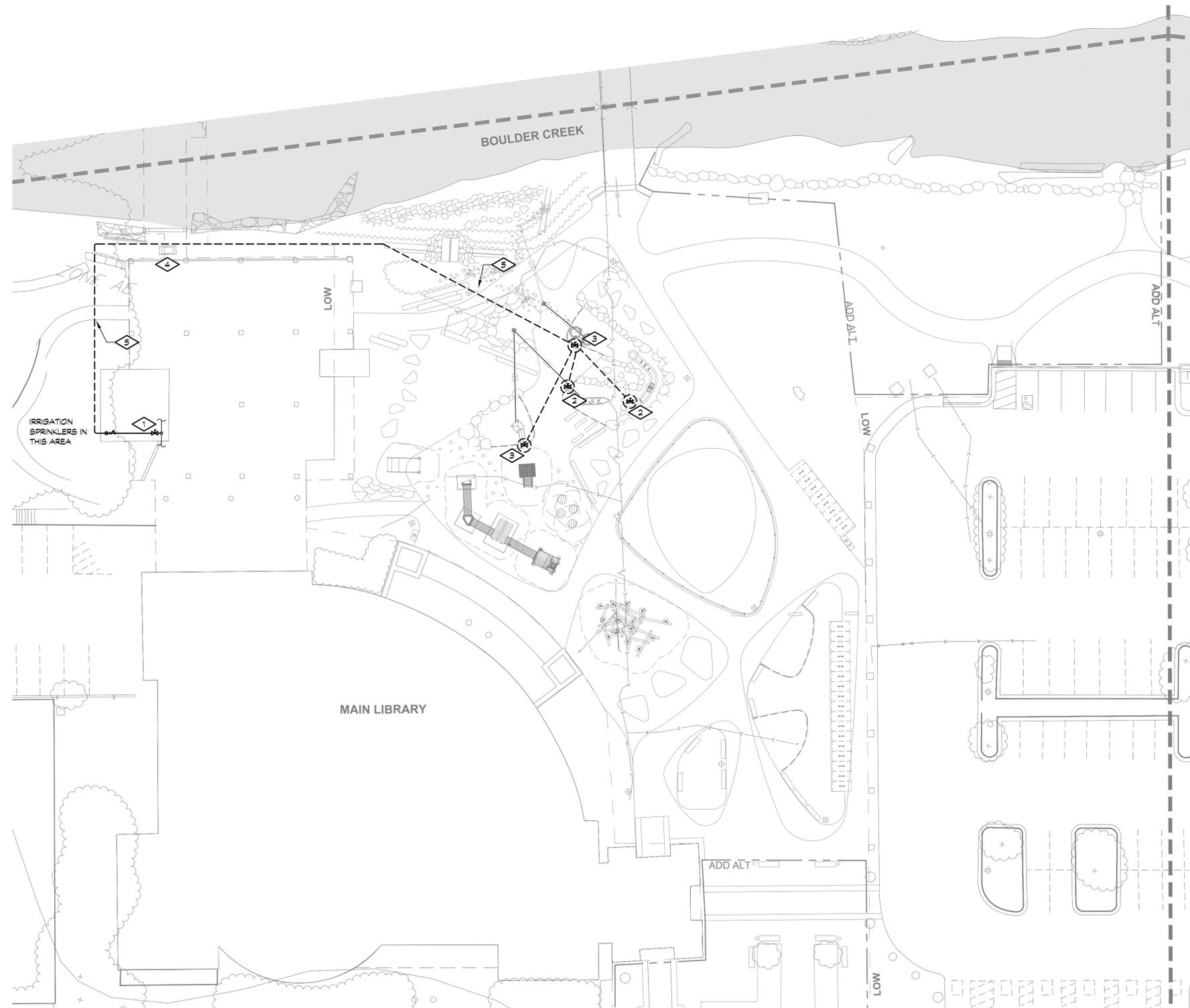
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- B. ALL PIPING SHALL BE BURIED 18-24" BELOW GRADE, COORDINATE EXACT ROUTING AND LOCATIONS WITH EXISTING AND NEW IRRIGATION LINES.
- C. COORDINATE ALL CROSSING OF EXISTING AND NEW UTILITY LINES WITH RESPECTIVE UTILITY COMPANY. FIELD VERIFY EXACT LOCATION OF UTILITY CROSSING.
- D. ALL HDPE PIPE JOINTS SHALL BE BUTT-FUSION JOINTS, WITH THE JOINT ALLOWABLE PRESSURE EQUAL TO THE PIPING. NO FITTINGS ARE PERMITTED BELOW GRADE.

