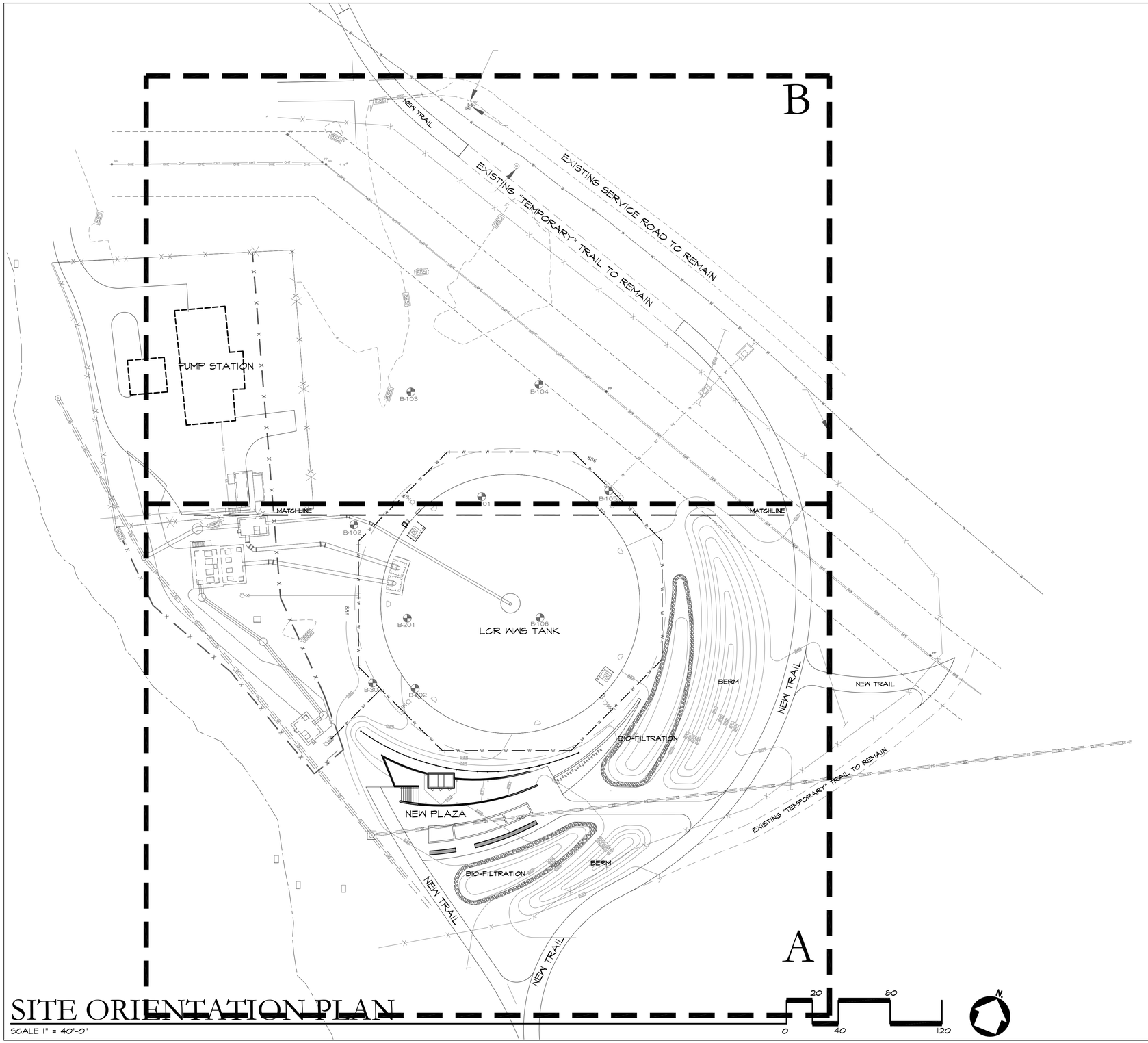


SITE ORIENTATION PLAN

SCALE 1" = 40'-0"

STATE OF KENTUCKY
RAMONA
REGISTERED
LANDSCAPE ARCHITECT

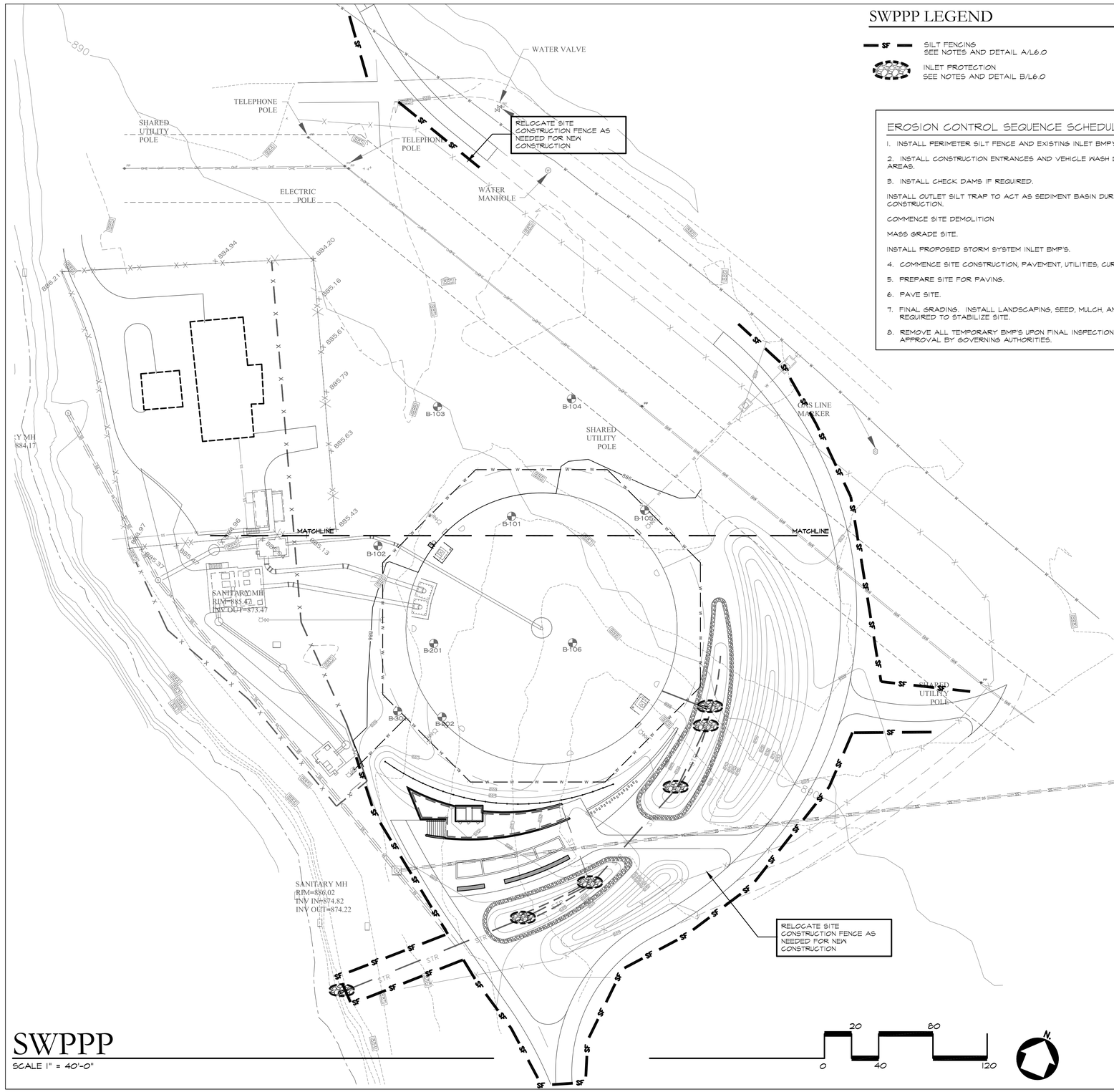
DATE	REVISION DESCRIPTION

SITE ORIENTATION PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____; RMP ID No. _____

elementdesign
landscape architecture+civil engineering+planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6333
f. 859.389.6334
www.elementdesign.com

JOB:	DATE: APRIL 6, 2016
SHEET: L-0.0	Scale: AS NOTED
DRAWN: RAF	CHECKED: RAF



SWPPP

SCALE 1" = 40'-0"

SWPPP LEGEND

SF — SILT FENCING
SEE NOTES AND DETAIL A/L6.0

INLET PROTECTION
SEE NOTES AND DETAIL B/L6.0

EROSION CONTROL SEQUENCE SCHEDULE:

1. INSTALL PERIMETER SILT FENCE AND EXISTING INLET BMP'S.
2. INSTALL CONSTRUCTION ENTRANCES AND VEHICLE WASH DOWN AREAS.
3. INSTALL CHECK DAMS IF REQUIRED.

INSTALL OUTLET SILT TRAP TO ACT AS SEDIMENT BASIN DURING CONSTRUCTION.

COMMENCE SITE DEMOLITION

MASS GRADE SITE.

INSTALL PROPOSED STORM SYSTEM INLET BMP'S.

4. COMMENCE SITE CONSTRUCTION, PAVEMENT, UTILITIES, CURBS, ETC.
5. PREPARE SITE FOR PAVING.
6. PAVE SITE.
7. FINAL GRADING. INSTALL LANDSCAPING, SEED, MULCH, AND SOD AS REQUIRED TO STABILIZE SITE.
8. REMOVE ALL TEMPORARY BMP'S UPON FINAL INSPECTION AND APPROVAL BY GOVERNING AUTHORITIES.

SWPPP NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. THE CONTRACT DRAWINGS SHOW THE APPROXIMATE LOCATION OF EXISTING AND PROPOSED UTILITY LINES. THESE LINES HAVE BEEN IDENTIFIED AND LOCATED AS ACCURATELY AS POSSIBLE USING AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ACTUAL UTILITY LOCATIONS.

C. THE DESIGNATED CONCRETE WASH OUT PIT SHALL BE CLEANED AND ALL CONCRETE AND ASSOCIATED DEBRIS SHALL BE REMOVED AND HAULED OFF SITE AND THE CONCLUSION OF ALL CONCRETE CONSTRUCTION WORK.

D. LIMIT CONSTRUCTION ACCESS TO THE SITE TO THE LOCATION INDICATED AS AN ACCESS DRIVEWAY. TEMPORARY ACCESS DRIVEWAYS FOR CONSTRUCTION VEHICLES SHALL BE GRAVELED A MINIMUM OF 6" DEPTH WITH FILTER FABRIC PLACED BETWEEN SOIL AND STONE FOR A DISTANCE OF 100 FEET INTO THE SITE AND MAINTAINED IN GOOD CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. THE ACCESS DRIVE TO THE SITE SHALL BE MAINTAINED BY THE CONTRACTOR TO MINIMIZE THE ACCUMULATION OF MUD, DIRT, DUST AND OTHER DEBRIS CAUSED BY THE CONTRACTOR'S OPERATIONS. THE DRIVE SHALL BE CHECKED DAILY AND CLEANED BY THE CONTRACTOR AS REQUIRED TO MAINTAIN THIS CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.

E. PRIOR TO BEGINNING GRADING OPERATIONS, SURROUND ALL DRAINAGE INLET STRUCTURES WITH ROCK BAGS, STONE, OR TEMPORARY SILT FENCE FOR SILT CONTROL, SEE DETAIL A/XXX AND B/XXX AND PROVIDE CHECK DAMS AT ALL DRAINAGE SWALES. MAINTAIN IN GOOD OPERATING CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. REMOVE AFTER SURROUNDING PERMANENT VEGETATION IS ESTABLISHED OR SURROUNDING PAVEMENT IS INSTALLED. THE CONTRACTOR SHALL MAINTAIN ALL STORM DRAINAGE SYSTEMS TO FUNCTION THROUGHOUT THE CONSTRUCTION PERIOD.

F. SILT FENCING SHALL BE INSTALLED PRIOR TO THE BEGINNING OF GRADING OPERATIONS AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD UNTIL PERMANENT VEGETATION IS ESTABLISHED, SEE DETAIL A/D-1. REFER TO PLAN FOR APPROXIMATE LOCATIONS. MAINTENANCE INCLUDES INSPECTION ONCE PER WEEK, IMMEDIATELY AFTER EACH RAINFALL OF 1/2" OR MORE, AND AT LEAST DAILY DURING PROLONGED PERIODS OF RAIN. REPAIR ANY UNDERCUTTING OR END RUNS. REPLACE DAMAGED FABRIC SECTIONS PROMPTLY. REMOVE SEDIMENT DEPOSITS WHEN DEPOSITS REACH APPROXIMATELY 1/2 THE HEIGHT OF THE BARRIER. UPON FINAL REMOVAL OF BARRIER, GRADE OUT ANY DEPOSITS TO CONFORM TO EXISTING SURROUNDING GRADE, AND SOD THE AREA.

G. TO REDUCE EROSION, MUD AND DUST FROM EXPOSED SOIL AREAS, TEMPORARY SEEDING SHALL BE DONE ON EXPOSED SOIL SURFACES IN LAWN AND LANDSCAPE AREAS WHERE ADDITIONAL GRADING WORK IS NOT SCHEDULED FOR A PERIOD OF 3 WEEKS OR MORE. MAINTAIN AND RE-SEED AS NEEDED THROUGHOUT CONSTRUCTION PERIOD UNTIL FINISH GRADES ARE ESTABLISHED.

H. STOCKPILED TOPSOIL SHALL BE PROTECTED FROM WIND AND WATER EROSION BY TEMPORARY VEGETATIVE SEEDING. IN ADDITION, PROVIDE SILT FENCING AT THE PERIMETER OF STOCKPILES TO PREVENT SEDIMENT RUNOFF. MAINTAIN VEGETATIVE COVER AND SILT FENCING UNTIL TOPSOIL STOCKPILES ARE REMOVED.

I. THE CONTRACTOR SHALL OBTAIN A STORM WATER PERMIT / SUBMITTING A NOTICE OF INTENT (NOI) TO THE KENTUCKY DIVISION OF WATER AND ANY APPLICABLE PERMITS FROM STATE AND LOCAL GOVERNING AGENCIES. IN ADDITION, THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION AND MAINTENANCE SHOWN ON THIS PLAN AS PART OF THE CONTRACT SCOPE OF WORK.

J. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING AN ON SITE MAINTENANCE LOG OF ALL EROSION CONTROL FEATURES AND BMP'S. DURING THE ENTIRE CONSTRUCTION PERIOD, THE CONTRACTOR'S SUPERINTENDENT OR OTHER DULY AUTHORIZED FIELD REPRESENTATIVE SHALL INSPECT ALL BMP'S AS LISTED IN THE LOG BOOK, NOTE THE CONDITION AND PERFORMANCE OF EACH BMP AND TAKE CORRECTIVE ACTION FOR EACH BMP AS REQUIRED.

K. BEST MANAGEMENT PRACTICES (BMP) MANUAL
IN ADDITION TO THIS PLAN, THE CONTRACTOR SHALL COMPLY WITH THE MANUAL ENTITLED 'KENTUCKY BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES, CURRENT ADDITION, PREPARED BY THE KENTUCKY DIVISION OF CONVERSATION AND OF WATER. THE CONTRACTOR SHALL ALSO COMPLY WITH THE KENTUCKY EROSION PREVENTION AND SEDIMENT CONTROL FIELD GUIDE, CURRENT EDITION. THE CONTRACTOR SHALL MAKE APPROPRIATE MODIFICATIONS TO THIS PLAN AS NECESSARY TO ACHIEVE THE PLAN GOAL OF MINIMIZING EROSION AND SEDIMENTATION. ANY SUCH CHANGES ARE SUBJECT TO REVIEW BY THE LANDSCAPE ARCHITECT.

L. DURING THE CONSTRUCTION PERIOD THE CONTRACTOR WILL PROMPTLY REPAIR, REBUILD, REPLACE, CLEAN OUT OR OTHERWISE MODIFY ANY BMP'S THAT REQUIRE ATTENTION OR THAT DO NOT PERFORM AS REQUIRED. THE CONTRACTOR WILL NOTE IN THE MAINTENANCE LOG WHAT MAINTENANCE OR RECONSTRUCTION WAS REQUIRED AND ANY ACTION TAKEN.

M. TO REDUCE EROSION, MUD AND DUST FROM EXPOSED SOIL AREAS, TEMPORARY SEEDING SHALL BE DONE ON EXPOSED SOILS. FOR ANY BMP'S THAT DO NOT APPEAR TO PERFORM AS DESIGNED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER (A/E) FOR REVIEW. IF THE A/E AND OR STATE AND LOCAL GOVERNING AGENCY DETERMINE THAT A BMP NEEDS TO BE REDESIGNED OR REPLACED WITH ANOTHER MORE APPROPRIATE BMP BECAUSE OF ACTUAL FIELD PERFORMANCE OR OTHERNISE, UPON APPROVAL OF THE OWNER, THE A/E WILL MAKE THOSE DESIGN CHANGES AND PROVIDE TO THE CONTRACTOR FOR CONSTRUCTION. IF THIS REQUIRES MEASURABLE ADDITIONAL WORK ABOVE THE SPECIFIED SCOPE OF WORK, THE CONTRACTOR MAY REQUEST A CHANGE ORDER FOR THE WORK.

N. UPON COMPLETION OF THE PROJECT, AND ONCE FINAL VEGETATIVE COVER HAS BEEN ESTABLISHED TO THE SATISFACTION OF THE A/E THE CONTRACTOR WILL REMOVE ALL BMP'S AND SUBMIT A NOTICE OF TERMINATION (NOT) TO THE DIVISION OF WATER & APPLICABLE STATE AND LOCAL GOVERNING AGENCIES.

O. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING INLET PROTECTION FOR ALL EXISTING AND PROPOSED STORM STRUCTURES WITHIN THE LIMIT OF CONSTRUCTION.

P. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES AND AVAILABILITY OF SITES WITH THE OWNER PRIOR TO BEGINNING WORK AT ANY GIVEN SITE.

Q. ALL ROADS AND DRIVES USED TO ACCESS THE SITE SHALL BE KEPT CLEAN AND FREE OF MUD & SILT DURING THE CONSTRUCTION PERIOD. PERIODIC INSPECTION BY GOVERNING OFFICIALS WILL OCCUR. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING THE VEHICLE WASH DOWN AREAS INDICATED ON THIS PLAN.

R. THE CONTRACTOR SHALL EXTEND THE LIMITS OF SILT FENCING AS REQUIRED BY EARTHWORK / SITE DISTURBANCE REQUIRED BY THE PROJECT DOCUMENTS.

STATE OF KENTUCKY · RAMONA A. FOUTCH · 660 · REGISTERED LANDSCAPE ARCHITECT

DATE	REVISION DESCRIPTION

STORM WATER POLLUTION PREVENTION PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture + site engineering + planning
401 del ame street suite 206
lexington, kentucky 40507
ph 859.389.6333
fax 859.389.6339
www.elementdesign.com

JOB:

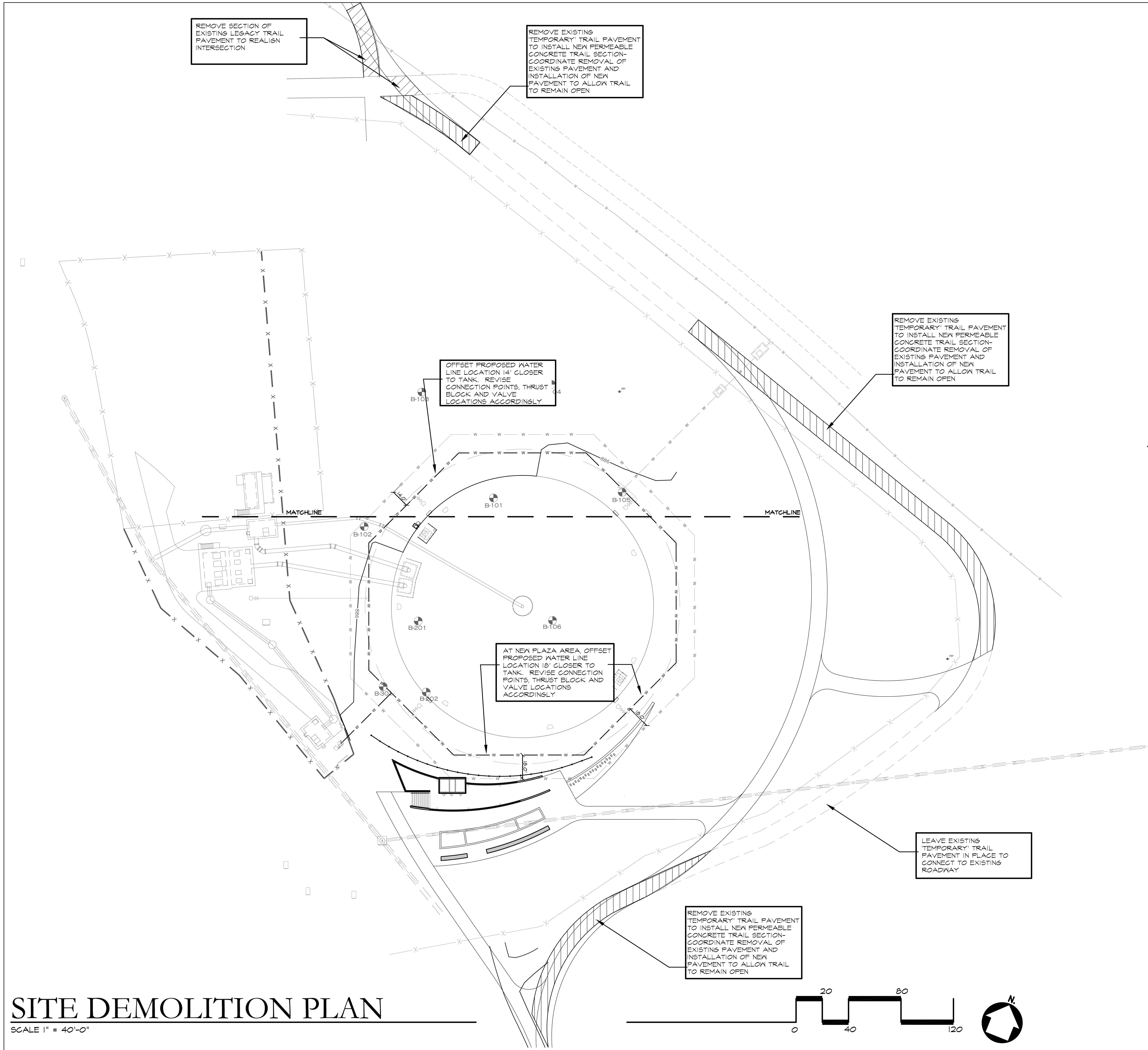
DATE: APRIL 6, 2016

DRAWN: RAF

CHECKED: RAF

SHEET: L1.0

Scale: AS NOTED



SITE DEMOLITION PLAN

SCALE 1" = 40'-0"

DEMOLITION NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. THE CONTRACT DRAWINGS SHOW THE APPROXIMATE LOCATION OF EXISTING AND PROPOSED UTILITY LINES. THESE LINES HAVE BEEN IDENTIFIED AND LOCATED AS ACCURATELY AS POSSIBLE USING AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ACTUAL UTILITY LOCATIONS.

C. SAWCUT EDGES OF EXISTING PAVEMENT WHERE NEW PAVEMENT ABUTS AND / OR EXISTING PAVEMENT IS INDICATED TO BE REMOVED.

D. CONTRACTOR TO PROTECT ALL EXISTING TREES TO REMAIN- ALL TREES WITHIN THE LIMITS OF WORK SHALL BE PROTECTED. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IF ANY TREES ARE DAMAGED ON OR OFF SITE. NO MATERIALS ARE TO BE STORED UNDER A TREE IN ANY CIRCUMSTANCE. THE CONTRACTOR SHALL MAINTAIN TREE PROTECTION FENCING WHERE INDICATED AND FOR ALL EXISTING TREES WITHIN THE LIMITS OF THE CONSTRUCTION FENCING. TREE PROTECTION FENCING SHALL BE CONSTRUCTED OF SAFETY FENCE WITH STEEL 'T' SECTION FENCE POSTS SPACED AT 6' MAXIMUM; LIMIT OF FENCE TO ALIGN WITH CANOPY / DRIP EDGE OF TREES TO AVOID DAMAGE TO EXISTING TREES DURING CONSTRUCTION.

E. CONTRACTOR SHALL PROTECT ALL SURROUNDING AREAS. CONTRACTOR SHALL REPAIR ANY DAMAGES TO OFF OR ON SITE PROPERTY THAT IS NOT LISTED TO BE REMOVED AT NO ADDITIONAL COST TO OWNER.

F. SEE SPECIFICATIONS FOR OTHER DEMOLITION AND SITE CLEARING REQUIREMENTS.

G. CONTRACTOR SHALL PROTECT ALL UTILITY STRUCTURES. ANY DAMAGES TO UTILITIES ON OR OFF SITE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR REPAIR AT NO ADDITIONAL COST TO OWNER. THE CONTRACTOR SHALL SALVAGE AND REINSTALL ALL EXISTING UTILITY MARKERS IN NEW PAVEMENT.

H. PROTECT ALL EXISTING VEGETATION AND TREE LINES THROUGHOUT CONSTRUCTION; CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY EXISTING PLANTINGS DAMAGED BY CONSTRUCTION ACTIVITIES.

I. WHERE ITEMS ARE INDICATED TO BE SALVAGED AND RETURNED TO OWNER, THE OWNER SHALL DESIGNATE A LOCATION FOR CONTRACTOR TO DELIVER AND OFFLOAD SALVAGED ITEMS.

DEMOLITION LEGEND

EXISTING ASPHALT TRAIL PAVEMENT TO BE REMOVED, FULL SECTION

DATE | REVISION DESCRIPTION

SITE DEMOLITION PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

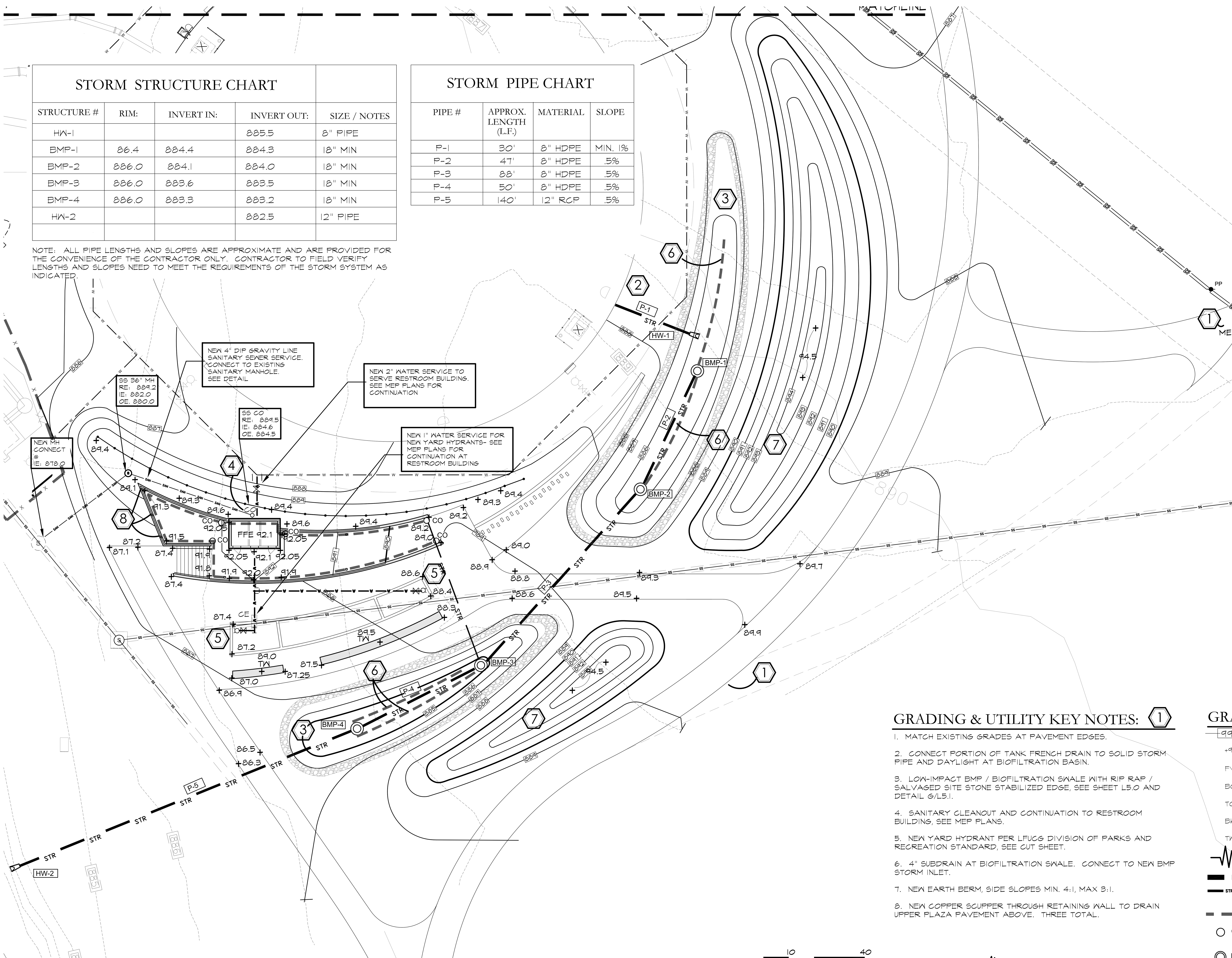
LFUCG BID No. ______ ; RMP ID No. ______

elementdesign

DATE: APRIL 6, 2016 | DRAWN: RAF

Scale: AS NOTED | CHECKED: RAF

JOB: | SHEET: L2.0



STORM STRUCTURE CHART				
STRUCTURE #	RIM:	INVERT IN:	INVERT OUT:	SIZE / NOTES
HW-1			885.5	8" PIPE
BMP-1	86.4	884.4	884.3	18" MIN
BMP-2	886.0	884.1	884.0	18" MIN
BMP-3	886.0	883.6	883.5	18" MIN
BMP-4	886.0	883.3	883.2	18" MIN
HW-2			882.5	12" PIPE

NOTE: ALL PIPE LENGTHS AND SLOPES ARE APPROXIMATE AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. CONTRACTOR TO FIELD VERIFY LENGTHS AND SLOPES NEED TO MEET THE REQUIREMENTS OF THE STORM SYSTEM AS INDICATED.

STORM PIPE CHART			
PIPE #	APPROX. LENGTH (L.F.)	MATERIAL	SLOPE
P-1	30'	8" HDPE	MIN. 1%
P-2	47'	8" HDPE	.5%
P-3	88'	8" HDPE	.5%
P-4	50'	8" HDPE	.5%
P-5	140'	12" RCP	.5%

GRADING & DRAINAGE NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. THE DRAWINGS SHOW THE APPROXIMATE LOCATION OF EXISTING AND PROPOSED UTILITY LINES. THESE LINES HAVE BEEN IDENTIFIED AND LOCATED AS ACCURATELY AS POSSIBLE USING AVAILABLE INFORMATION; THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ACTUAL LOCATIONS.

C. PROTECT EXISTING TREES FROM POTENTIAL DAMAGE OF CONSTRUCTION OPERATIONS. STEEPEN GRADES UPHILL FROM EXISTING TREES TO A MAX. OF 2:1 TO AVOID FILLING SOILS ONTO TRUNKS.

D. UNLESS OTHERWISE INDICATED TO BE REMOVED, ALL ITEMS REMAINING WITHIN THE LIMIT OF CONTRACT ARE TO REMAIN AND BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.

E. THE CONTRACTOR SHALL MAINTAIN STORM DRAINAGE SYSTEMS TO FUNCTION THROUGHOUT THE CONSTRUCTION PERIOD.

F. PROPOSED GRADES SHOWN ARE FINISHED GRADES.

G. LIMIT OF GRADING EXTENTS TO INCLUDE ALL AREAS DISTURBED BY ALL SITE UTILITY WORK, REFER TO SITE UTILITY DRAWINGS FOR LOCATIONS OF PROPOSED SITE UTILITIES.

H. REFER TO SPECIFICATION / PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.

I. ADJUST RIM ELEVATIONS OF ALL EXISTING STRUCTURES TO MATCH PROPOSED FINISHED GRADES.

J. ALL EXISTING LAWN AREAS DISTURBED BY CONSTRUCTION INCLUDING BUT NOT LIMITED TO GRADING & EARTHWORK AND SITE UTILITY WORK ARE TO BE SEEDED UNLESS OTHERWISE INDICATED. EXTEND LIMITS OF SEEDING TO INCLUDE ALL AREAS DISTURBED BY CONSTRUCTION. SEE SPECIFICATIONS 'LAWNS AND GRASSES' FOR FINE GRADING AND SEEDING REQUIREMENTS.

K. PROVIDE EROSION CONTROL BLANKET FOR ALL SEEDED SLOPES 4:1 OR STEEPER. SEE SPECIFICATIONS AND SWPP PLAN FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

L. FOR PROPOSED DRAINAGE STRUCTURES, INVERT ELEVATIONS ARE APPROXIMATE AND BASED ON INFORMATION PROVIDED FOR EXISTING DRAINAGE STRUCTURES. FIELD VERIFY ELEVATIONS PRIOR TO INSTALLATION OF STORM STRUCTURES.

M. FOR PROPOSED DRAINAGE PIPE, PIPE LENGTHS & SLOPES ARE APPROXIMATE & SHOULD BE ADJUSTED AS NECESSARY TO MEET EXISTING AND PROPOSED STORM STRUCTURES.

N. GRADE ALL NEW PAVEMENTS TO DRAIN. GRADE ALL NEW WALKS AT MAX. 2% CROSS SLOPE. GRADE ALL NEW WALKS TO MAX. 5% LONGITUDINAL SLOPE UNLESS OTHERWISE SPECIFICALLY INDICATED ON PLANS TO BE A RAMP.

O. SEE ENLARGED PLANS FOR ADDITIONAL SPOT ELEVATIONS.

P. ALL DRAINAGE SWALES SHALL BE SODDED WITH MIN. 6' WIDE SOD FOR FULL LENGTH OF SWALE.

GRADING & UTILITY KEY NOTES: 1

1. MATCH EXISTING GRADES AT PAVEMENT EDGES.
2. CONNECT PORTION OF TANK FRENCH DRAIN TO SOLID STORM PIPE AND DAYLIGHT AT BIOFILTRATION BASIN.
3. LOW-IMPACT BMP / BIOFILTRATION SWALE WITH RIP RAP / SALVAGED SITE STONE STABILIZED EDGE, SEE SHEET L5.0 AND DETAIL G/L5.1.
4. SANITARY CLEANOUT AND CONTINUATION TO RESTROOM BUILDING, SEE MEP PLANS.
5. NEW YARD HYDRANT PER LFUCG DIVISION OF PARKS AND RECREATION STANDARD, SEE CUT SHEET.
6. 4" SUBDRAIN AT BIOFILTRATION SWALE. CONNECT TO NEW BMP STORM INLET.
7. NEW EARTH BERM, SIDE SLOPES MIN. 4:1, MAX 3:1.
8. NEW COPPER SCUPPER THROUGH RETAINING WALL TO DRAIN UPPER PLAZA PAVEMENT ABOVE. THREE TOTAL.

GRADING & UTILITY LEGEND

991	PROPOSED CONTOUR
+93.0	PROPOSED SPOT ELEVATION
FV	FIELD VERIFY
BC	BOTTOM OF CURB
TC	TOP OF CURB
BW	BOTTOM OF WALL
TW	TOP OF WALL
	DRAINAGE DIRECTION
	LIMIT OF GRADING
STR	NEW STORM LINE, SEE KEYNOTES
	NEW SUBDRAIN, SEE KEYNOTES
CO	NEW CLEANOUT, SEE DETAIL G/L6.0
BMP	BMP OVERFLOW STRUCTURE, SEE DETAIL F/L6.0
HW	NEW HEADWALL, SEE DETAIL E/L6.0
S	PROPOSED SANITARY SEWER MANHOLE
CO	PROPOSED SANITARY SEWER CLEANOUT
SAN	PROPOSED SANITARY SEWER LINE
	PROPOSED POTABLE WATER LINE
	NEW YARD HYDRANT
CE	CONCRETE ENCASEMENT
WV	VALVE - SEE PLAN & NOTES

SITE GRADING & DRAINAGE

SCALE 1" = 20'-0"

0 10 20 40 60

N.

STATE OF KENTUCKY RAMONA ... REGISTERED LANDSCAPE ARCHITECT

STATE OF KENTUCKY VAUGHAN L. ADKINS 22305 LICENSED PROFESSIONAL ENGINEER

DATE	REVISION DESCRIPTION

SITE GRADING & DRAINAGE PLAN

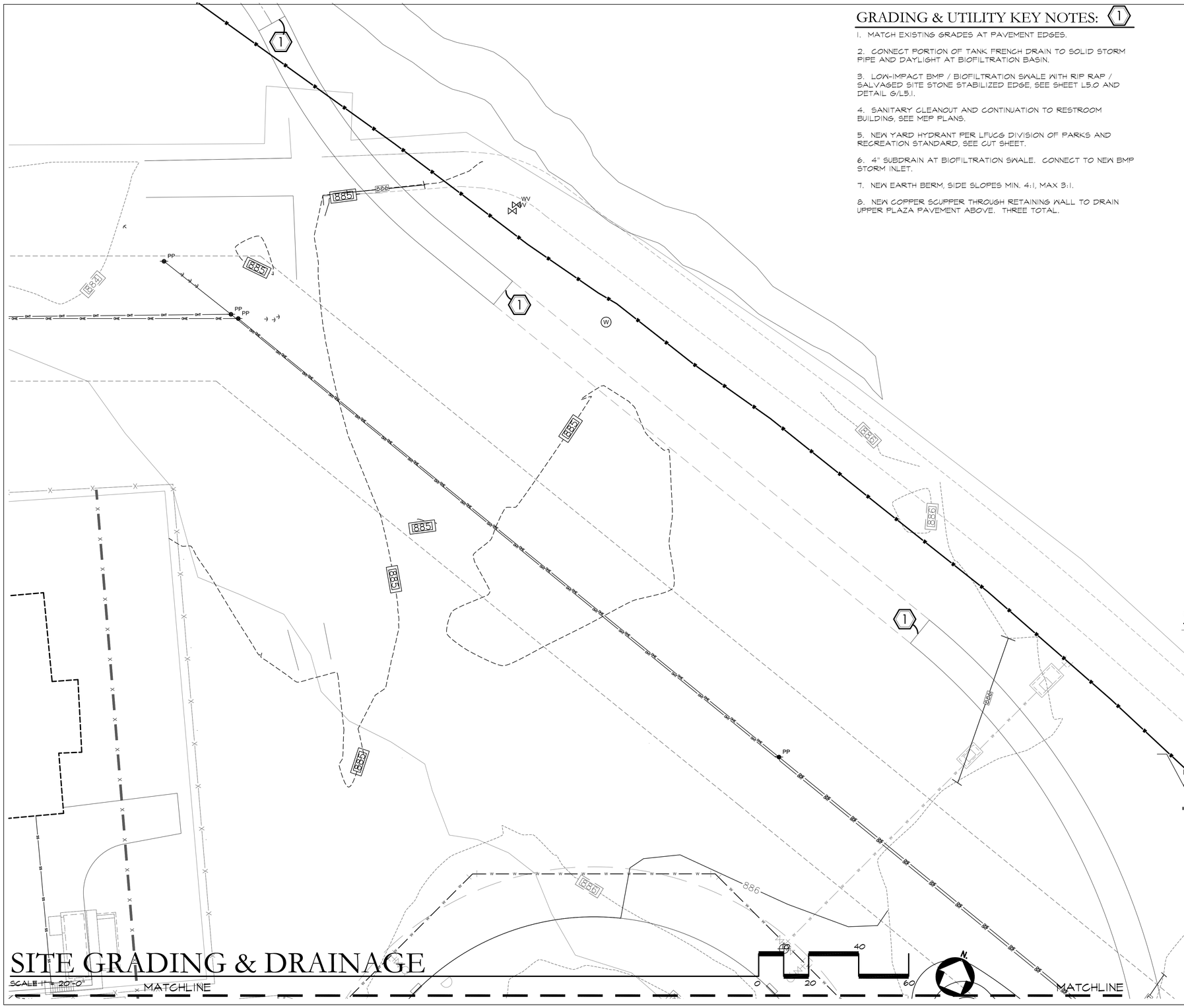
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ________; RMP ID No. ____

elementdesign
landscape architecture+civil engineering+planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6533
f. 859.389.6534
www.element-site.com

DATE: APRIL 6, 2016 | DRAWN: RAF
Scale: AS NOTED | CHECKED: RAF
JOB:
SHEET: L3.0-A

SITE GRADING & DRAINAGE

SCALE 1" = 20'-0"



GRADING & UTILITY KEY NOTES: 1

1. MATCH EXISTING GRADES AT PAVEMENT EDGES.

2. CONNECT PORTION OF TANK FRENCH DRAIN TO SOLID STORM PIPE AND DAYLIGHT AT BIOFILTRATION BASIN.

3. LOW-IMPACT BMP / BIOFILTRATION SWALE WITH RIP RAP / SALVAGED SITE STONE STABILIZED EDGE, SEE SHEET L5.0 AND DETAIL 6/L5.1.

4. SANITARY CLEANOUT AND CONTINUATION TO RESTROOM BUILDING, SEE MEP PLANS.

5. NEW YARD HYDRANT PER LFUCG DIVISION OF PARKS AND RECREATION STANDARD, SEE CUT SHEET.

6. 4" SUBDRAIN AT BIOFILTRATION SWALE. CONNECT TO NEW BMP STORM INLET.