DETAIL NOTES THIS SHEET

- 1. CONNECT TO EXISTING 1/2" CW IN JANITOR CLOSET DOWNSTREAM OF EXISTING SHUTOFF AND EXTEND OUT TO PLAY PUMP EQUIPMENT. ROUTE PIPING RE: DETAIL #3 ON SHEET P2.01.
- 2. EXTEND 1" CW TO LARGE PLAY PUMP. RE: DETAIL #4 ON SHEET P2.01.
- 3. EXTEND 3/4" CW TO SMALL PLAY PUMP. RE: DETAIL #4 ON SHEET P2.01.
- 4. ROUTE CW PIPING AROUND FOOTER IN APPROXIMATE LOCATION SHOWN. FIELD VERIFY EXACT LOCATION AND PIPE ROUTING PRIOR TO BEGINNING WORK.
- 5. COORDINATE ROUTING OF WATER PIPING BELOW EXISTING BIKE/WALKING PATHS IN LOCATION SHOWN. BACK FILL AND COMPACT ANY AND ALL TUNNELING LOCATIONS.



SITE PLUMBING PLAN -C
1" = 20'-0"



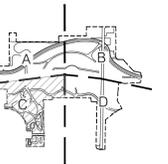
Date Issuance By Check

Date	Issuance	By	Check
11.13.2015	100% SD		
01.08.2016	50% DD		
01.28.2016	100% DD		
05.02.2016	90% CD		
	(TECH DOC 01)		

Seal/Signature

NOT FOR CONSTRUCTION

Key Plan



North



Scale: 1"=20'

FINAL LANDSCAPE PLANS

Phase
CONSTRUCTION DOCUMENT
Case Number
TEC 2016XXXX

Drawing Title

SITE PLUMBING PLAN -
NATURE PLAY

Drawing Number

P1.02

LEGEND	
	STORM - ABOVE FLOOR
	STORM - BELOW FLOOR
	SANITARY - ABOVE FLOOR
	SANITARY - BELOW FLOOR
	SANITARY TO GREASE
	CIRCUIT VENT
	COMBINATION WASTE AND VENT
	WET VENT
	SANITARY VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOM. HOT WATER RECIRCULATING
	GAS
	FIRE SPRINKLER
	HOT WATER SUPPLY
	HOT WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSATE
	STEAM
	PLUMBING POINT OF CONNECTION
	RISER UP
	RISER DOWN
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	GAS COCK (GAS ONLY)
	BALANCING COCK
	CIRCUIT SETTER
	CHECK VALVE
	PRESSURE REDUCING VALVE
	HOSE BIBB/SILL COCK
	FLOOR DRAIN
	FLOOR SINK
	ROOF DRAIN
	UNION
	FLEXIBLE CONNECTOR
	THERMOMETER
	PRESSURE GAUGE
	STRAINER
	FIRE DEPARTMENT CONNECTION
	WATER METER
	GAS METER
	MECHANICAL EQUIPMENT
	DETAIL NOTE
	KITCHEN / MEDICAL EQUIPMENT
	COMPRESSED AIR
	VACUUM
	OXYGEN
	NITROUS OXIDE
	(E) EXISTING TO REMAIN
	(ER) EXISTING TO BE REPLACED
	(ED) EXISTING TO BE DEMOLISHED
	NC NORMALLY CLOSED