7. NEW EARTH BERM, SIDE SLOPES MIN. 4:1, MAX 3:1.

8. NEW COPPER SCUPPER THROUGH RETAINING WALL TO DRAIN UPPER PLAZA PAVEMENT ABOVE. THREE TOTAL.

GRADING & DRAINAGE NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. THE DRAWINGS SHOW THE APPROXIMATE LOCATION OF EXISTING AND PROPOSED UTILITY LINES. THESE LINES HAVE BEEN IDENTIFIED AND LOCATED AS ACCURATELY AS POSSIBLE USING AVAILABLE INFORMATION; THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ACTUAL LOCATIONS.

C. PROTECT EXISTING TREES FROM POTENTIAL DAMAGE OF CONSTRUCTION OPERATIONS. STEEPEN GRADES UPHILL FROM EXISTING TREES TO A MAX. OF 2:1 TO AVOID FILLING SOILS ONTO TRUNKS.

D. UNLESS OTHERWISE INDICATED TO BE REMOVED, ALL ITEMS REMAINING WITHIN THE LIMIT OF CONTRACT ARE TO REMAIN AND BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.

E. THE CONTRACTOR SHALL MAINTAIN STORM DRAINAGE SYSTEMS TO FUNCTION THROUGHOUT THE CONSTRUCTION PERIOD.

F. PROPOSED GRADES SHOWN ARE FINISHED GRADES.

G. LIMIT OF GRADING EXTENTS TO INCLUDE ALL AREAS DISTURBED BY ALL SITE UTILITY WORK, REFER TO SITE UTILITY DRAWINGS FOR LOCATIONS OF PROPOSED SITE UTILITIES.

H. REFER TO SPECIFICATION / PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.

I. ADJUST RIM ELEVATIONS OF ALL EXISTING STRUCTURES TO MATCH PROPOSED FINISHED GRADES.

J. ALL EXISTING LAWN AREAS DISTURBED BY CONSTRUCTION INCLUDING BUT NOT LIMITED TO GRADING & EARTHWORK AND SITE UTILITY WORK ARE TO BE SEEDED UNLESS OTHERWISE INDICATED. EXTEND LIMITS OF SEEDING TO INCLUDE ALL AREAS DISTURBED BY CONSTRUCTION. SEE SPECIFICATIONS 'LAWNS AND GRASSES' FOR FINE GRADING AND SEEDING REQUIREMENTS.

K. PROVIDE EROSION CONTROL BLANKET FOR ALL SEEDED SLOPES 4:1 OR STEEPER. SEE SPECIFICATIONS AND SWPP PLAN FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

L. FOR PROPOSED DRAINAGE STRUCTURES, INVERT ELEVATIONS ARE APPROXIMATE AND BASED ON INFORMATION PROVIDED FOR EXISTING DRAINAGE STRUCTURES. FIELD VERIFY ELEVATIONS PRIOR TO INSTALLATION OF STORM STRUCTURES.

M. FOR PROPOSED DRAINAGE PIPE, PIPE LENGTHS & SLOPES ARE APPROXIMATE & SHOULD BE ADJUSTED AS NECESSARY TO MEET EXISTING AND PROPOSED STORM STRUCTURES.

N. GRADE ALL NEW PAVEMENTS TO DRAIN. GRADE ALL NEW WALKS AT MAX. 2% CROSS SLOPE. GRADE ALL NEW WALKS TO MAX. 5% LONGITUDINAL SLOPE UNLESS OTHERWISE SPECIFICALLY INDICATED ON PLANS TO BE A RAMP.

O. SEE ENLARGED PLANS FOR ADDITIONAL SPOT ELEVATIONS.

P. ALL DRAINAGE SWALES SHALL BE SODDED WITH MIN. 6' WIDE SOD FOR FULL LENGTH OF SWALE.

GRADING & UTILITY LEGEND

- 881 — PROPOSED CONTOUR
- +93.0 — PROPOSED SPOT ELEVATION
- FV — FIELD VERIFY
- BC — BOTTOM OF CURB
- TC — TOP OF CURB
- BW — BOTTOM OF WALL
- TW — TOP OF WALL
- DRAINAGE DIRECTION
- STRM — NEW STORM LINE, SEE KEYNOTES
- NEW SUBDRAIN, SEE KEYNOTES
- CO — NEW CLEANOUT, SEE DETAIL 6/L6.0
- BMP — BMP OVERFLOW STRUCTURE, SEE DETAIL F/L6.0
- HW — NEW HEADWALL, SEE DETAIL E/L6.0
- S — PROPOSED SANITARY SEWER MANHOLE
- CO — PROPOSED SANITARY SEWER CLEANOUT
- SAN — PROPOSED SANITARY SEWER LINE
- W — PROPOSED POTABLE WATER LINE
- NEW YARD HYDRANT
- CE — CONCRETE ENCASEMENT
- WV — VALVE - SEE PLAN & NOTES

STATE OF KENTUCKY — RAMONA FOLTZ — 666 — REGISTERED LANDSCAPE ARCHITECT

DATE — REVISION DESCRIPTION

SITE GRADING & DRAINAGE PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture + engineering + planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6333
f. 859.389.6334
www.elementdesign.com

DRAWN: RAF

CHECKED: RAF

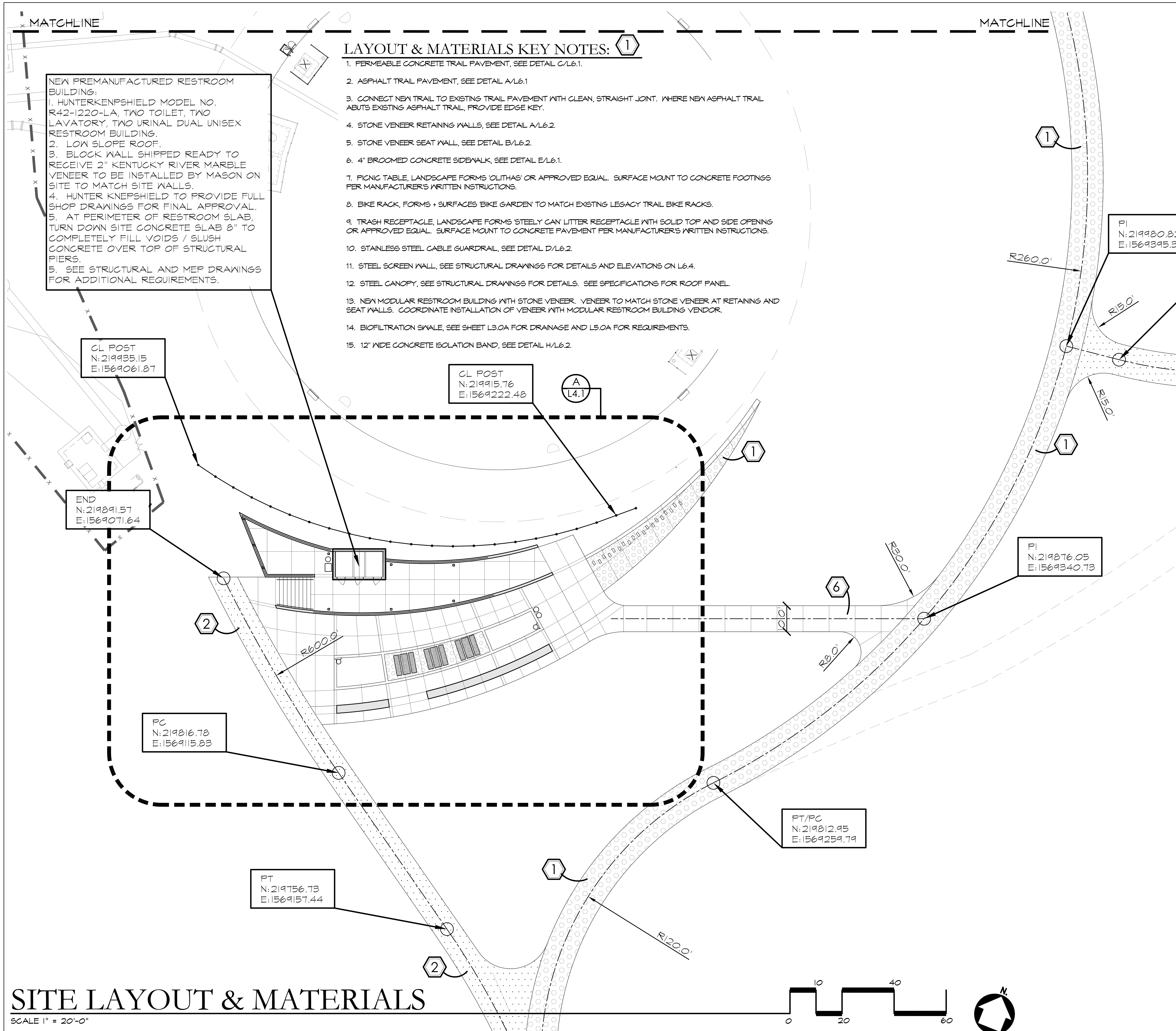
DATE: APRIL 6, 2016

Scale: AS NOTED

JOB:

SHEET: L3.0-B

STATE OF KENTUCKY — CHAUGHAN LEE BOWLES — 22305 — LICENSED PROFESSIONAL ENGINEER



SITE LAYOUT & MATERIALS

SCALE 1" = 20'-0"

0 10 20 40 60

N

LAYOUT & MATERIALS KEY NOTES: (1)

1. PERMEABLE CONCRETE TRAIL PAVEMENT, SEE DETAIL C/L6.1.
2. ASPHALT TRAIL PAVEMENT, SEE DETAIL A/L6.1
3. CONNECT NEW TRAIL TO EXISTING TRAIL PAVEMENT WITH CLEAN, STRAIGHT JOINT. WHERE NEW ASPHALT TRAIL ABUTS EXISTING ASPHALT TRAIL, PROVIDE EDGE KEY.
4. STONE VENEER RETAINING WALLS, SEE DETAIL A/L6.2.
5. STONE VENEER SEAT WALL, SEE DETAIL B/L6.2.
6. 4" BROOMED CONCRETE SIDEWALK, SEE DETAIL E/L6.1.
7. PICNIC TABLE, LANDSCAPE FORMS 'OLITHAS' OR APPROVED EQUAL. SURFACE MOUNT TO CONCRETE FOOTINGS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
8. BIKE RACK, FORMS + SURFACES 'BIKE GARDEN' TO MATCH EXISTING LEGACY TRAIL BIKE RACKS.
9. TRASH RECEPTACLE, LANDSCAPE FORMS 'STEELY CAN' LITTER RECEPTACLE WITH SOLID TOP AND SIDE OPENING OR APPROVED EQUAL. SURFACE MOUNT TO CONCRETE PAVEMENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
10. STAINLESS STEEL CABLE GUARDRAIL, SEE DETAIL D/L6.2.
11. STEEL SCREEN WALL, SEE STRUCTURAL DRAWINGS FOR DETAILS AND ELEVATIONS ON L6.4.
12. STEEL CANOPY, SEE STRUCTURAL DRAWINGS FOR DETAILS. SEE SPECIFICATIONS FOR ROOF PANEL.
13. NEW MODULAR RESTROOM BUILDING WITH STONE VENEER. VENEER TO MATCH STONE VENEER AT RETAINING AND SEAT WALLS. COORDINATE INSTALLATION OF VENEER WITH MODULAR RESTROOM BUILDING VENDOR.
14. BIOFILTRATION SWALE, SEE SHEET L3.0A FOR DRAINAGE AND L5.0A FOR REQUIREMENTS.
15. 12" WIDE CONCRETE ISOLATION BAND, SEE DETAIL H/L6.2.

LAYOUT & MATERIALS NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. DIMENSIONS GIVEN IN RELATIONSHIP TO BUILDINGS OR OTHER SITE ELEMENTS ARE MEASURED PERPENDICULAR FROM THE OUTSIDE FACE OF BRICK, STONE OR CONCRETE UNLESS OTHERWISE INDICATED. DIMENSIONS GIVEN AT ROADWAYS ARE FROM FACE OF CURB TO FACE OF CURB UNLESS OTHERWISE NOTED.

C. DIMENSIONS ARE REFERENCED AT 90 DEGREE ANGLES UNLESS OTHERWISE INDICATED. RADII ARE 5' UNLESS OTHERWISE INDICATED.

D. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL INVOLVED UTILITY COMPANIES AND COORDINATING WITH THEM ALL CONSTRUCTION ACTIVITIES AND VERIFYING ALL SITE UTILITIES PRIOR TO CONSTRUCTION ACTIVITY.

E. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LAYOUT LEGEND:

- CENTERLINE
- PI — CENTERLINE POINT OF INTERSECTION
- PC — CENTERLINE POINT OF CURVATURE
- PT — CENTERLINE POINT OF TANGENCY
- CC — CENTERLINE OF COLUMN
- PT N:XXX E:XXX — POINT COORDINATES
- SURVEY BENCHMARK- REFER TO SITE SURVEY

LAYOUT & MATERIALS LEGEND:

- NEW PERMEABLE TRAIL PAVEMENT SEE KEYNOTE 1
- NEW ASPHALT TRAIL PAVEMENT SEE KEYNOTE 2
- NEW BROOMED 4" CONCRETE PAVEMENT WITH TOOLED CONTROL JTS SEE KEYNOTE
- NEW HEAVY DUTY 6"CONCRETE PAVEMENT WITH TOOLED CONTROL JTS. SEE KEYNOTE
- SITE WALL, SEE KEYNOTES
- EJ — EXPANSION JOINT- SEE DETAIL
- CONTROL JOINT- SEE DETAIL
- NEW CONCRETE ISOLATION BAND
- CENTERLINE
- NEW PICNIC TABLE WITH BENCHES, SEE KEYNOTES
- NEW TRASH / RECYCLING RECEPTACLES, SEE SPECS

STATE OF KENTUCKY
RAMONA
REGISTERED LANDSCAPE ARCHITECT

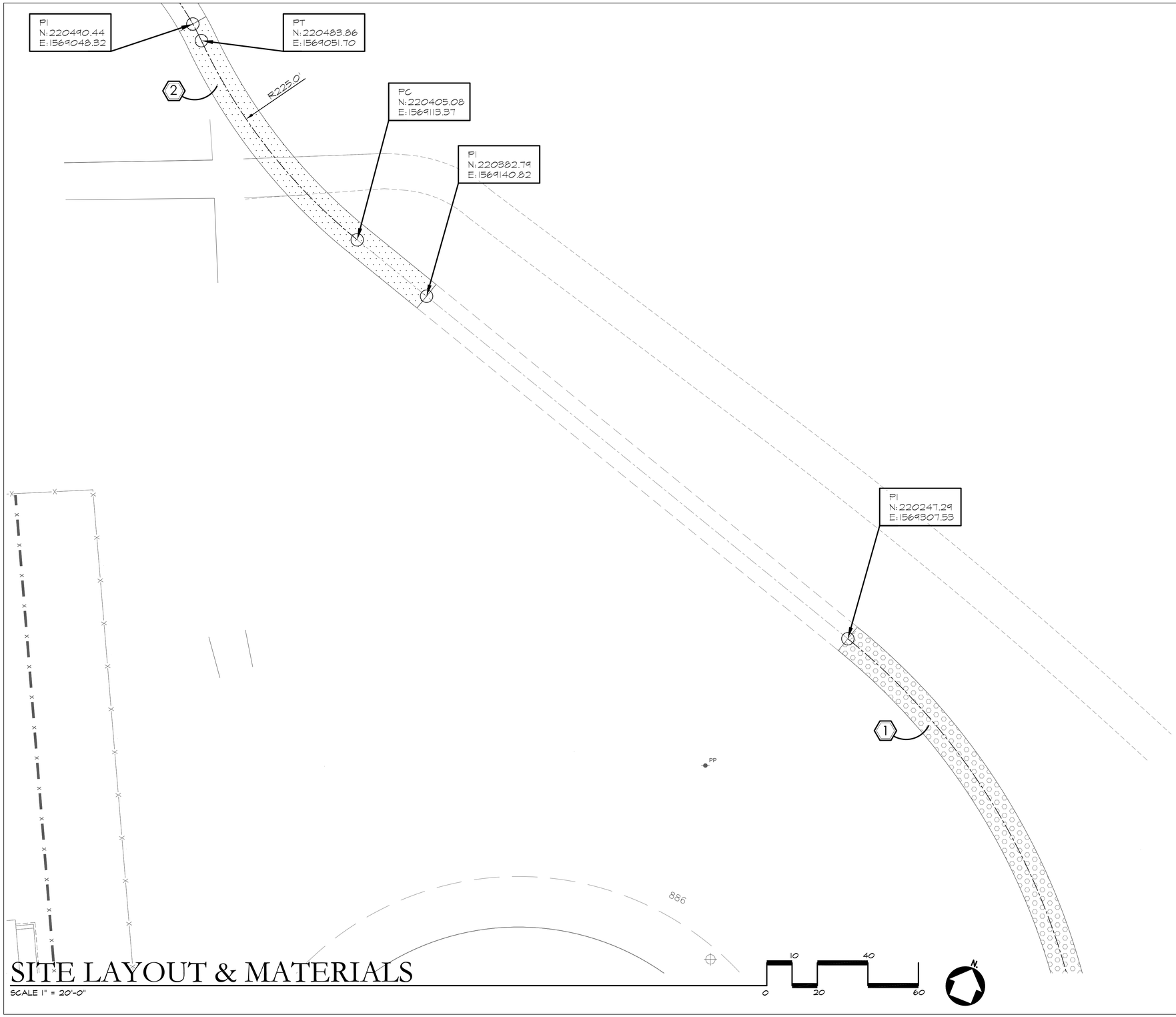
DATE	REVISION DESCRIPTION

SITE LAYOUT & MATERIALS PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ______; RMP ID No. ______

elementdesign
landscape architecture+civil engineering+planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6533
f. 859.389.6534
www.element-site.com

DATE: APRIL 6, 2016 | DRAWN: RAF
Scale: AS NOTED | CHECKED: RAF
JOB:
SHEET: L4.0A



SITE LAYOUT & MATERIALS

SCALE 1" = 20'-0"

LAYOUT & MATERIALS NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. DIMENSIONS GIVEN IN RELATIONSHIP TO BUILDINGS OR OTHER SITE ELEMENTS ARE MEASURED PERPENDICULAR FROM THE OUTSIDE FACE OF BRICK, STONE OR CONCRETE UNLESS OTHERWISE INDICATED. DIMENSIONS GIVEN AT ROADWAYS ARE FROM FACE OF CURB TO FACE OF CURB UNLESS OTHERWISE NOTED.

C. DIMENSIONS ARE REFERENCED AT 90 DEGREE ANGLES UNLESS OTHERWISE INDICATED. RADII ARE 5' UNLESS OTHERWISE INDICATED.

D. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL INVOLVED UTILITY COMPANIES AND COORDINATING WITH THEM ALL CONSTRUCTION ACTIVITIES AND VERIFYING ALL SITE UTILITIES PRIOR TO CONSTRUCTION ACTIVITY.

E. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LAYOUT LEGEND:

- CENTERLINE
- PI — CENTERLINE POINT OF INTERSECTION
- PC — CENTERLINE POINT OF CURVATURE
- PT — CENTERLINE POINT OF TANGENCY
- CC — CENTERLINE OF COLUMN
- PT N:XXX E:XXX — POINT COORDINATES
- SURVEY BENCHMARK– REFER TO SITE SURVEY

LAYOUT & MATERIALS LEGEND:

- NEW PERMEABLE TRAIL PAVEMENT SEE KEYNOTE
- NEW ASPHALT TRAIL PAVEMENT SEE KEYNOTE
- NEW BROOMED 4" CONCRETE PAVEMENT WITH TOOLED CONTROL JTS SEE KEYNOTE
- NEW HEAVY DUTY 6"CONCRETE PAVEMENT WITH TOOLED CONTROL JTS. SEE KEYNOTE
- SITE WALL, SEE KEYNOTES
- EJ — EXPANSION JOINT- SEE DETAIL L/L6.1
- CONTROL JOINT- SEE DETAIL K/L6.1
- NEW CONCRETE ISOLATION BAND
- CENTERLINE
- NEW PICNIC TABLE WITH BENCHES, SEE KEYNOTES
- NEW TRASH / RECYCLING RECEPTACLES, SEE SPECS

LAYOUT & MATERIALS KEY NOTES: 1

1. PERMEABLE CONCRETE TRAIL PAVEMENT, SEE DETAIL C/L6.1.
2. ASPHALT TRAIL PAVEMENT, SEE DETAIL A/L6.1
3. CONNECT NEW TRAIL TO EXISTING TRAIL PAVEMENT WITH CLEAN, STRAIGHT JOINT. WHERE NEW ASPHALT TRAIL ABUTS EXISTING ASPHALT TRAIL, PROVIDE EDGE KEY.
4. STONE VENEER RETAINING WALLS, SEE DETAIL A/L6.2.
5. STONE VENEER SEAT WALL, SEE DETAIL B/L6.2.
6. 4" BROOMED CONCRETE SIDEWALK, SEE DETAIL E/L6.1.
7. PICNIC TABLE, LANDSCAPE FORMS 'OLITHAS' OR APPROVED EQUAL. SURFACE MOUNT TO CONCRETE FOOTINGS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
8. BIKE RACK, FORMS + SURFACES 'BIKE GARDEN' TO MATCH EXISTING LEGACY TRAIL BIKE RACKS.
9. TRASH RECEPTACLE, LANDSCAPE FORMS 'STEELY CAN' LITTER RECEPTACLE WITH SOLID TOP AND SIDE OPENING OR APPROVED EQUAL. SURFACE MOUNT TO CONCRETE PAVEMENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
10. STAINLESS STEEL CABLE GUARDRAIL, SEE DETAIL D/L6.2.
11. STEEL SCREEN WALL, SEE STRUCTURAL DRAWINGS FOR DETAILS AND ELEVATIONS ON L6.4.
12. STEEL CANOPY, SEE STRUCTURAL DRAWINGS FOR DETAILS.
13. NEW MODULAR RESTROOM BUILDING WITH STONE VENEER. VENEER TO MATCH STONE VENEER AT RETAINING AND SEAT WALLS. COORDINATE INSTALLATION OF VENEER WITH MODULAR RESTROOM BUILDING VENDOR.
14. BIOFILTRATION SWALE, SEE SHEET L3.0A FOR DRAINAGE AND L5.0A FOR REQUIREMENTS.
15. 12" WIDE CONCRETE ISOLATION BAND, SEE DETAIL H/L6.2.

STATE OF KENTUCKY · RAMONA · 668 · REGISTERED LANDSCAPE ARCHITECT

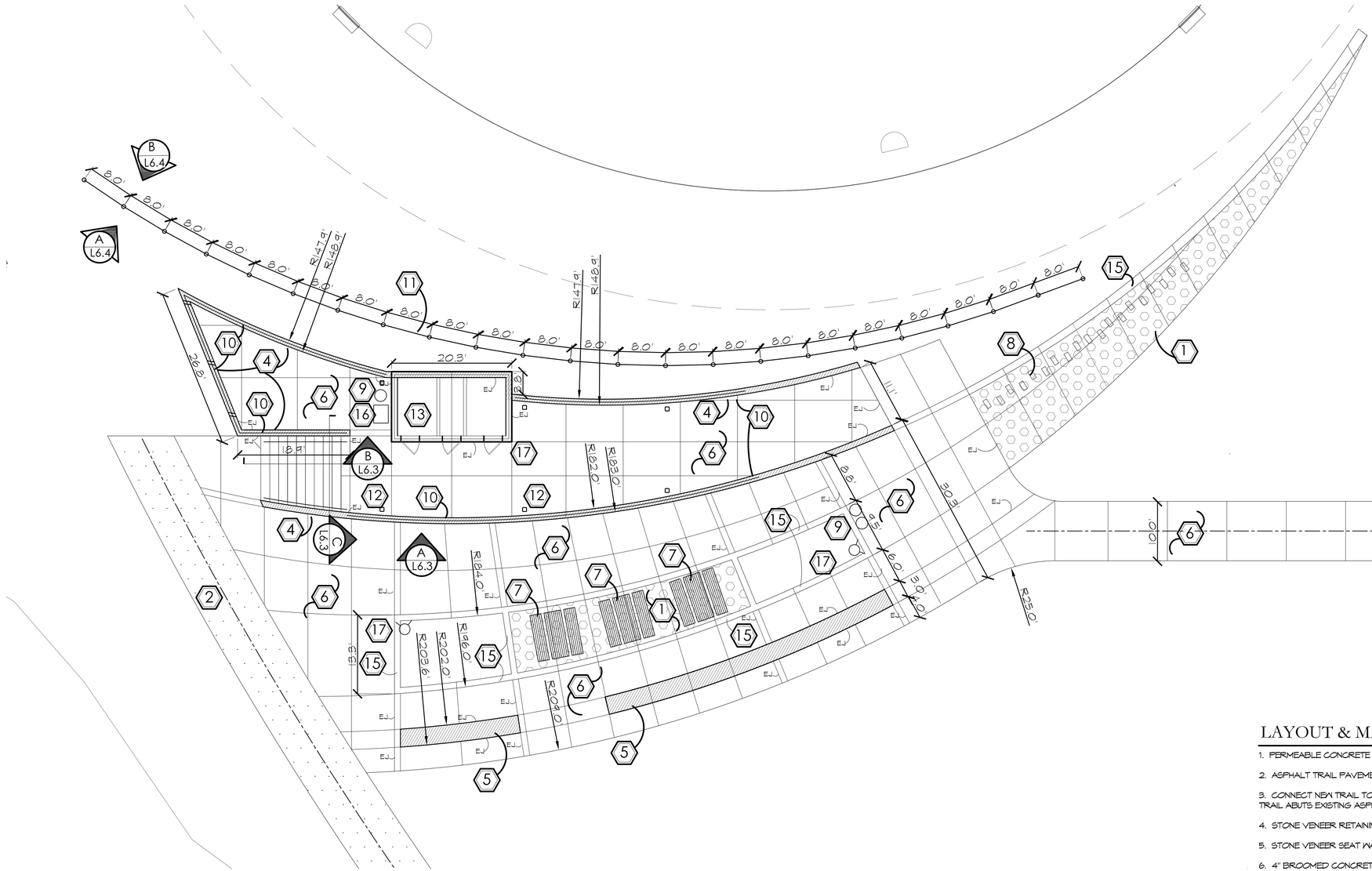
DATE | REVISION DESCRIPTION

SITE LAYOUT & MATERIALS PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture + engineering + planning
400 old vine street | suite 206 | lexington, ky 40507 | t: 859.389.6333 | f: 859.389.6333 | www.elementdesign.com

DRAWN: RAF | CHECKED: RAF
DATE: APRIL 6, 2016 | Scale: AS NOTED
JOB: | SHEET: L-4.0-B



ENLARGED PLAN

SCALE 1" = 10'-0"

0 10 20 30

N

LAYOUT & MATERIALS NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR, INC. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.

B. DIMENSIONS GIVEN IN RELATIONSHIP TO BUILDINGS OR OTHER SITE ELEMENTS ARE MEASURED PERPENDICULAR FROM THE OUTSIDE FACE OF BRICK, STONE OR CONCRETE UNLESS OTHERWISE INDICATED. DIMENSIONS GIVEN AT ROADWAYS ARE FROM FACE OF CURB TO FACE OF CURB UNLESS OTHERWISE NOTED.

C. DIMENSIONS ARE REFERENCED AT 90 DEGREE ANGLES UNLESS OTHERWISE INDICATED. RADII ARE 5' UNLESS OTHERWISE INDICATED.

D. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL INVOLVED UTILITY COMPANIES AND COORDINATING WITH THEM ALL CONSTRUCTION ACTIVITIES AND VERIFYING ALL SITE UTILITIES PRIOR TO CONSTRUCTION ACTIVITY.

E. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LAYOUT LEGEND:

- CENTERLINE
- PI — CENTERLINE POINT OF INTERSECTION
- PC — CENTERLINE POINT OF CURVATURE
- PT — CENTERLINE POINT OF TANGENCY
- CC — CENTERLINE OF COLUMN
- PT N:XXX E:XXX — POINT COORDINATES
- SURVEY BENCHMARK- REFER TO SITE SURVEY

LAYOUT & MATERIALS LEGEND:

- NEW PERMEABLE TRAIL PAVEMENT SEE KEYNOTE
- NEW ASPHALT TRAIL PAVEMENT SEE KEYNOTE
- NEW BROOMED 4" CONCRETE PAVEMENT WITH TOOLED CONTROL JTS SEE KEYNOTE
- NEW HEAVY DUTY 6"CONCRETE PAVEMENT WITH TOOLED CONTROL JTS. SEE KEYNOTE
- SITE WALL, SEE KEYNOTES
- EJ — EXPANSION JOINT- SEE DETAIL L/L6.1
- CONTROL JOINT- SEE DETAIL K/L6.1
- NEW CONCRETE ISOLATION BAND
- CENTERLINE
- NEW PICNIC TABLE WITH BENCHES, SEE KEYNOTES
- NEW TRASH / RECYCLING RECEPTACLES, SEE SPECS

LAYOUT & MATERIALS KEY NOTES: (1)

1. PERMEABLE CONCRETE TRAIL PAVEMENT, SEE DETAIL C/L6.1.
2. ASPHALT TRAIL PAVEMENT, SEE DETAIL A/L6.1
3. CONNECT NEW TRAIL TO EXISTING TRAIL PAVEMENT WITH CLEAN, STRAIGHT JOINT. WHERE NEW ASPHALT TRAIL ABUTS EXISTING ASPHALT TRAIL, PROVIDE EDGE KEY.
4. STONE VENEER RETAINING WALLS, SEE DETAIL A/L6.2.
5. STONE VENEER SEAT WALL, SEE DETAIL B/L6.2.
6. 4" BROOMED CONCRETE SIDEWALK, SEE DETAIL E/L6.1.
7. PICNIC TABLE, LANDSCAPE FORMS 'OLITHA5' OR APPROVED EQUAL. SURFACE MOUNT TO CONCRETE FOOTINGS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
8. BIKE RACK, FORMS + SURFACES 'BIKE GARDEN' TO MATCH EXISTING LEGACY TRAIL BIKE RACKS.
9. TRASH RECEPTACLE, LANDSCAPE FORMS 'STEELY CAN' LITTER RECEPTACLE WITH SOLID TOP AND SIDE OPENING OR APPROVED EQUAL. SURFACE MOUNT TO CONCRETE PAVEMENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
10. STAINLESS STEEL CABLE GUARDRAIL, SEE DETAIL D/L6.2.
11. STEEL SCREEN WALL, SEE STRUCTURAL DRAWINGS FOR DETAILS AND ELEVATIONS ON L6.4.
12. FOR STEEL CANOPY, SEE STRUCTURAL DRAWINGS FOR DETAILS. SEE SPECIFICATIONS FOR ROOF PANEL.
13. NEW MODULAR RESTROOM BUILDING WITH STONE VENEER. VENEER TO MATCH STONE VENEER AT RETAINING AND SEAT WALLS. COORDINATE INSTALLATION OF VENEER WITH MODULAR RESTROOM BUILDING VENDOR.
14. BIOFILTRATION SWALE, SEE SHEET L3.0A FOR DRAINAGE AND L5.0A FOR REQUIREMENTS.
15. 12" WIDE CONCRETE ISOLATION BAND, SEE DETAIL H/L6.2.
16. NEW WATER FOUNTAIN, SEE MEP DRAWINGS FOR REQUIREMENTS, MURDOCK MODEL M-43A, GYM54 SERIES WITH BOTTLE FILLER, COLOR TO BE SELECTED BY OWNER.
17. NEW FROST PROOF HYDRANT, MURDOCK GROUND FLUSH MODEL M-E575 WITH LOCKING LID.

STATE OF KENTUCKY — RAMONA FELTNER — 668 — REGISTERED LANDSCAPE ARCHITECT

DATE | REVISION DESCRIPTION

ENLARGED PLANS

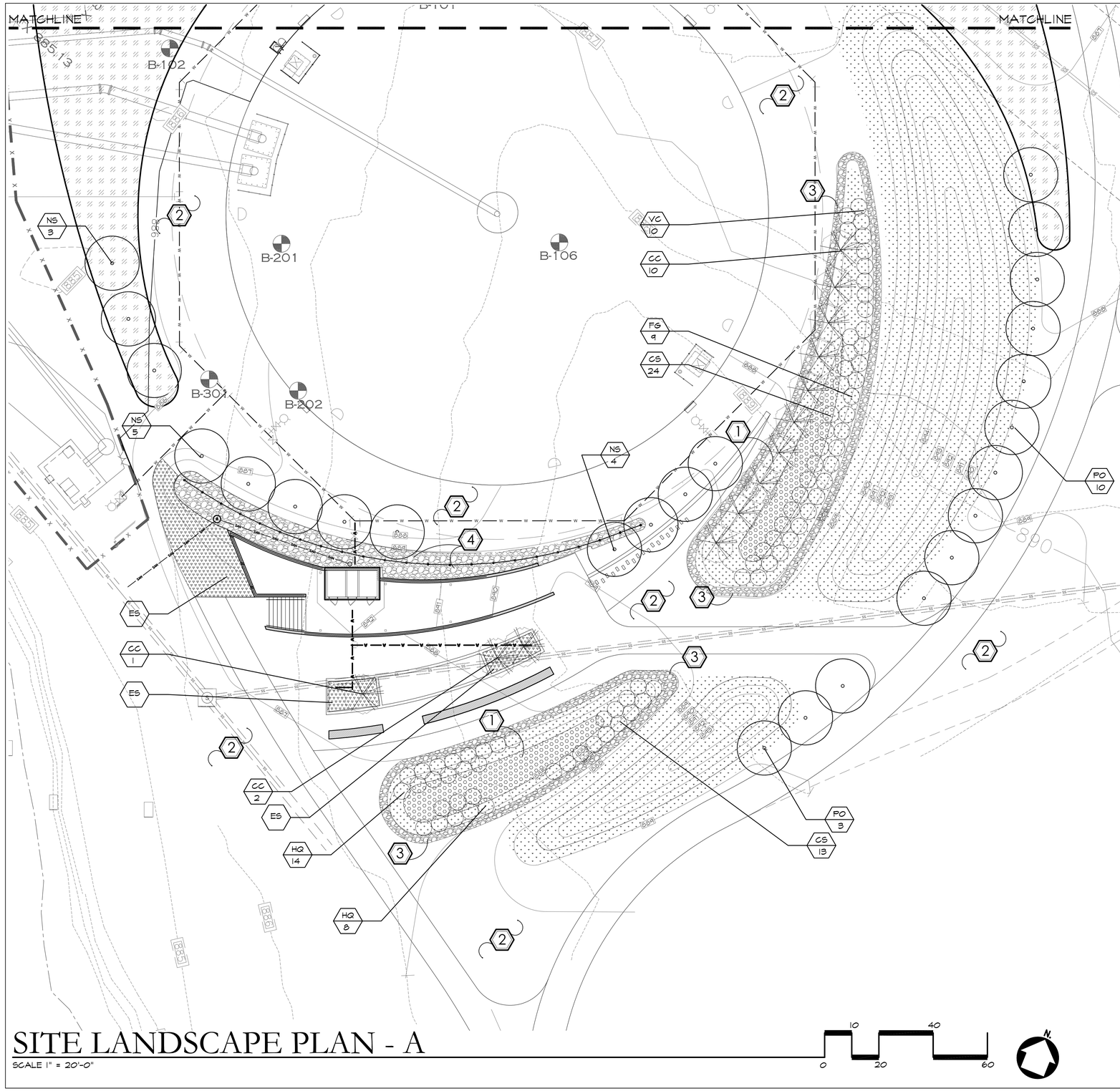
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture • civil engineering • planning
401 del vecchio court, suite 206
lexington, ky 40503
t. 859.396.6353
f. 859.396.6354
www.elementdesign.com

DRAWN: RAF | CHECKED: RAF

JOB: | DATE: APRIL 6, 2016 | Scale: AS NOTED

SHEET: L4.1



SITE LANDSCAPE PLAN - A

SCALE 1" = 20'-0"

0 20 40 60

N

LANDSCAPE NOTES:

A. THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PROVIDED FROM A SURVEY BY HDR INC.. THIS INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. CONTRACTOR TO VERIFY ALL INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATION AND PROTECT ALL UTILITIES PRIOR TO THE COMMENCEMENT OF DIGGING. NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING AND LAYOUT OF THE PLANTINGS ON THIS PROJECT. SECURE APPROVAL OF THE PLANTING LAYOUT IN THE FIELD WITH THE LANDSCAPE ARCHITECT PRIOR TO OPENING ANY PLANTING PITS OR BEDS.

C. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

D. THE CONTRACTOR SHALL PREPARE A CULTIVATED BED AROUND EACH GROUP OF SHRUBS &/OR GROUND COVER BEDS, THE SAME SHAPE AND SIZE AS SHOWN ON THE PLAN. THE ENTIRE BED SHALL BE MULCHED. A CRISP, WELL DEFINED EDGE SHALL BE DEVELOPED BETWEEN ANY SHRUB &/OR GROUND COVER BED AND THE ADJOINING LAWN AREA.

E. ONLY NURSERY GROWN PLANT MATERIAL SHALL BE USED. COLLECTED PLANT MATERIAL IS NOT ACCEPTABLE AND WILL BE REJECTED BY THE LANDSCAPE ARCHITECT.

F. UNLESS OTHERWISE INDICATED, NATURAL DYE-FREE SHREDDED BARK MULCH SHALL BE USED IN ALL SHRUB AND/OR GROUND COVER BEDS AND AROUND ALL TREES PLANTED WITHIN OR BEYOND THE CONFINES OF THE PLANTING BEDS. CONTRACTOR SHALL PROVIDE MULCH SAMPLE FOR LANDSCAPE ARCHITECTS APPROVAL PRIOR TO CONSTRUCTION.

G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REMOVAL OF ALL BINDING CORDS AND ROPES FROM THE TRUNKS OF ALL SHADE AND ORNAMENTAL TREES IMMEDIATELY AFTER PLANTING. IDENTIFICATION TAGS AND RIBBONS SHALL BE REMOVED FROM ALL PLANT MATERIAL AT THE TIME OF PLANTING. TREE BASKETS SHALL BE CUT FROM THE TOP 1/3 OF THE ROOT BALL PRIOR TO PLANTING.

H. ALL PLANT MATERIAL SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO DELIVERY TO THE SITE OR IF AGREED UPON BY LANDSCAPE ARCHITECT, MAY BE REVIEWED AT THE CONTRACTOR'S HOLDING YARD OR THE SITE PRIOR TO PLANTING.

I. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO RELOCATE AND ADJUST ALL PLANT MATERIAL IN THE FIELD PRIOR TO PLANTING. THE CONTRACTOR SHALL COORDINATE ALL PLANTING EFFORTS WITH THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. CONTRACTOR SHALL CONTACT AND NOTIFY LANDSCAPE ARCHITECT 2 WEEKS PRIOR TO PLANT INSTALLATION.

J. EXTEND LIMITS OF SEEDING TO INCLUDE ALL AREAS OF DISTURBANCE, INCLUDING GRADING, STAGING AND UTILITY WORK.

K. ALL PLANT QUANTITIES ARE GIVEN AS A REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO PLANTING.

LANDSCAPE LEGEND

- NEW SHADE TREE, SEE DETAIL A/L5.1
- NEW EVERGREEN TREE, SEE DETAIL B & C/L5.1
- NEW ORNAMENTAL TREE, SEE DETAIL D/L5.1
- NEW SHRUB, SEE DETAIL E/L5.1
- MEADOW MIX - SEE L5.0-B FOR SEED MIX
- CLASS 2 CHANNEL LINING
- BUFFALO GRASS SEED WITH EROSION CONTROL BLANKET ON BERMS, SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
- PERENNIALS, SEE DETAIL F/L5.1
- BIOFILTRATION BASIN MIX #1 - GRO PLUGS

MIX #1:
(GRO-PLUGS - EQUAL PARTS):
GREAT ST. JOHNSWORT (HYPERICUM PYRAMIDATUM)
LITTLE BLUESTEM (SCHYSACHYRIUM SCOPARIUM)
PLAINS OVAL SEDGE (CAREX BREVIOR)
BROWN FOX SEDGE (CAREX VULPINOIDEA)
MILKWEED (ASCLEPIAS SYRIACA)

- BIOFILTRATION BASIN MIX #2 - GRO PLUGS

MIX #2:
(GRO-PLUGS - EQUAL PARTS):
NORTHERN SEA OATS (CHASMANTHIUM LATIFOLIUM)
ORANGE CONEFLOWER (RUDBECKIA FULGIDA)
PURPLE CONEFLOWER (ECHINACEA PURPUREA)
GREEN-HEADED CONEFLOWER (RUDBECKIA LACINIANTA)

BIO-FILTRATION BASIN NOTES:

1. BIOFILTRATION SWALE TO BE PLANTED WITH GRO-PLUG MIXES WHERE INDICATED, INSTALLED AT 18" O.C. IN A TRIANGULAR PATTERN.

2. CONTRACTOR SHALL PROVIDE 12" OF SPECIAL BIOFILTRATION SOIL AND 3" OF SHREDDED HARDWOOD BARK MULCH WITHIN THE LIMITS OF ALL BIOFILTRATION AREAS THAT RECEIVE GRO-PLUGS, SEE DETAIL G/L5.1.