DIVISION 22 - PLUMBING

SECTION 22 05 00 - COMMON WORK RESULTS FOR PLUMBING

1.01 WORK INCLUDED
 A. The work included by this division of the specifications includes furnishing all labor, materials, equipment, and services, including minor items omitted but necessary to construct and install the complete systems described by the Contract Documents and specified below. "Contractor" refers to the Mechanical Contractor. The general conditions of the specifications apply and are included in this part of this section.
 1. Domestic cold water systems

1.02 CODES AND REGULATIONS
 A. Comply with state and local codes, and utility company regulations. Final interpretations will be made by the local inspection authority. The Contractor to verify the governance of the following Codes, including any local amendments and supplementary codes such as the Codes of the National Fire Protection Association:
 1. Building Code: 2012 International Building Code
 2. Plumbing Code: 2012 International Plumbing Code
 3. Mechanical Code: 2012 International Mechanical Code
 4. Fire Code: 2012 International Fire Code
 5. Gas Code: 2012 International Fuel Gas Code
 6. Energy Code: 2012 International Energy Code
 7. Electrical Code: 2014 National Electrical Code

1.03 EQUIPMENT AND MATERIALS STANDARDS
 A. Equipment and materials shall be new, UL-listed for the use intended, and free from damage or defect. They shall comply with the latest industry standards.

1.04 CONTRACT DRAWINGS
 A. Illustrate the general design and extent of performance required. All dimensions and locations shall be taken from the Architectural drawings. Consult with Architectural plans and locate all ceiling equipment where indicated on reflected ceiling plans

1.05 SHOP DRAWINGS
 A. Submit products data and/or shop drawings as required by the Architect for the following:
 1. Insulation
 2. Valves
 3. Plumbing fixtures and appurtenances.
 B. Quality of specific equipment is established by manufacturer's catalog number. Alterations caused by any Substitution shall be accomplished at no additional expense to the Owner.
 C. Manufacturers not listed may submit for acceptance as an "approved equivalent." Requests for an "equivalent" means "approved equivalent". Four copies of such submittal must be received by the Engineer seven (7) working days prior to bid date.

1.06 WARRANTY
 A. The Contractor shall be responsible for the successful operation of mechanical systems, equipment, and materials installed under this Contract for a period of one year from the date of final acceptance. Defective equipment or materials shall be repaired or replaced at no expense to the Owner. Provide four complete service and maintenance calls spaced at equal intervals during the warranty period.

1.07 PRODUCT HANDLING AND CLEAN UP
 A. Equipment shall be left clean and undamaged, to the satisfaction of the Owner. The General Conditions take precedence.

1.08 CUTTING AND REPAIRING
 A. The contractor shall be responsible for all cutting, drilling, welding, and repair required for his portion of the work. Coordinate with the Architect. The General Conditions take precedence.

1.09 OPERATING AND MAINTENANCE DATA
 A. Provide the Owner with operating and maintenance instructions (four copies) required for operation of all mechanical systems. Bind the written instructions in a notebook. The General Conditions take precedence. The manuals shall include the following items:
 1. Operating manual and spare parts list for each piece of equipment.
 2. Preventive maintenance schedule for lubricating and checking each piece of equipment.
 3. Instructions on who to call for service during the warranty period.

1.10 PERMITS
 A. The contractor shall pay for all fees, taxes, secure permits, licenses, and inspections required for the project.

1.11 TEMPORARY SERVICES
 A. Provide temporary water service for construction, as required by the General Contractor.

1.12 COORDINATION

A. Coordinate outlet device and equipment locations with the Architectural Plans and work of other trades. Locate on horizontal and vertical lines to avoid interference and to provide functional use of all equipment. Verify electrical power characteristics before ordering equipment.
 B. Electrical work performed by this contractor will conform to the standards of Division 26-28. Mechanical equipment motors and controls shall be furnished, set in place, and wired according with the following schedule unless otherwise noted or specified. MC = Division 21-23 EC = Division 26-28

Item	Furn	Set	Power	Control
	By	By	Wiring	Wiring
Combination starters	MC	EC	EC	MC
Equipment motors	MC	MC	EC	--
Motor starters & O.L. relays	MC	EC	EC	MC
Disconnect switches	EC	EC	EC	MC
Thermal overload heaters (1)	EC	EC	EC	--
Variable Speed Drives	MC	EC	EC	MC
Control relays/transformers	MC	MC	EC	MC
Temperature control panels	MC	MC	EC	MC
Temp. Controls conduit/wiring	MC	MC	--	MC
Actuator and solenoid wiring	MC	MC	--	MC
Pushbuttons & pilot lights	MC	MC	--	MC
Room thermostats	MC	MC	--	MC
Thermostats: line voltage	EC	EC	EC	--

C. The general guideline for the division between control (by MC) wiring and power wiring (by EC) is that power wiring carries the current which energizes a motor, control wiring does not. Control wiring may be 120V, which would be the responsibility of the MC. Control motors are wired by the MC.
 D. Examine the site and become aware of existing conditions, utilities, and other issues affecting the satisfactory completion of the project.

1.13 DELIVERY, STORAGE, HANDLING
 A. Provide necessary hauling and hoisting equipment. Protect the materials of this Division before, during, and after installation.

1.14 AS-BUILT DRAWINGS
 A. Keep a current set of "as-built" drawings on site. Upon completion of the work, furnish engineer with a reproducible prints showing the "as-built" installation.

1.15 PROJECT/SITE CONDITIONS
 A. Visit the site to become familiar with location and the various conditions affecting the work, including existing utilities.

1.16 PLAN VERIFICATION
 A. After completion of the bidding and selection process, prior to awarding the contract, the contractor must review and verify the contract documents in their entirety, including those of other trades. At this time, discrepancies, conflicts, omissions, etc in the contract documents must be documented. Alterations to the contract will be made at that time to include such items, as well other modifications which might be made by the Owner. After award of the contract, change orders caused by discrepancies, conflicts, omissions in the contract documents will not be allowed.

2.01 EXPANSION JOINTS, GUIDES, AND ANCHORS
 A. Provide expansion joints or loops, guides, and anchors in piping to allow for expansion and contractions. Expansion joints shall be bellows type.

2.02 VALVES
 A. Gate valves 2" and smaller shall be cast bronze, rising stem, solid disc, 200 PSI WOG
 B. Ball valves 2" and smaller shall be cast bronze, full port, stainless steel ball, teflon sets, 400 PSI WOG.
 C. Butterfly valves 2" and smaller shall be cast bronze, stainless steel disc, surrounding fluorelastomer seal, 350 PSI WOG.
 D. Check valves shall be horizontal, swing-cast bronze, bronze disc, 200 PSI WOG.
 E. Valves shall be domestically manufactured by Milwaukee, Powell, Nibco, or equivalent.

2.03 RELIEF VALVES
 A. Relief valves shall be all-bronze A.S.M.E. rated valves with external test levers, sized in accordance with the instructions of the appropriate manufacturer. Pipe discharge outside or to floor drain where possible and per code. Valves shall be manufactured by Watts or equivalent.

2.04 FLEXIBLE CONNECTORS

A. Connectors in piping shall be made with molded teflon or neoprene and nylon bellows, metal reinforcing rings, flanged ends and control rods, suitable for 40F to 200F temperature range and 125 lbs. pressure. Alternative shall be stainless steel inner hose with braided exterior sleeve for steel pipe or bronze inner hose with braided exterior sleeve for copper piping. Metra-flex Company, or equivalent.
 B. Pressure Gauges: 4 1/2" dial type, aluminum housing. Ashcroft 1010 or equivalent.
 C. Thermometers: 7" red reading mercury type. Palmer Instruments or equivalent.

2.05 SPECIALTIES
 A. P/T Plugs: 1/4" diameter, brass with Nordel core, Sisco or equivalent.
 B. Electric motors shall be rated for the appropriate application: wet location (TEFC); submersible; explosion proof, VFDs, etc.