3. SEE LANDSCAPE GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LANDSCAPE KEYNOTES (1)

1. BIOFILTRATION BASIN, SEE DETAIL G/L5.1. EXTEND SUBDRAINS TO DRAINAGE STRUCTURE.

2. SEED ALL DISTURBED AREAS WHERE NOT LANDSCAPED.

3. 36" WIDE STRIP OF CLASS 2 CHANNEL LINING AROUND PERIMETER OF BIOFILTRATION BASIN

4. WASHED 2"-6" DIA RIVER STONE AT BASE OF SCREEN WALL AS INDICATE. 8" OVER NONWOVEN GEOTEXTILE FABRIC.

STATE OF KENTUCKY · RAMONA · 666 · REGISTERED · LANDSCAPE ARCHITECT

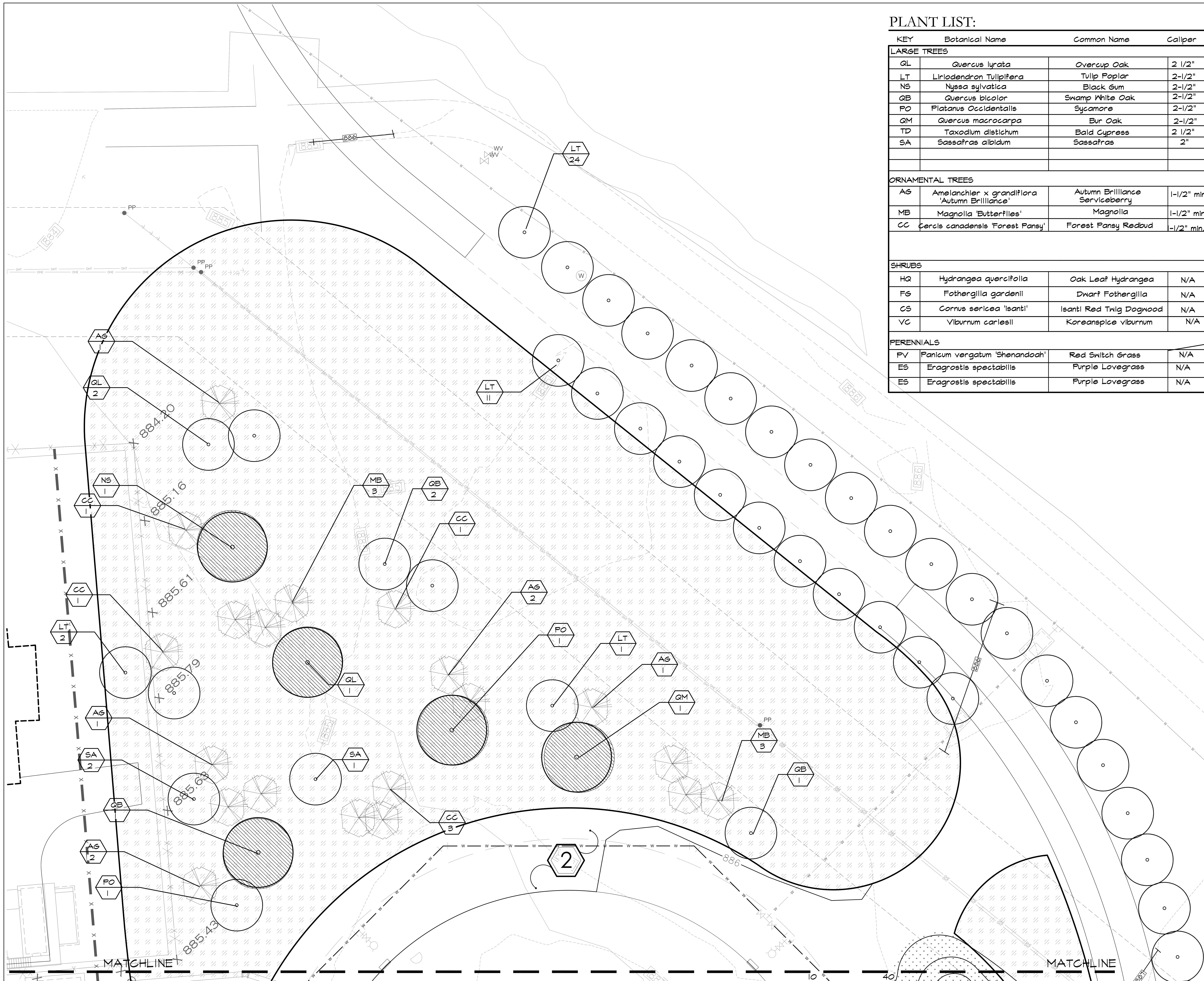
DATE	REVISION DESCRIPTION

SITE LANDSCAPE PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

elementdesign
landscape architecture + civil engineering + planning
401 east vine street | suite 206
lexington, kentucky 40507
t 859.396.4333
f 859.396.4334
www.elementdesign.com

DRAWN: RAF
CHECKED: RAF
DATE: APRIL 6, 2016
Scale: AS NOTED
JOB:
SHEET: L5.0-A



SITE LANDSCAPE PLAN - B

SCALE 1" = 20'-0"

PLANT LIST:

KEY	Botanical Name	Common Name	Caliper	Ball Size	Height	Spread	Canes	
LARGE TREES								
QL	Quercus lyrata	Overcup Oak	2 1/2"	28" min.	12'-14'	N/A	N/A	B & B, 5' Clear Trunk
LT	Liriodendron Tulipifera	Tulip Poplar	2-1/2"	28" min.	12'-14'	N/A	1	B & B, 5' Clear Trunk
NS	Nyssa sylvatica	Black Gum	2-1/2"	28" min.	12'-14'	N/A	1	Match Trees, 5' Clear Trunk Min.
QB	Quercus bicolor	Swamp White Oak	2-1/2"	28" min.	12'-14'	N/A	N/A	B & B, 5' Clear Trunk
PO	Platanus Occidentalis	Sycamore	2-1/2"	28" min.	12'-14'	N/A	N/A	B & B, 5' Clear Trunk
QM	Quercus macrocarpa	Bur Oak	2-1/2"	28" min.	12'-14'	N/A	N/A	B & B, 5' Clear Trunk
TD	Taxodium distichum	Bald Cypress	2 1/2"	28" min.	12'-14'	N/A	N/A	B & B, 5' Clear Trunk
SA	Sassafras albidum	Sassafras	2"	26" min.	12'-14'	N/A	N/A	B & B, 5' Clear Trunk
ORNAMENTAL TREES								
AG	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	1-1/2" min.	24" min.	10'-12'	N/A	3-5	B & B, 3-5 stem clump, matched
MB	Magnolia 'Butterflies'	Magnolia	1-1/2" min.	28" min.	8' min.	N/A	3 to 5	B & B, 3-5 stem clump, matched
CC	Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	-1/2" min.	28" min.	8' min.	N/A	3 to 5	B & B, 3-5 stem clump, matched
SHRUBS								
HQ	Hydrangea quercifolia	Oak Leaf Hydrangea	N/A	B&B	30"	24"-30"	N/A	60" o.c., w/ triangular spacing
FG	Fothergilla gardenii	Dwarf Fothergilla	N/A	No. 3 Cont.	24"	24"-30"	N/A	48" o.c., w/ triangular spacing
CS	Cornus sericea 'isanti'	Isanti Red Twig Dogwood	N/A	No. 3 Cont.	24"	24"-30"	N/A	48" o.c., w/ triangular spacing
VC	Viburnum carlesii	Koreanspice viburnum	N/A	B&B	30"	18"	N/A	60" o.c. w/triangular spacing
PERENNIALS								
PV	Panicum vergatum 'Shenandoah'	Red Switch Grass	N/A	1 Gal. Cont.	18"	18"	N/A	18" o.c. w/ triangular spacing
ES	Eragrostis spectabilis	Purple Lovegrass	N/A	1 Gal. Cont.	12"	12"	N/A	18" o.c. w/ Triangular spacing
ES	Eragrostis spectabilis	Purple Lovegrass	N/A	1 Gal. Cont.	12"	12"	N/A	18" o.c. w/ Triangular spacing

NS 6

LANDSCAPE LEGEND

NEW SHADE TREE, SEE DETAIL A/L5.1

NEW SHADE TREE - 6" CALIPER HAND DUG, B& B FROM LOCAL NURSERY SEE DETAIL A/L5.1

NEW EVERGREEN TREE, SEE DETAIL B & C/L5.1

NEW ORNAMENTAL TREE, SEE DETAIL D/L5.1

NEW SHRUB, SEE DETAIL E/L5.1

MEADOW MIX

WILDFLOWERS:
AGASTACHE FOENICULUM (ANISE HYSSOP)
COREOPSIS TRIPTERIS (TALL COREOPSIS)
ECHINACEA PURPUREA (PURPLE CONEFLOWER)
LOBELIA SIPHILITICA (GREAT BLUE LOBELIA)
RUDBECKIA FULGIDA (ORANGE CONEFLOWER)
RUDBECKIA LACINIANTA (GREEN-HEADED CONEFLOWER)
RUDBECKIA TRILOBA (BROWN-EYED SUSAN)
SOLIDAGO SPECIOSA (SHOWY GOLDENROD)

GRASSES, SEDGES and RUSHES
BOUTELOUA CURTIPENDULA (SIDE-OATS GRAMMA)
CAREX BREVIOR (PLAINS OVAL SEDGE)
CAREX VULPINOIDEA (BROWN FOX SEDGE)
ELYMUS CANADENSIS (CANADA WILD RYE)
JUNCUS EFFUSUS (SOFT RUSH)
SCHYZACHYRIUM SCOPARIUM (LITTLE BLUESTEM)
SPHENOPHOLIS OBTUSATA (PRAIRIE WEDGEGRASS)

LANDSCAPE KEYNOTES 1

1. BIOFILTRATION SWALE TO BE PLANTED WITH GRO-PLUG MIXES WHERE INDICATED, INSTALLED AT 18" O.C. IN A TRIANGULAR PATTERN.

2. CONTRACTOR SHALL PROVIDE 12" OF SPECIAL BIOFILTRATION SOIL AND 3" OF SHREDDED HARDWOOD BARK MULCH WITHIN THE LIMITS OF ALL BIOFILTRATION AREAS THAT RECEIVE GRO-PLUGS, SEE DETAIL G/L5.1.

3. SEE LANDSCAPE GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

STATE OF KENTUCKY
RAMONA A. FRY 66
REGISTERED
LANDSCAPE ARCHITECT

DATE	REVISION DESCRIPTION

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ______; RMP ID No. ____

elementdesign
landscape architecture+civil engineering+planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6533
f. 859.389.6534
www.element-site.com

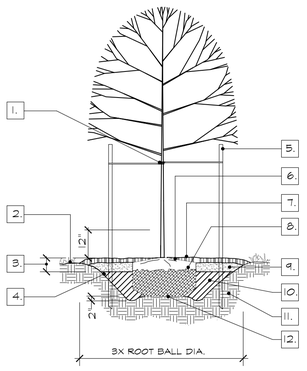
DRAWN: RAF
CHECKED: RAF
DATE: APRIL 6, 2016
Scale: AS NOTED
JOB:
SHEET: L5.0-B

NOTES:

1. COMMERCIAL GRADE POLYPROPYLENE TREE STRAP. (NO WIRES PERMITTED)
2. FINISHED GRADE.
3. ONE THIRD DEPTH OF ROOTBALL.
4. TAPER SIDE OF TREE PIT.
5. 2"X2"X8' UNTREATED WOOD STAKE.
6. SET TOP OF ROOT BALL 2" HIGHER THAN FINISHED GRADE.
7. 2" SHREDDED HARDWOOD BARK MULCH.
8. REMOVE BURLAP FROM TOP ONE THIRD OF ROOT BALL.
9. SOIL MIX - 4 PARTS TOPSOIL TO 1 PART ORGANIC MATTER. (SEE SPECIFICATIONS).
10. BACKFILL W. EX. TOPSOIL (NO STONES >1" DIA.)
11. EXISTING SUB-GRADE.
12. 2" RAISED SUB-GRADE PLATFORM
13. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
14. PRUNE ONLY AS DIRECTED BY OWNER.

STAKING SCHEDULE:

CALIPER	# Of Stakes
< 3"	2 STAKES
> 3"	3 STAKES

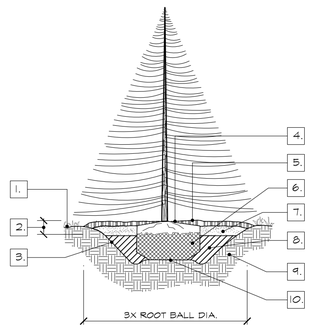


SHADE TREE STAKING & PLANTING (A)

NOT TO SCALE

NOTES:

1. FINISHED GRADE
2. ONE THIRD DEPTH OF ROOTBALL.
3. TAPER SIDE OF TREE PIT.
4. SET TOP OF ROOT BALL 2" HIGHER THAN FINISHED GRADE.
5. 2" SHREDDED HARDWOOD BARK MULCH.
6. REMOVE BURLAP FROM TOP ONE THIRD OF ROOT BALL.
7. SOIL MIX - 4 PARTS TOPSOIL TO 1 PART ORGANIC MATTER. (SEE SPECIFICATIONS).
8. BACKFILL W. EX. TOPSOIL (NO STONES >1" DIA.)
9. EXISTING SUB-GRADE.
10. 2" RAISED SUB-GRADE PLATFORM.
11. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. PRUNE ONLY AS DIRECTED BY OWNER.

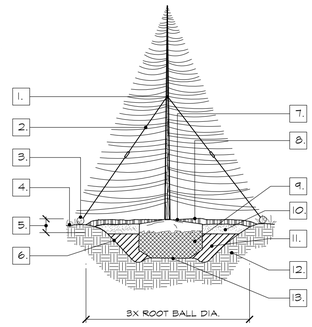


EVERGREEN TREE PLANTING <8' HT. (B)

NOT TO SCALE

NOTES:

1. FINISHED GRADE
2. ONE THIRD DEPTH OF ROOTBALL.
3. TAPER SIDE OF TREE PIT.
4. SET TOP OF ROOT BALL 2" HIGHER THAN FINISHED GRADE.
5. 2" SHREDDED HARDWOOD BARK MULCH.
6. REMOVE BURLAP FROM TOP ONE THIRD OF ROOT BALL.
7. SOIL MIX - 4 PARTS TOPSOIL TO 1 PART ORGANIC MATTER. (SEE SPECIFICATIONS).
8. BACKFILL W. EX. TOPSOIL (NO STONES >1" DIA.)
9. EXISTING SUB-GRADE.
10. 2" RAISED SUB-GRADE PLATFORM
11. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. PRUNE ONLY AS DIRECTED BY OWNER.



EVERGREEN TREE PLANTING & GUYING >8' HT. (C)

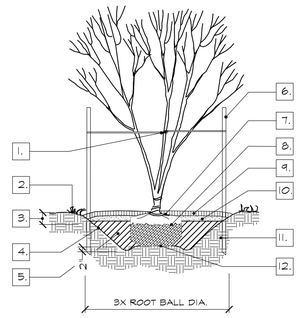
NOT TO SCALE

NOTES:

1. COMMERCIAL GRADE POLYPROPYLENE TREE STRAP. (NO WIRES PERMITTED)
2. ORIGINAL GRADE.
3. ONE THIRD DEPTH OF ROOTBALL.
4. TAPER SIDE OF TREE PIT.
5. BACKFILL W. EX. TOPSOIL (NO STONES >1" DIA.)
6. 2"X2"X8' UNTREATED WOOD STAKE.
7. SET TOP OF ROOT BALL 2" HIGHER THAN FINISHED GRADE.
8. REMOVE BURLAP FROM TOP ONE THIRD OF ROOT BALL.
9. 2" SHREDDED HARDWOOD BARK MULCH.
10. SOIL MIX - 4 PARTS TOPSOIL TO 1 PART ORGANIC MATTER. (SEE SPECIFICATIONS).
11. EXISTING SUB-GRADE.
12. 2" RAISED SUB-GRADE PLATFORM
13. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
14. PRUNE ONLY AS DIRECTED BY OWNER.

STAKING SCHEDULE:

CALIPER	# Of Stakes
< 3"	2 STAKES
> 3"	3 STAKES

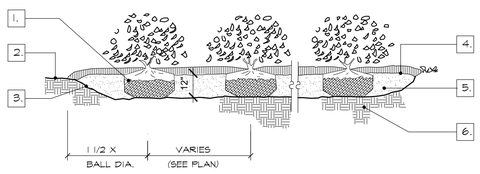


ORNAMENTAL TREE PLANTING DETAIL (D)

NOT TO SCALE

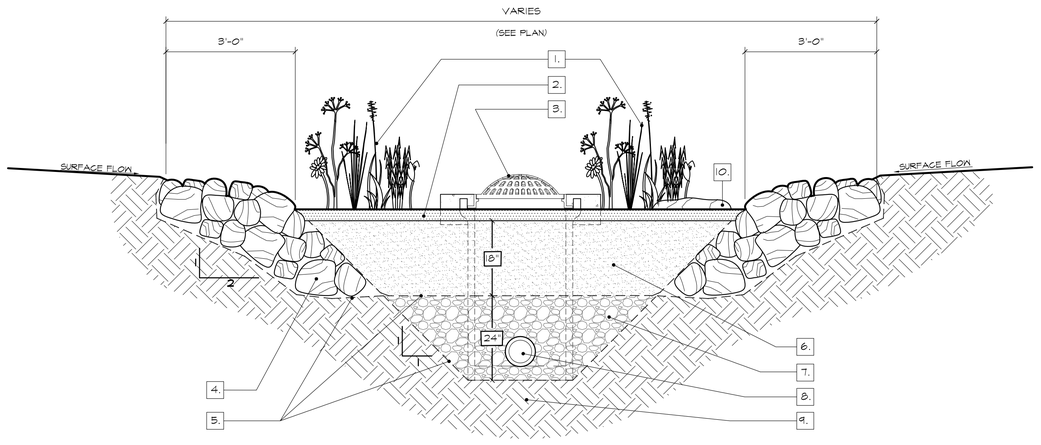
NOTES:

1. REMOVE BURLAP FROM TOP ONE THIRD OF ROOT BALL.
2. FINISHED GRADE
3. TAPER SIDE OF PIT.
4. 2" SHREDDED HARDWOOD BARK MULCH.
5. SOIL MIX - 4 PARTS TOPSOIL TO 1 PART ORGANIC MATTER. (SEE SPECIFICATIONS).
6. EXISTING SUB-GRADE.
7. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. PRUNE ONLY AS DIRECTED BY OWNER.



TYPICAL SHRUB MASS PLANTING (E)

NOT TO SCALE



NOTES:

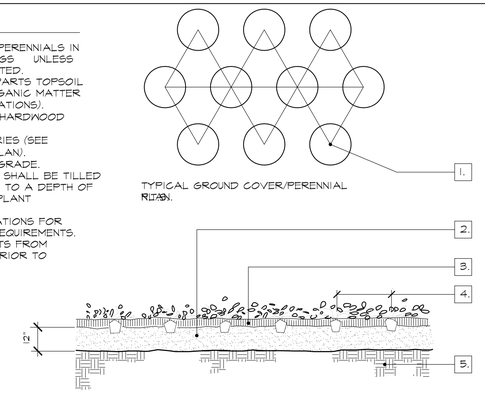
1. DEEP ROOTED, DENSE, DROUGHT TOLERANT PLANTING SUITABLE FOR WELL DRAINED SOIL - (REFER TO PLANTING PLAN)
2. 3" MULCH LAYER, REFER TO SPECIFICATION "PLANTS"
3. OVERFLOW CATCH BASIN STRUCTURE WITH BEEHIVE GRATE
4. CLASS 2 CHANNEL LINING, OR STONE OF SIMILAR SIZE AND LARGER SALVAGED FROM SITE OPERATIONS.
5. NON-WOVEN GEOTEXTILE FABRIC AT BIOFILTRATION SWALE AND SOIL INTERFACE
6. 18" BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 50% SAND, 25% SPHAGNUM PEAT MOSS, AND 25% TOPSOIL.
7. 24" OF #57 CRUSHED STONE, WASHED AND FREE OF DUST/PARTICULATES
8. SUB-DRAIN PIPE, CONNECT TO OVERFLOW CATCH BASIN STRUCTURE, SEE PLANS FOR TYPE, SIZE, AND NUMBER.
9. UNDISTURBED NATIVE SOIL.
10. RETENTION AREA SHALL BE LEVEL AND DEPRESSED A MINIMUM OF 6" FROM THE SURROUNDING GRADE WITH LARGER SALVAGED SITE STONES PLACED AS STEPPING STONES FOR MAINTENANCE IN 10-12 LOCATIONS AS DIRECTED BY LANDSCAPE ARCHITECT

LOW IMPACT BMP BIOFILTRATION SWALE (G)

NOT TO SCALE

NOTES:

1. TRIANGULATE PERENNIALS IN MASS PLANTINGS UNLESS OTHERWISE NOTED.
2. SOIL MIX - 4 PARTS TOPSOIL TO 1 PART ORGANIC MATTER (SEE SPECIFICATIONS).
3. 2" SHREDDED HARDWOOD BARK MULCH.
4. DISTANCE VARIES (SEE LANDSCAPE PLAN).
5. EXISTING SUB-GRADE.
6. PLANTING BED SHALL BE TILLED AND AMENDED TO A DEPTH OF 12" PRIOR TO PLANT INSTALLATION.
7. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. REMOVE PLANTS FROM CONTAINERS PRIOR TO PLANTING.



TYPICAL GROUND COVER/PERENNIAL PLANTING.