2.06 ELECTRICAL
 A. Lugs: Lugs for wiring connections shall be rated for copper and aluminum, nad shall have a minimum rating of 75C.
 B. Electric motors shall be rated for the appropriate application: wet location (TEFC); submersible; explosion proof, VFDs, etc.

2.07 ACCESS PANELS
 A. The Mechanical Contractor shall furnish and install access panels where required for access to equipment. Access panels shall be adequately sized, of a type approved by the Architect and shall be fire or smoke-rated as required.

2.08 EXCAVATION AND BACKFILLING
 A. Provide excavating and backfilling for Mechanical Work. Backfill in 12" layers, mechanically tamp to 95% proctor standards. Protect according to OSHA standards. The General Conditions take precedence. Verify the location of underground utilities before excavation; the contractor is responsible for any damage to underground utilities. Restore existing paving, curbs, sod, bushes, etc to match surroundings.

2.09 START-UP PROCEDURES
 A. Follow manufacturer's recommended procedures in starting up the equipment; damage caused during start-up shall be replaced at no expense to the owner.

2.10 PIPING INSTALLATION
 A. Install piping plumb and straight, parallel with walls and partitions. Conceal piping within structure whenever practical. Provide drain valves at all low points, vents at all high points, to allow complete drainage.
 B. Material and methods per ASME, ASTM, ASA, AWS, and National Plumbing Code Handbook
 C. Provide unions or flanges in piping connections to each valve, device, or item of equipment. Install each union or flange to permit the removal of parts and equipment for inspection or cleaning, without disconnecting any piping, except unions or flanges.
 D. Piping on the roof will be supported above the roof on roof pads. The pads shall be approximately 6" wide by 6" high by the length as required. They shall be made of recycled rubber, rated for 500lbs/ft loading each. The pads will have galvanized steel "C" channel attached to the top, which can accommodate pipe clamps to secure the piping. This configuration of individual piping pads may be expanded to include two pads supporting a trapeze style support where multiple pipes are racked together. The pads are C-series manufactured by Cooper B-line, Erico, or approved equivalent.

2.11 HANGERS AND SUPPORTS
 A. Support piping and equipment from the structure to prevent sagging, pocketing, swaying, and vibrations, and arranged to provide for expansion and contraction. Brackets, clamps, and hangers shall be steel, except copper hangers will be used with copper piping. Hangers supporting vibrating equipment shall be provided with spring isolators. Chain, perforated iron or wire hangers are not permitted. Hangers will be of a type acceptable to the Engineer, and shall have a capacity and spacing as required by code.
 2.12 SLEEVES AND PLATES
 A. Provide sleeves and inserts for all mechanical piping. The contractor shall be responsible for the cost of cutting and patching required for piping where sleeves and inserts were not installed or where incorrectly located. Sheetrock joint compound may be used to seal openings in non-rated walls/insulation to be continuous through walls.
 B. Drill holes as required for the installation of hangers required for the mechanical work.
 C. Where sleeves are placed in exterior walls below grade, the space between the pipe or conduit and the sleeves shall be made completely water-tight.
 D. Seal all piping passing through fire-rated construction with approved material to maintain air-tight, fire-rated integrity, with a U.L. listed assembly compatible with the wall or floor assembly being penetrated.

2.13 PIPING TESTING

A. All piping systems shall be tested and witnessed by the Owner prior to concealment. Protect equipment and fixtures or equipment, isolating them during the test. DWV system shall be sealed and hold water without leaks for 24 hours. Domestic water and hydronic piping shall be air tested at 150 PSIG; natural gas piping shall be air tested at 30 PSIG. Air tests shall be held for one hour without loss of pressure.

2.14 CLEANING AND STERILIZATION
 A. After testing, water piping systems shall be filled, operated for a sufficient length of time to completely remove all foreign material, and flushed.
 B. Sterilize the domestic hot and cold water piping in accordance with the local health authority standards. Flush the systems with clear water until the residual chlorine concentration is equal to that of clear water.
 C. Where there is no water treatment contractor sterilize piping system with chlorine for 24 hours to 50 PPM. Completely flush to less than 1 PPM. Local health authority standards take precedence.