TYPICAL GROUND COVER/PERENNIAL PLANTING (F)

NOT TO SCALE

STATE OF KENTUCKY
RAMONA
FOSTER
66
REGISTERED
LANDSCAPE ARCHITECT

DATE	REVISION DESCRIPTION

SITE ORIENTATION PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture + civil engineering + planning
401 idle wine street suite 206
lexington, ky 40507
t. 859.389.6330
f. 859.389.6333
www.elementdesign.com

DRAWN: RAF

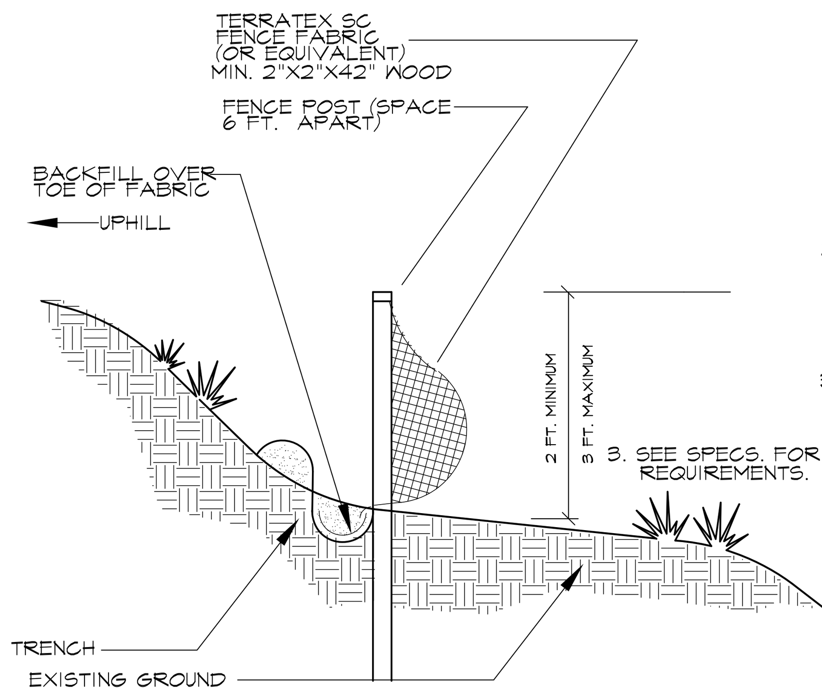
CHECKED: RAF

DATE: APRIL 6, 2016

Scale: AS NOTED

JOB:

SHEET: L5.1

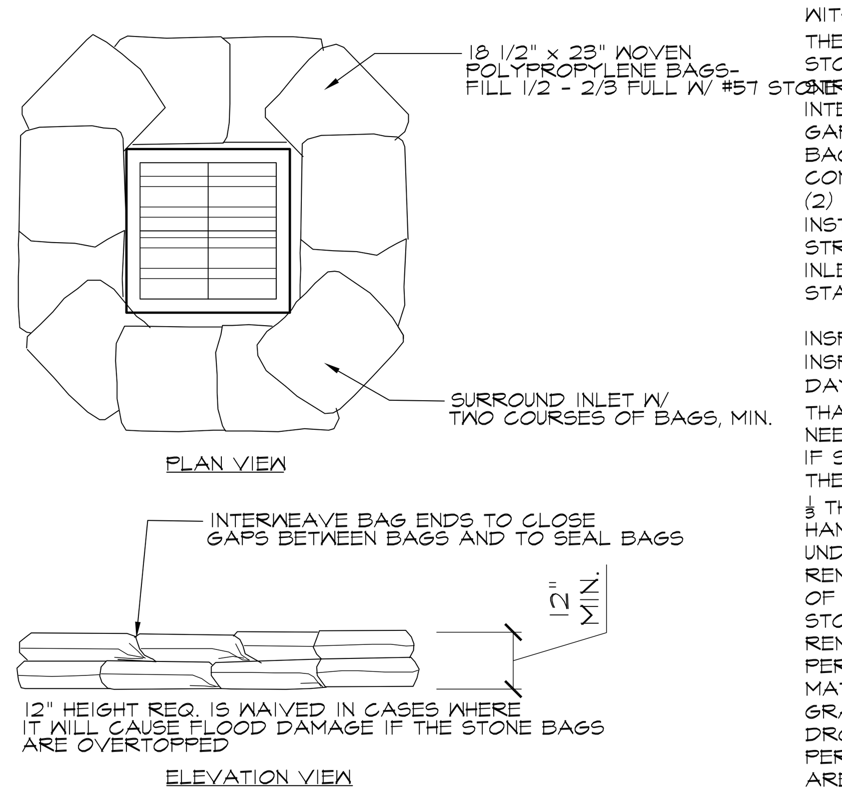


NOTE:

1. EXCAVATE SMALL TRENCH. ATTACH WIRE FENCING AND FILTER FABRIC SO BOTTOM OF FABRIC CAN BE BURIED AT LEAST 6" IN THE GROUND. BACKFILL EXCAVATED SOIL OVER FABRIC & COMPACT. ALL EARTHWORK SHALL BE ON THE UPSTREAM SIDE OF THE FENCE.
2. STEEL SILT FENCE POSTS AT 5'o.c. MAY BE USED INSTEAD OF THE 2x2 POSTS. STEEL POSTS ARE TO BE DRIVEN AT LEAST 2' INTO THE GROUND.
3. SILT FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH LFUCG STORMWATER MANUAL FIGURE 11-21
3. SEE SPECS. FOR ADDITIONAL REQUIREMENTS.

TEMPORARY SILT FENCE (A)

N.T.S.



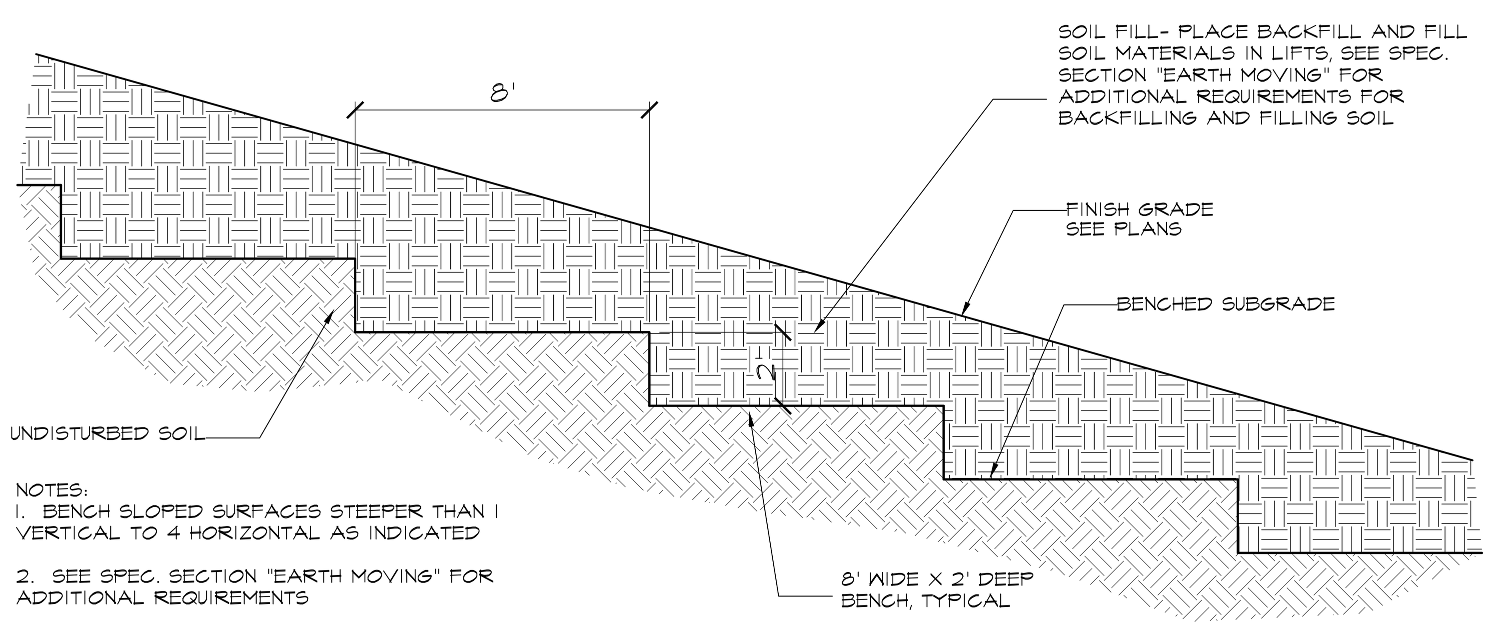
NOTES:

INSTALLATION:
STONE FILL BAGS SHALL BE WOVEN POLYPROPYLENE BAGS WITH APPROXIMATE DIMENSION SOF 18½" BY 28".
THE BAGS SHALL BE FILLED ½ TO ⅓ FULL WITH KTC #57 STONE. TIE THE ENDS OF FILLED BAGS USING EITHER DRAW STRINGS OR WIRE TIES.
INTERWEAVE THE LOOSE ENDS OF THE BAGS SO THAT THE GAPS BETWEEN BAGS ARE FILLED AND THE ENDS OF THE BAGS ARE SEALED.
COMPLETELY SURROUND THE INLET WITH A MINIMUM OF TWO (2) ROWS OF BAGS TO A MINIMUM OF 12" IN HEIGHT.
INSTALL AT ALL EXISTING STORM INLETS AND OUTLET STRUCTURES AND AT ALL NEWLY CONSTRUCTED STORM INLETS AND OUTLET STRUCTURES UNTIL PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

INSPECTION & MAINTENANCE:
INSPECTIONS SHOULD BE MADE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½" OR MORE OF PRECIPITATION. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY.
IF SEDIMENT ACCUMULATES, REMOVE IT FROM THE FACE OF THE BAGS BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO ⅓ THE STRUCTURE HEIGHT. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE BAGS WHEN REMOVING SEDIMENT.
REMOVE AND REPLACE ANY DAMAGED BAGS AND DISPOSE OF THEM PROPERLY.
STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABLIIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. USE APPROPRIATE PERMANENT STABILIZATION METHODS TO STABILIZE BARE AREA AROUND THE INLET.

TEMPORARY INLET PROTECTION (B)

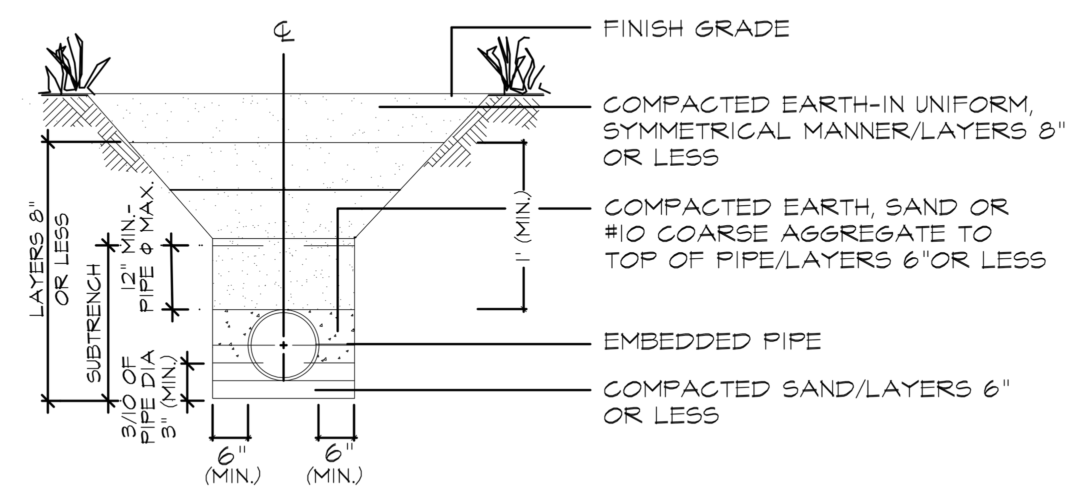
N.T.S.



NOTES:
1. BENCH SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL AS INDICATED
2. SEE SPEC. SECTION "EARTH MOVING" FOR ADDITIONAL REQUIREMENTS

BENCHED FILL @ STEEP SLOPES, TYPICAL (C)

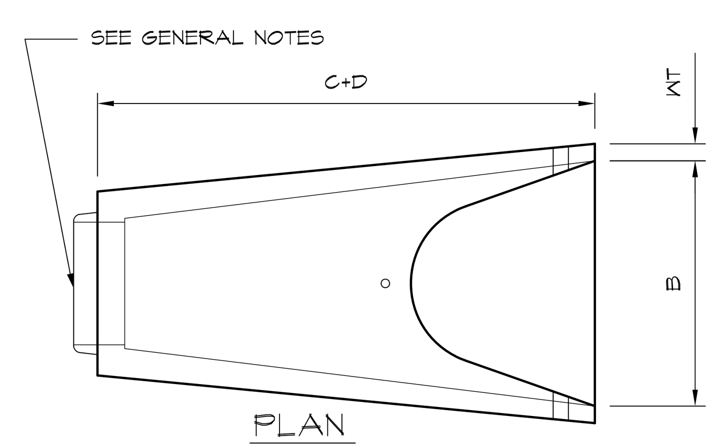
N.T.S.

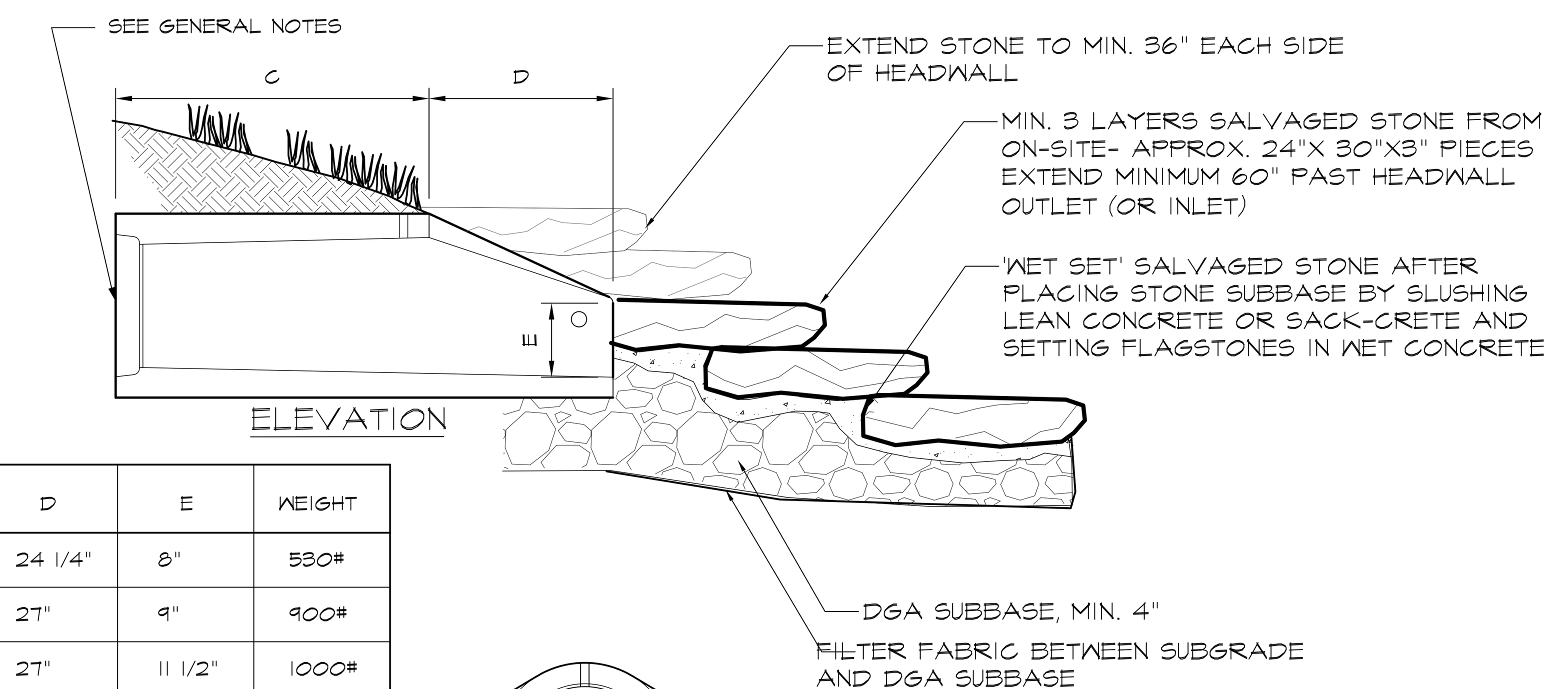


NOTES:
1. TRENCH WALLS MAY BE CONSTRUCTED SLOPED (AS SHOWN) OR VERTICAL. IN BOTH CASES, TRENCH WALLS SHALL REMAIN SYMMETRICAL ABOUT PIPE CENTERLINE.
2. TO BED PIPE IN SAND, EXCAVATE A GROOVE IN THE COMPACTED SAND TO CONFORM TO THE OUTSIDE OF THE PIPE. AFTER THE EXCAVATION, APPROX. 3" OF SAND SHOULD REMAIN BELOW THE OUTSIDE OF THE PIPE INVERT. THE CRADLE SHALL BE GAUGED FOR SHAPE AND SLOPE BY STRIKING OR DRAWING A TEMPLATE THROUGH THE GROOVE BEFORE PLACING EACH SECTION OF PIPE.
3. RECOMPACT ANY LOOSE SAND DISTURBED DURING INSTALLATION.
4. IF ROCK FOUNDATION IS ENCOUNTERED, EXCAVATE SUBTRENCH ADDITIONAL DEPTH USING THE FOLLOWING FORMULA: ADDITIONAL DEPTH = .045 H -.025' H = HT OF FILL OVER PIPE TO (TO FINISH GRADE) IN FEET. THIS ADDITIONAL DEPTH SHALL ALWAYS BE AT LEAST 0.75' & WILL NOT BE REQUIRED TO BE MORE THAN 0.75 x PIPE DIA - .25'. 5. BACKFILL ADDITIONAL EXCAVATION AREA WITH EARTH CUSHION OF FIRMLY COMPACTED EARTH IN LAYERS OF 6" OR LESS.
5. SEE SPECIFICATIONS FOR ADDITIONAL PIPE AND PIPE BEDDING REQUIREMENTS.
6. INSTALL ALL PIPE PER PIPE MANUFACTURER'S REQUIREMENTS.
7. WHERE TOP OF PIPE IS LESS THAN 30" BELOW FINISH GRADE IN VEHICULAR AREAS, BACKFILL TRENCH WITH #9'S IN 8" LIFTS TO PAVEMENT SUBGRADE.

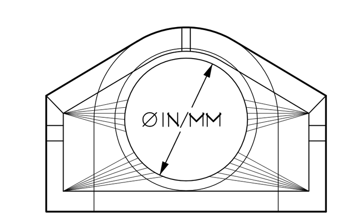
TYPICAL BEDDING FOR STORM PIPE (D)

N.T.S.





SIZE IN [MM]	WT	A	B	C	D	E	WEIGHT
12" [300]	2 1/4"	73 3/4"	23 3/4"	49 1/2"	24 1/4"	8"	530#
15" [375]	2 1/4"	73"	30	46"	27"	9"	900#
18" [450]	2 1/2"	73"	36"	46"	27"	11 1/2"	1000#
24" [650]	2 3/4"	74"	48"	30"	44"	12"	1600#
30" [750]	3 1/2"	73 3/4"	60"	19 3/4"	54"	12"	2250#
36" [900]	4"	97 3/4"	72"	34 3/4"	63"	16 3/4"	4480#



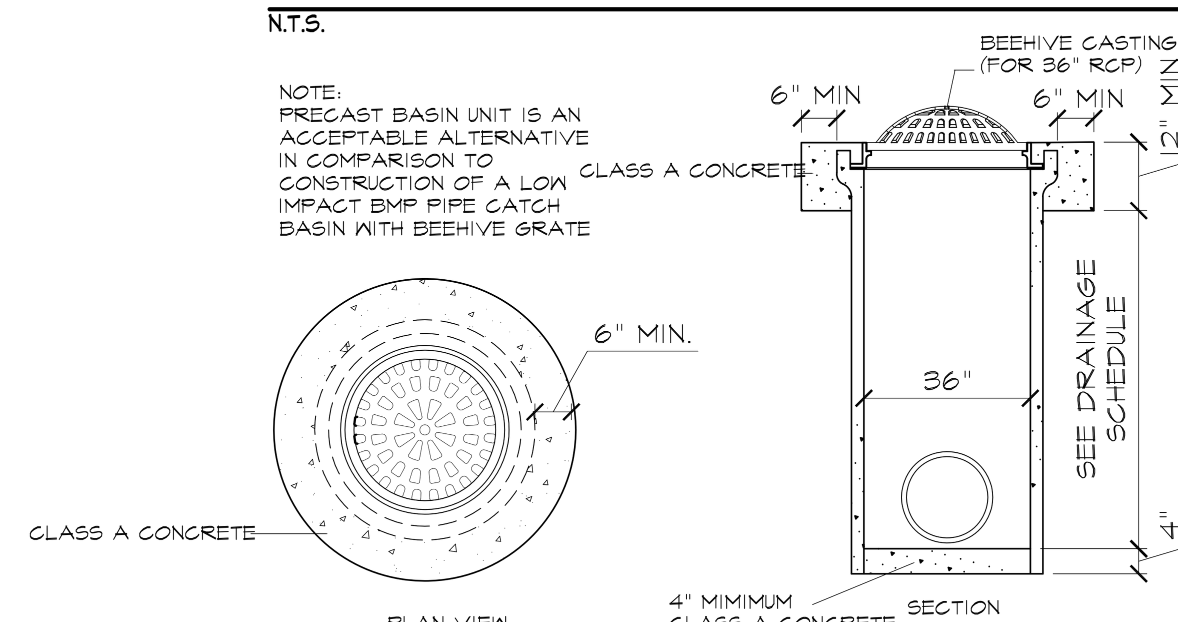
GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE TONGUE AND GROOVE JOINTS ON R.C.P. AS REQUIRED BY THE END SECTION.
2. FINISHED GRADE TO BE BROUGHT UP AND AROUND THE OPENINGS OF ALL END SECTIONS AS INDICATED IN ELEVATION VIEW.
3. ON PIPES 30" OR LARGER, GUARD RAILING SHALL BE ADDED TO THE TOP AND SIDES OF THE HEADWALL. SEE SPECIFICATIONS FOR ORNAMENTAL FENCE REQUIREMENTS. CHAINLINK FENCE SHALL NOT BE USED. VERIFY WITH ARCHITECT PRIOR TO INSTALLATION.
4. ALL HEADWALL OUTLETS SHALL HAVE MIN. 6' LONG X HW WIDTH SOD STRIP OR TURF REINFORCEMENT MAT (TRM).

CONCRETE PIPE END SECTION (E)

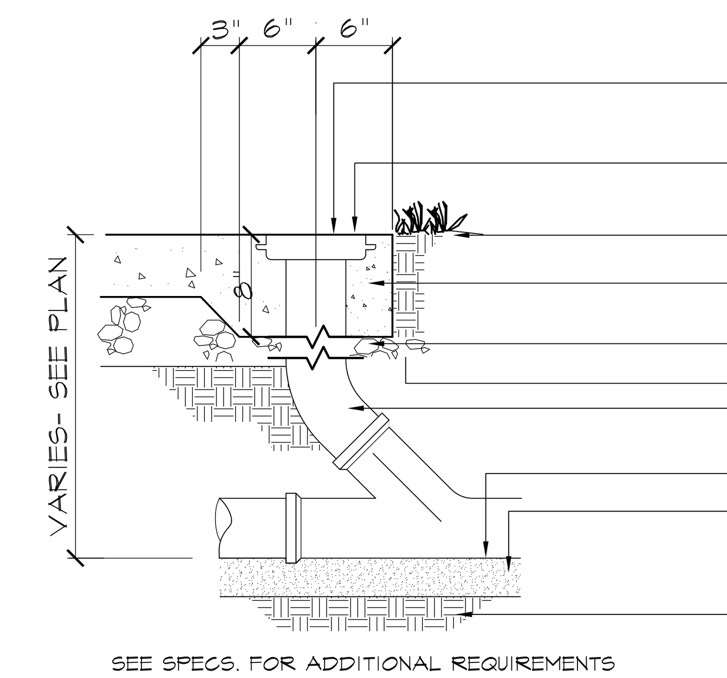
N.T.S.

NOTE:
PRECAST BASIN UNIT IS AN ACCEPTABLE ALTERNATIVE IN COMPARISON TO CONSTRUCTION OF A LOW IMPACT BMP PIPE CATCH BASIN WITH BEEHIVE GRATE



BMP PIPE CATCH BASIN W/ BEEHIVE GRATE (F)

N.T.S.

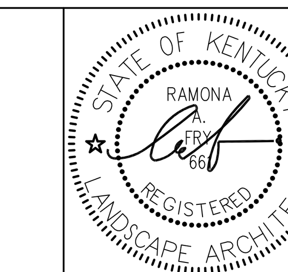


NOTE:
1. SEE SPECS. FOR ADDIT. REQUIREMENTS.

SEE SPECS. FOR ADDITIONAL REQUIREMENTS

CLEAN OUT (G)

N.T.S.



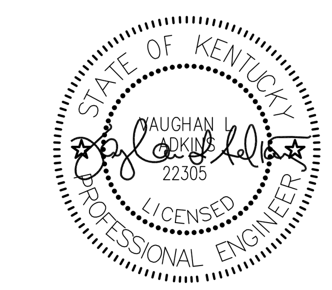
DATE	REVISION DESCRIPTION

SITE DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ______; RMP ID No. ______

elementdesign
landscape architecture+civil engineering+planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6533
f. 859.389.6534
www.element-site.com

DRAWN: RAF
CHECKED: RAF
DATE: APRIL 6, 2016
Scale: AS NOTED
JOB:
SHEET: L6.0



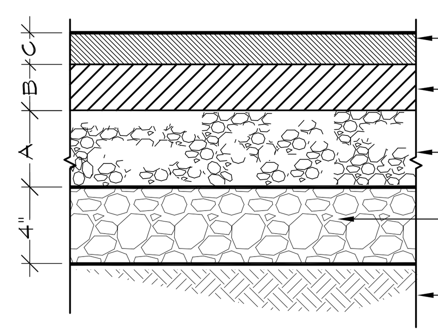
NOTES:

1. SEE SPECS. SECTION 'HOT MIX ASPHALT PAVING' FOR ADDITIONAL PAVEMENT REQ.

2. CROWN OR CROSS SLOPE SURFACE AS INDICATED ON GRADING PLAN.

3. ALL PAVEMENT THICKNESSES SHALL BE THICKNESS AFTER SPECIFIED COMPACTION/DENSITY HAS BEEN ACHIEVED.

PAVING SCHEDULE		
A	B	C
6"	2"	1 1/2"



ASPHALT TRAIL PAVEMENT SECTION (A)
N.T.S.

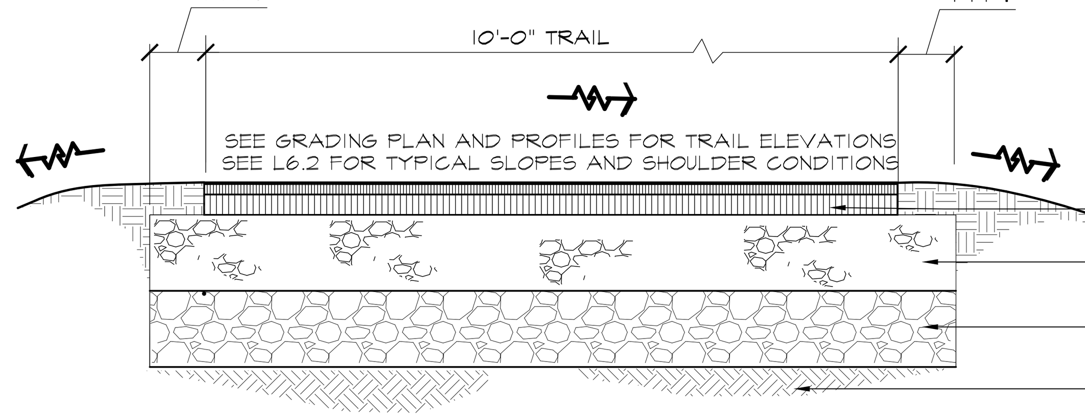
NOTES:

1. SEE SPECS. FOR ADDITIONAL REQUIREMENTS.

2. PROOF-ROLL COMPACTED TRAIL SUBGRADE PRIOR TO STONE PLACEMENT

3. EXCEPT AS SHOWN, FINISH GRADE OF TRAIL TO MATCH EXISTING GRADE. ADJUST AS REQUIRED TO ELIMINATE WATER PONDING ON TRAIL.

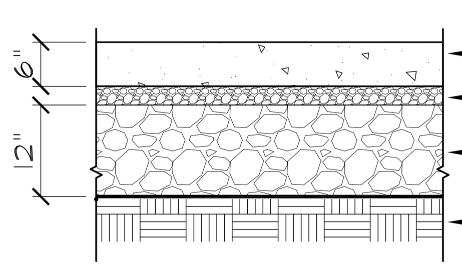
4. INSTALL EROSION CONTROL BLANKET ON ALL SLOPES 5:1 OR STEEPER.



ASPHALT TRAIL CROSS SECTION (B)
N.T.S.

NOTES:
1. SEE SPECS. SECTION 'ASPHALT PAVING' FOR ADDITIONAL REQUIREMENTS.

NOTE:
SEE SPECS. FOR ADDITIONAL REQUIREMENTS.



PERMEABLE CONCRETE TRAIL PAVEMENT SECTION (C)
N.T.S.

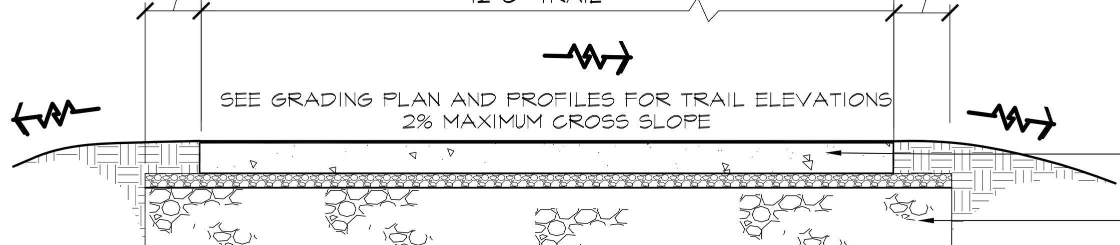
NOTES:

1. SEE SPECS. FOR ADDITIONAL REQUIREMENTS.

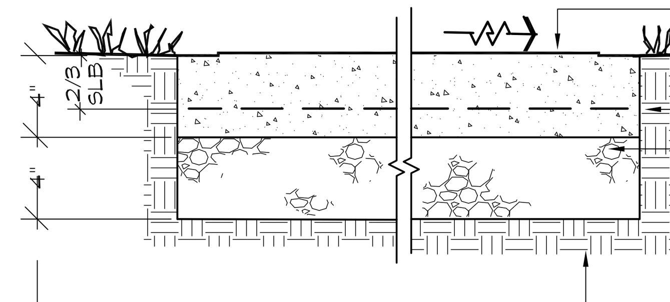
2. PROOF-ROLL COMPACTED TRAIL SUBGRADE PRIOR TO STONE PLACEMENT

3. EXCEPT AS SHOWN, FINISH GRADE OF TRAIL TO MATCH EXISTING GRADE. ADJUST AS REQUIRED TO ELIMINATE WATER PONDING ON TRAIL.

4. INSTALL EROSION CONTROL BLANKET ON ALL SLOPES 5:1 OR STEEPER.



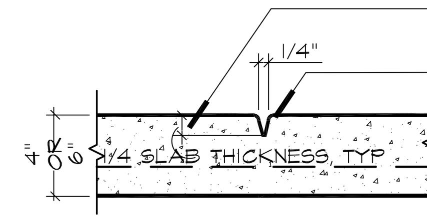
PERMEABLE CONCRETE TRAIL CROSS SECTION (D)
N.T.S.



NOTES:
1. SEE EXPANSION AND CONTROL JOINT DETAILS FOR ADDITIONAL REQUIREMENTS.

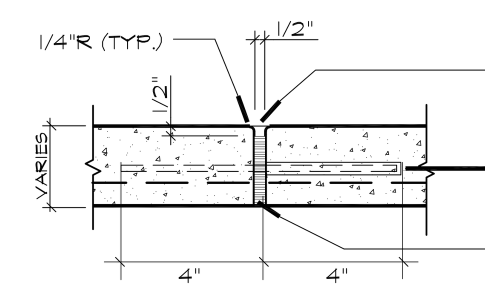
2. SEE SPECS. SECTION 'CEMENT CONCRETE PAVING' FOR ADDITIONAL REQUIREMENTS.

LIGHT DUTY CONCRETE PAVEMENT (E)
N.T.S.

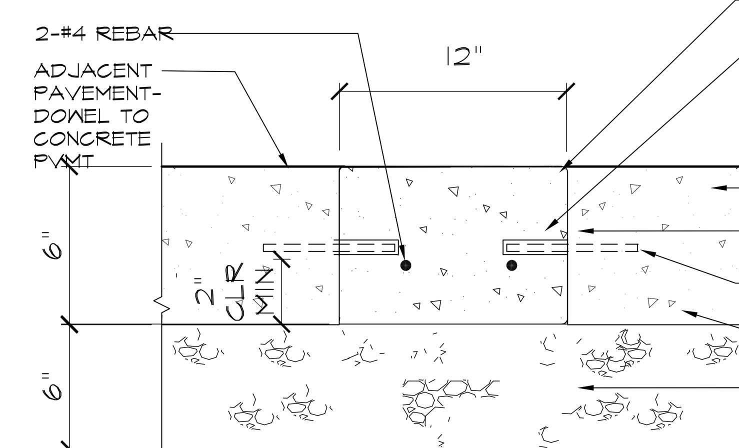


SEE SPECIFICATIONS CEMENT CONCRETE PAVEMENT FOR ADDITIONAL REQUIREMENTS

TOOLED CONTROL JOINT (F)
N.T.S.

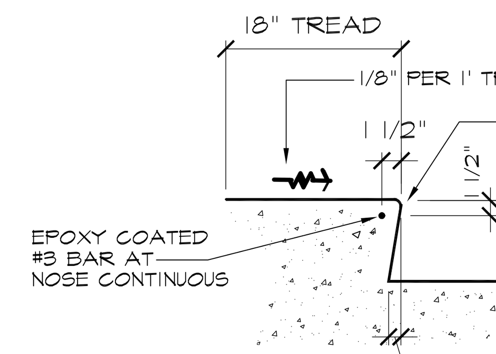


EXPANSION JOINT AT CONC. PAVEMENT (G)
N.T.S.



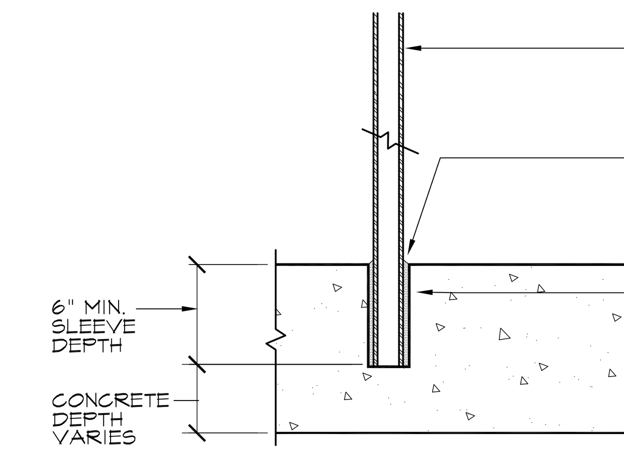
NOTES:
1. DOWEL ISOLATION BAND TO ADJACENT CONCRETE SLABS. LOCATE DOWEL HORIZONTALLY IN CENTER OF SLAB. GREASE ONE END OF SLEEVE.
2. SEE PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. AT CONCRETE ISOLATION BANDS, PROVIDE 1/4" RADIUS AT EXPOSED EDGES.

12" CONCRETE ISOLATION BAND (H)
N.T.S.

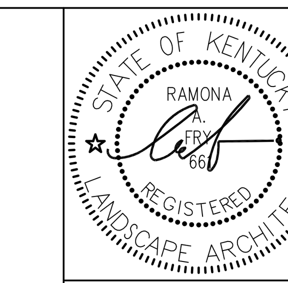


NOTES:
1. PROVIDE MEDIUM BROOM FINISH FOR ALL TREAD/ RISER SURFACES.
2. SEE SPECS. FOR ADDITIONAL REQUIREMENTS.

TYPICAL STAIR RISER (I)
N.T.S.



HANDRAIL ANCHORAGE (J)
N.T.S.



DATE	REVISION DESCRIPTION

SITE DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. ______; RMP ID No. ______

elementdesign

landscape architecture+civil engineering+planning

DRAWN: RAF

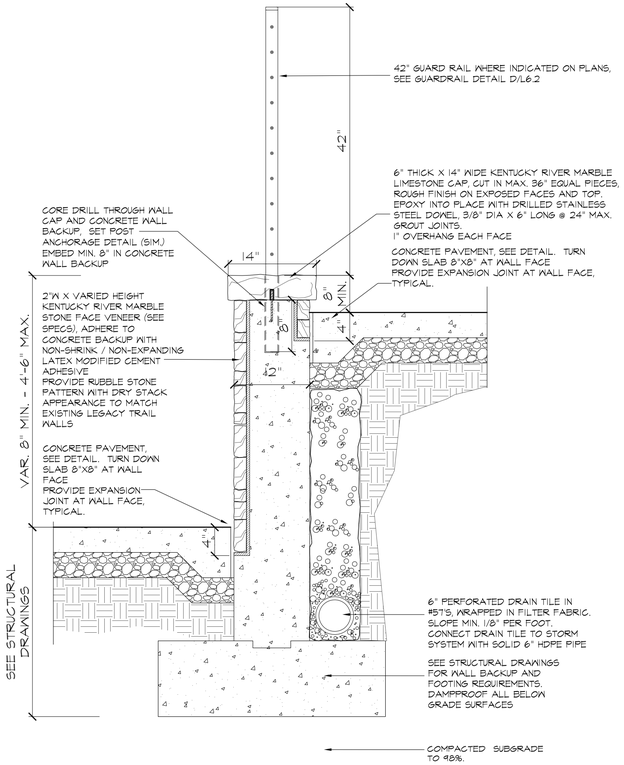
CHECKED: RAF

DATE: APRIL 6, 2016

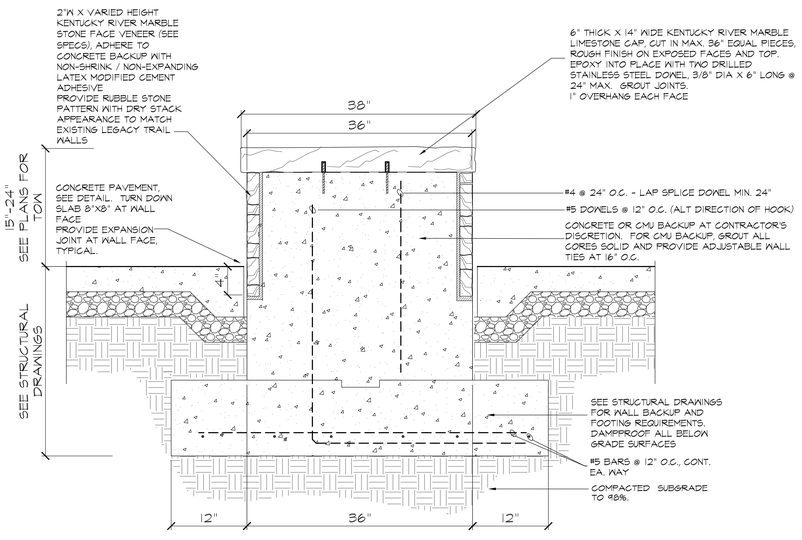
Scale: AS NOTED

JOB:

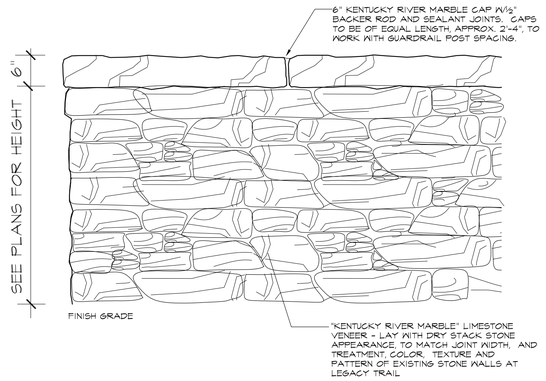
SHEET: L6.1



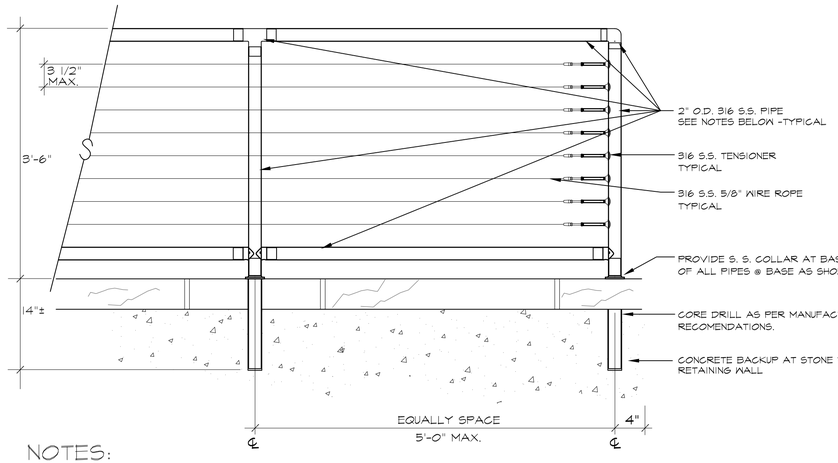
STONE VENEERED RETAINING WALL W CIP CONCRETE BACKUP (A)
N.T.S.



STONE VENEERED SEAT WALL (B)
N.T.S.