2.15 FLEXIBLE PIPE CONNECTIONS
 A. Provide flexible pipe connection suitable to connect to adjoining piping as specified for pipe joints. Use sized pipe units. Install flexible pipe connectors on pipes connected to equipment supported by vibration isolation.

2.16 PIPE IDENTIFICATION
 A. After completion of the piping or insulation, paint stenciled descriptive abbreviations, including directional arrows, on piping at equipment and approximately every 25'.

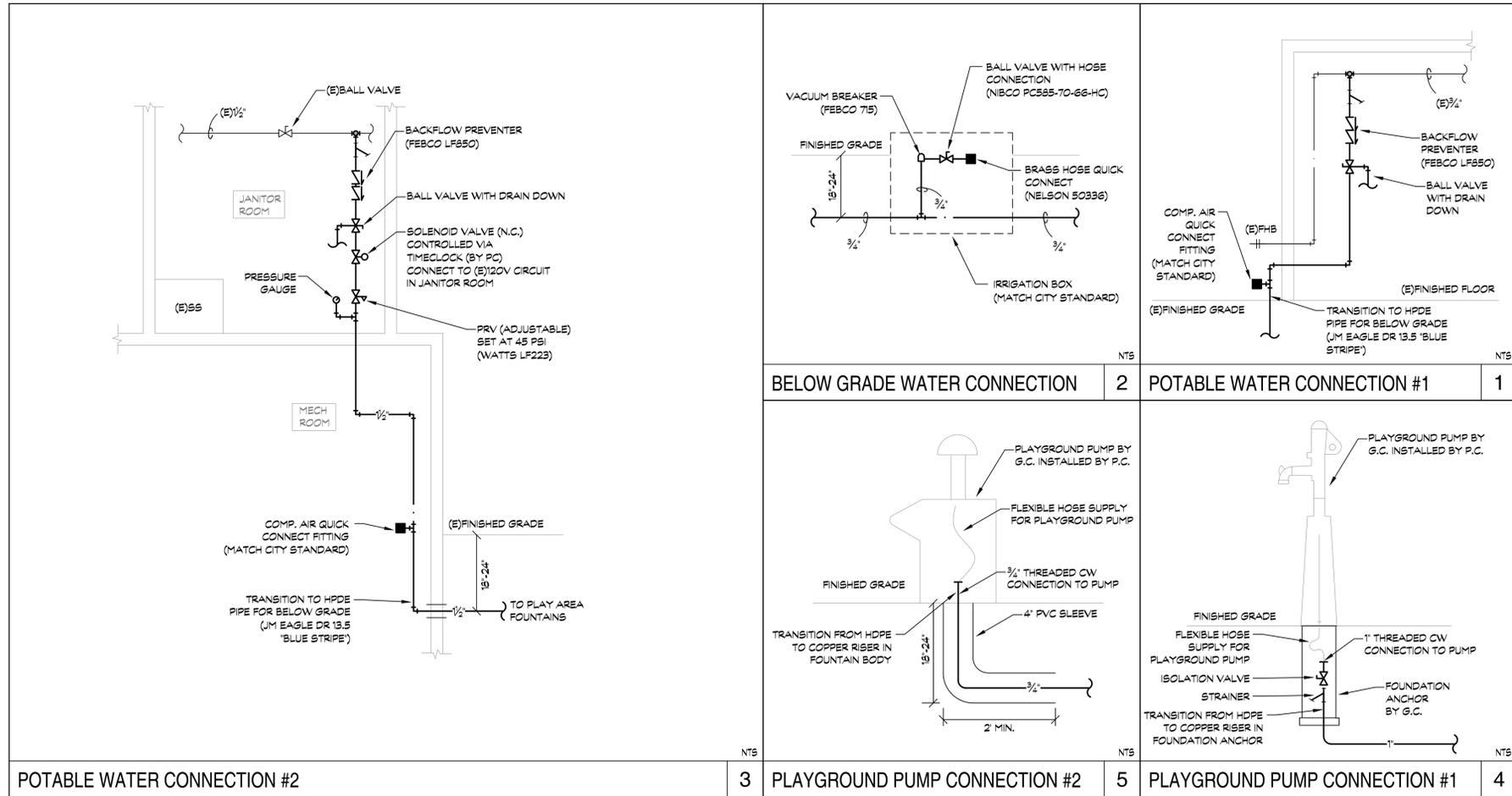
SECTION 22 10 00 - PLUMBING

1.01 WATER SERVICE
 A. Connect to existing cold water service per plans.

2.01 DOMESTIC WATER SYSTEM PIPING
 A. Domestic cold, hot, and recirculating hot water piping may be either copper or HDPE, as noted below:
 1. Copper piping:
 a. Above grade, piping shall be Type L, hard-drawn copper tubing with wrought copper fittings. Solder shall be lead-free.
 b. Below grade, piping shall be Type K, soft-drawn copper tubing with fittings only where specifically allowed by the architect. Where required, the fittings will be wrought copper. Solder shall be 95/5 tin/antimony, except underground, where it will be silver solder.
 2. HDPE Tubing:
 a. Tubing shall be PE3408/PE3608 High Density Polyethylene with a cell classification of 345464C/E. Tubing shall meet AWWA C906 and NSF 61 standards for potable water. The tubing shall be rated for 110 PSI at 200F, and shall be manufactured according to ASTM F 714.
 b. All joints shall be butt-fusion welded per manufacturer's specific instructions, no fittings are allowed below grade.
 c. Stub outs to be copper with brass shutoff valves. Stub outs to be properly secured to wall.
 d. Tubing in return air plenums, or other areas designed as air handling plenums, shall be installed to a flame rating of 25/50 according to ASTM E84, whether by spacing, insulation or other approved method.
 e. Tubing shall be as manufactured by JM Eagle or equivalent.

2.02 PLUMBING FIXTURES AND TRIM
 A. Provide plumbing fixtures as specified on the plans. Provide carriers, trim, bolts, caps, etc according to the manufacturer's instructions and as required for a complete installation. All fittings and appurtenances (p-traps, connections, etc) shall be brass; chrome plated brass where visible.
 B. Provide carriers for wall hung or mounted fixtures such as water closets, lavatories, urinals, sinks, etc. The carriers shall be designed to fit in the wall structure available, and shall transmit the load to the floor. Fixtures will not be supported by the wall structure unless specifically indicated.

3.01 DOMESTIC WATER SYSTEM
 A. Provide drip coocks so that the entire system may be drained. Provide manual air vents at high points in the system where air may be trapped. Provide stops for all fixtures and appliances. Provide a full size ball valve on each branch serving a hose bib.
 B. Provide swing or swivel joints on connections as required to prevent noise or vibration of the piping. Provide fixture stops at all fixtures, hose bibbs, wall hydrants, and Owner-furnished fixtures. Run all piping on warm side of building insulation. Pipe insulation is not considered freeze protection. Provide water hammer arrestors where required. Locate to be accessible or provide access panel.



CIVIC AREA PARK DEVELOPMENT PLAN
 Boulder, CO

City of Boulder
 Boulder Parks & Recreation
 3198 Broadway
 Boulder, CO 80304
 Tel: 303.413.7233

TOM LEADER STUDIO
 1015 Camello Street, Berkeley, CA 94710 | 510.524.3363

plumbing, mechanical and electrical
 1717 15th Street
 Boulder, CO 80302
 303.444.6038 phone
 303.442.1172 fax
 staff@boulderengineering.com

Date	Issuance	By	Check
11.13.2015	100% SD		
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NOT FOR CONSTRUCTION

Key Plan

North

Scale: 1"=20'

FINAL LANDSCAPE PLANS
 Phase
 CONSTRUCTION DOCUMENT
Case Number
 TEC 2016XXXX

Drawing Title
 PLUMBING DETAILS

Drawing Number

P2.01