TYPICAL STONE VENEER ELEVATION (C)
N.T.S.



NOTES:

1. SAFETY RAIL SYSTEM CONSISTING OF SUNRAIL STYLE WITH HORIZONTAL WIRE ROPE & BOTTOM RAIL.

2. CONTRACTOR SHALL SUPPLY SHOP DRAWINGS OF RAILINGS AFTER FINAL INSTALLATION OF WALL.

3. 42" SAFETY RAIL SYSTEM CONSISTING OF 2" DIA BRUSHED 16 GAUGE 316 SS TUBING, CAST 316 SS FITTINGS, EPOXY CONNECTIONS AT JOINTS. (ALL MATERIAL SHALL BE 316 STAINLESS STEEL.)

4. COORDINATE POST LOCATIONS BETWEEN WALL CAP JOINTS. FIELD VERIFY JOINT LOCATIONS PRIOR TO FABRICATION.

ATLANTIS RAIL SYSTEM - "SUNRAIL NAUTILUS" CABLE INFILL - CORED IN - 42"
(508) 732-9191
OR APPROVED EQUAL

STAINLESS STEEL CABLE GUARDRAIL (D)
N.T.S.

STATE OF KENTUCKY
RAMONA A. FRANKLIN
REGISTERED LANDSCAPE ARCHITECT

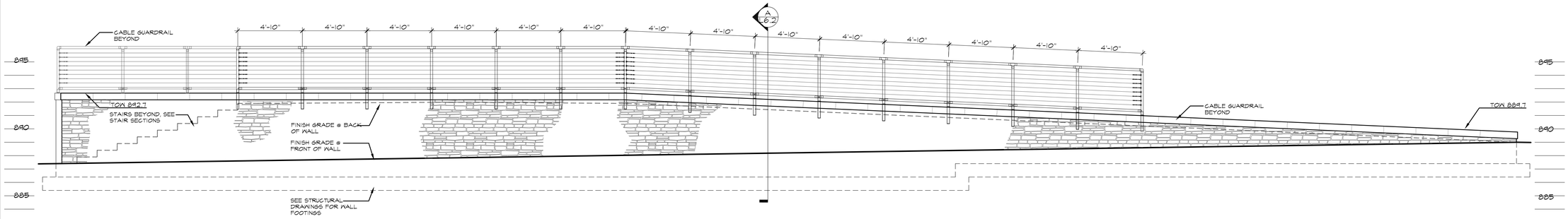
DATE	REVISION DESCRIPTION

SITE DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ____; RMP ID No. ____

elementdesign
landscape architecture + civil engineering + planning
400 old vine street suite 206
lexington, kentucky 40507
p: 859.389.6333
f: 859.389.6334
www.elementdesign.com

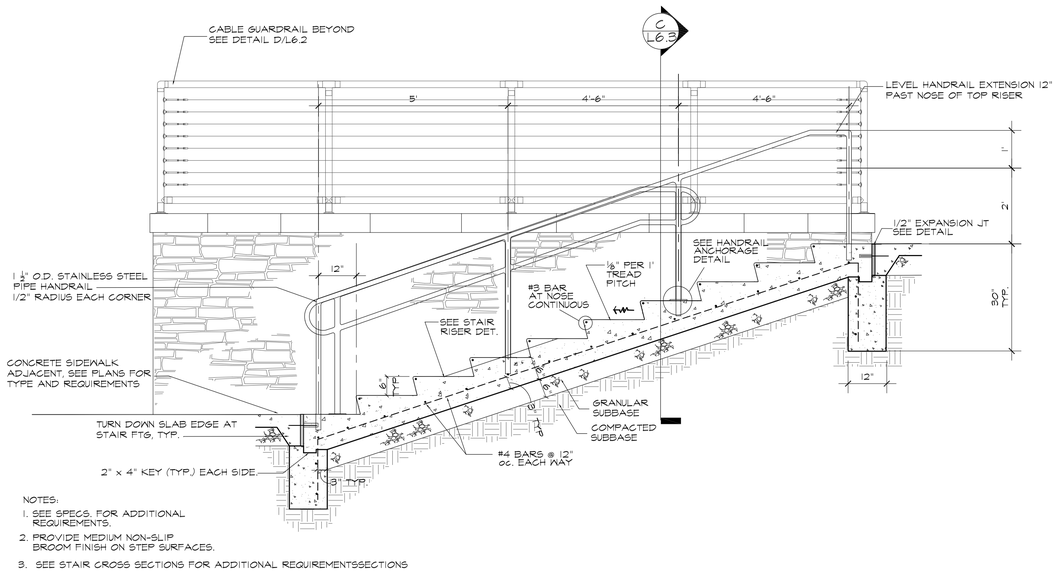
DRAWN: RAF
CHECKED: RAF
DATE: APRIL 6, 2016
Scale: AS NOTED
JOB:
SHEET: L6.2



STONE VENEER RETAINING WALL ELEVATION

SCALE: 1/4" = 1'-0"

A



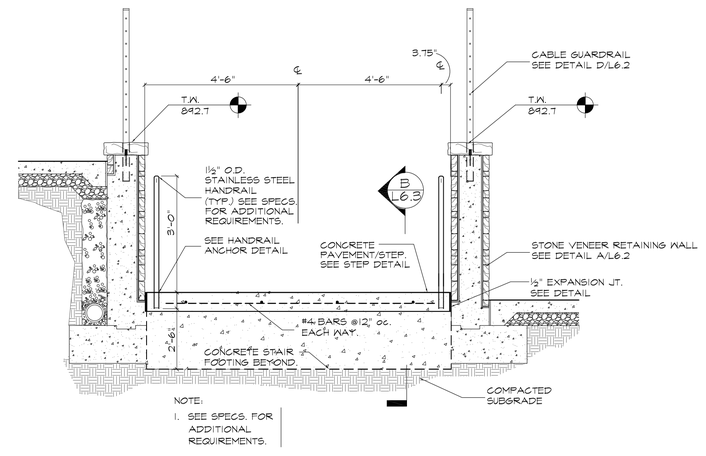
NOTES:

1. SEE SPECS. FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE MEDIUM NON-SLIP BROOM FINISH ON STEP SURFACES.
3. SEE STAIR CROSS SECTIONS FOR ADDITIONAL REQUIREMENTSSECTIONS

STAIR SECTION

SCALE: 1/2" = 1'-0"

B



NOTE:

1. SEE SPECS. FOR ADDITIONAL REQUIREMENTS.

STAIR CROSS SECTION

SCALE: 1/2" = 1'-0"

C

STATE OF KENTUCKY
RAMONA FINCH
No. 4666
REGISTERED
LANDSCAPE ARCHITECT

DATE	REVISION DESCRIPTION

ELEVATIONS AND SECTIONS

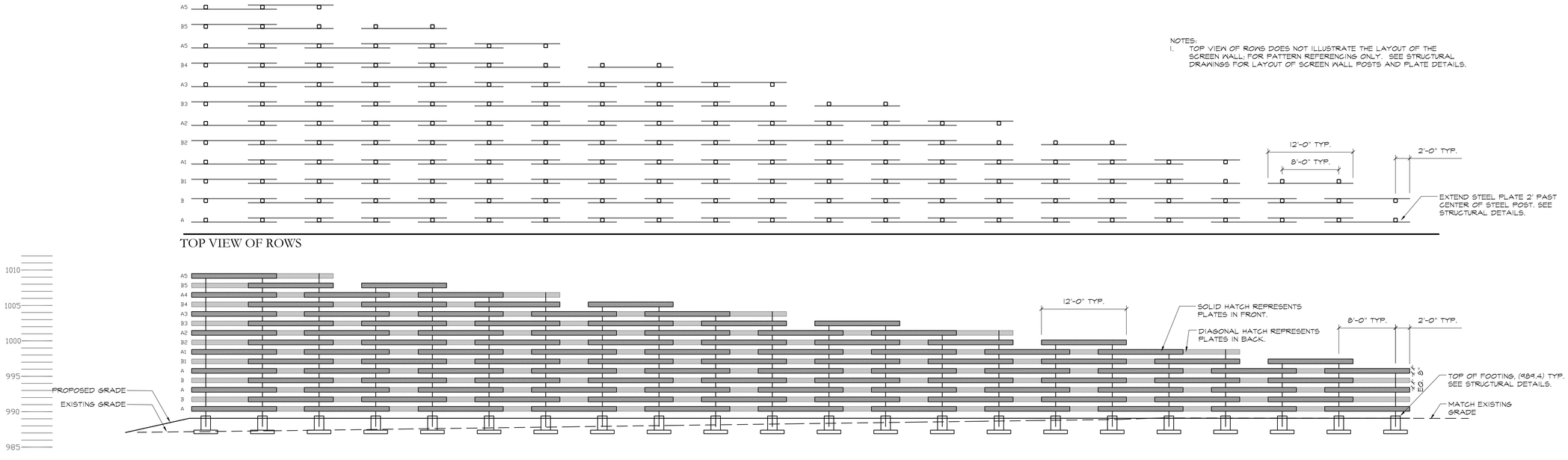
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture + civil engineering + planning
400 old vine street / suite 206
lexington, ky 40507
p: 859.389.6333
f: 859.389.6334
www.elementdesign.com

JOB:	DATE: APRIL 6, 2016	DRAWN: RAF	CHECKED: RAF
SHEET: L6.3	Scale: AS NOTED		



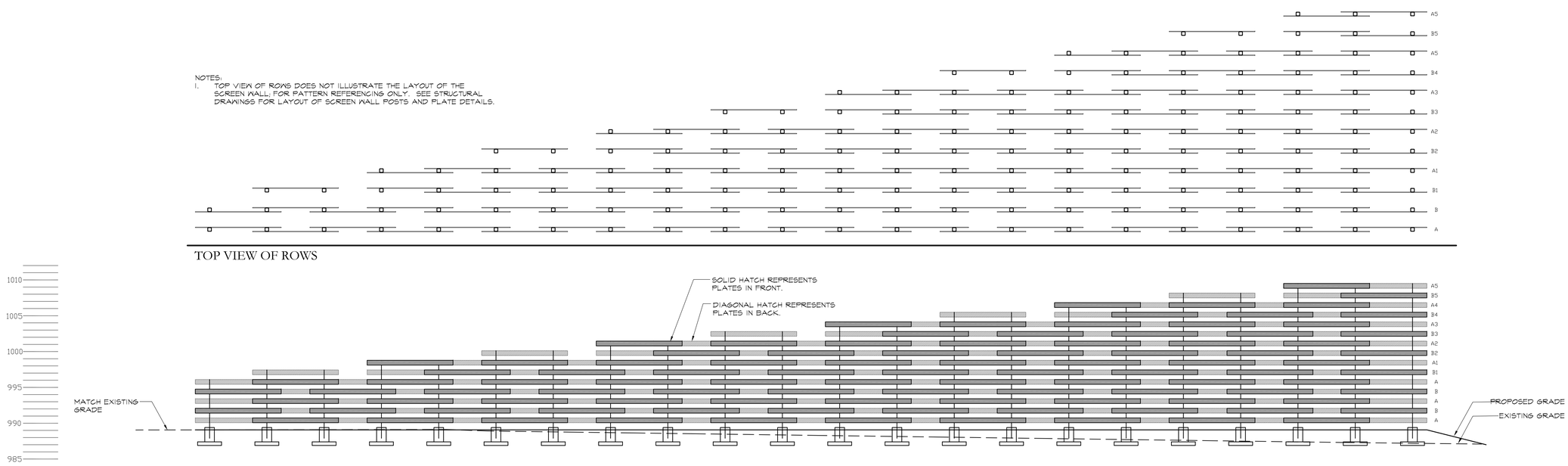
NOTES:
1. TOP VIEW OF ROWS DOES NOT ILLUSTRATE THE LAYOUT OF THE SCREEN WALL; FOR PATTERN REFERENCING ONLY. SEE STRUCTURAL DRAWINGS FOR LAYOUT OF SCREEN WALL POSTS AND PLATE DETAILS.

NOTES:
1. SEE STRUCTURAL DRAWINGS FOR STEEL DETAILS.
2. 12' X 8" STEEL PLATES ALTERNATE ROWS FRONT TO BACK BETWEEN POSTS, CANTILEVERING 2' PAST CENTER OF POSTS ON BOTH ENDS.

SCREEN WALL ELEVATION - NORTH FACING VIEW

N.T.S.

A



NOTES:
1. TOP VIEW OF ROWS DOES NOT ILLUSTRATE THE LAYOUT OF THE SCREEN WALL; FOR PATTERN REFERENCING ONLY. SEE STRUCTURAL DRAWINGS FOR LAYOUT OF SCREEN WALL POSTS AND PLATE DETAILS.

NOTES:
1. SEE STRUCTURAL DRAWINGS FOR STEEL DETAILS.
2. 12' X 8" STEEL PLATES ALTERNATE ROWS FRONT TO BACK BETWEEN POSTS, CANTILEVERING 2' PAST CENTER OF POSTS ON BOTH ENDS.

SCREEN WALL ELEVATION - SOUTH FACING VIEW

N.T.S.

B

STATE OF KENTUCKY
RAMONA
REGISTERED
LANDSCAPE ARCHITECT

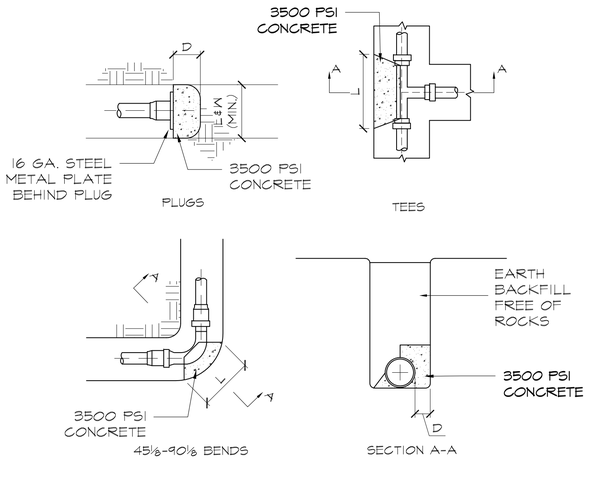
DATE	REVISION DESCRIPTION

SCREEN WALL ELEVATIONS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____; RMP ID No. _____

elementdesign
landscape architecture+civil engineering+planning
400 old vine street suite 206
lexington, ky 40507
p. 859.389.6533
f. 859.389.6534
www.elementdesign.com

DRAWN: RAF
CHECKED: RAF
DATE: APRIL 6, 2016
Scale: AS NOTED
JOB:
SHEET: L6.4



CONCRETE THRUST BLOCKS

PLUGS

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
D	6"	6"	6"	8"	10"	10"	12"	14"	16"	18"	20"
L	4"	6"	8"	10"	21"	30"	36"	42"	48"	54"	60"

PLUGS

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
D	6"	6"	6"	6"	6"	6"	6"	12"	24"	28"	32"
L&W	14"	16"	18"	20"	22"	24"	24"	24"	30"	30"	36"

THIRTY-SECONDCOND BENDS (11-1/4⅛))

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
D	6"	6"	6"	8"	10"	10"	12"	14"	16"	18"	20"
L	15"	18"	21"	24"	27"	30"	34"	34"	36"	39"	42"
T	10"	12"	14"	16"	18"	20"	22"	25"	29"	30"	36"

QUARTER BENDS (90⅛)

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
D	6"	6"	6"	8"	10"	12"	12"	12"	16"	18"	20"
L	15"	18"	21"	24"	27"	30"	34"	34"	36"	39"	42"
T	10"	12"	4"	16"	18"	20"	22"	25"	29"	30"	36"

EIGTH BENDS (45⅛)

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
D	6"	6"	6"	8"	10"	12"	12"	12"	16"	18"	20"
L	15"	18"	21"	24"	27"	30"	34"	34"	36"	39"	42"
T	10"	12"	14"	16"	18"	20"	22"	25"	29"	30"	36"

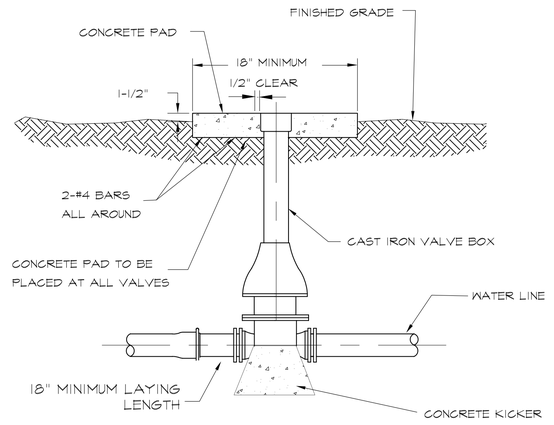
QUARTER BENDS (90⅛)

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
D	6"	6"	6"	8"	10"	12"	12"	14"	16"	18"	20"
L	15"	18"	21"	24"	27"	30"	34"	38"	44"	45"	53"
T	10"	12"	14"	16"	18"	20"	22"	25"	29"	30"	36"

THRUST BLOCK SCHEDULE

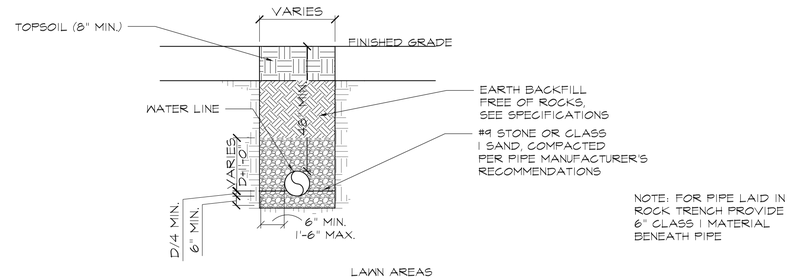
TYPICAL THRUST BLOCKING DETAIL
N.T.S.

A



TYPICAL VALVE SETTING DETAIL
N.T.S.

C



POTABLE WATER PIPE BEDDING
N.T.S.

B

elementdesign
landscape architecture+civil engineering+planning
401 AB Yarnell Street, Suite 206
Lexington, Kentucky 40507
O: 859.389.6333
F: 859.389.6334
www.elementdesign.com

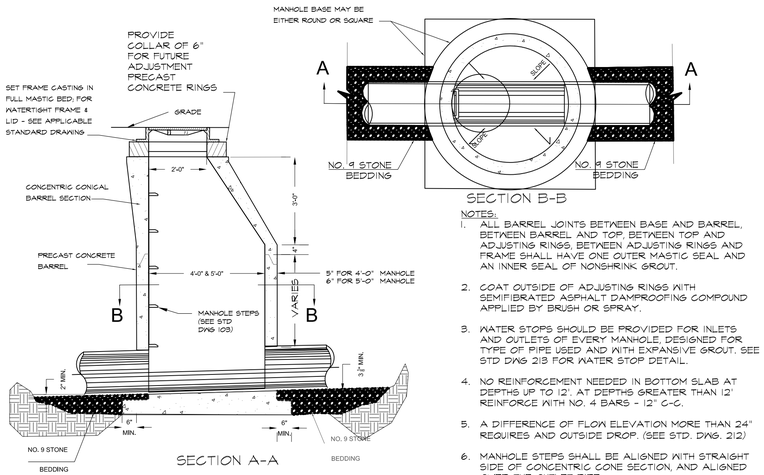
STATE OF KENTUCKY
RONALD A. VAUGHAN
22305
LICENSED PROFESSIONAL ENGINEER

DATE	REVISION DESCRIPTION

SITE WATER DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____ ; RMP ID No. _____

JOB:	DATE: APRIL 6, 2016	DRAWN: RAF
SHEET: L7.0	Scale: AS NOTED	CHECKED: RAF

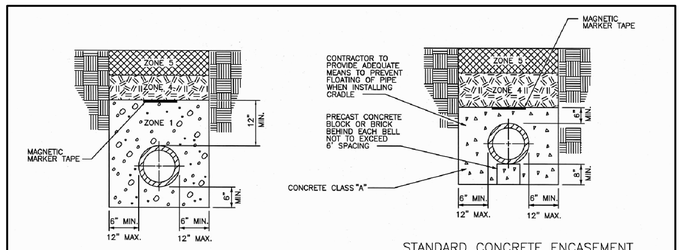


NOTES:

1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.
2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMIFIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.
3. WATER STOPS SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD DWG 213 FOR WATER STOP DETAIL.
4. NO REINFORCEMENT NEEDED IN BOTTOM SLAB AT DEPTHS UP TO 12'. AT DEPTHS GREATER THAN 12' REINFORCE WITH NO. 4 BARS - 12" C-C.
5. A DIFFERENCE OF FLOW ELEVATION MORE THAN 24" REQUIRES AND OUTSIDE DROP. (SEE STD. DWG. 212)
6. MANHOLE STEPS SHALL BE ALIGNED WITH STRAIGHT SIDE OF CONCENTRIC CONE SECTION, AND ALIGNED OVER THE OUTLET PIPE.
7. PIPES SHALL NOT ENTER THE CONE SECTION.
8. MANHOLES MUST PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.

SANITARY SEWER MANHOLE FOR PIPES UP TO 24"

N.T.S. LFUCG STANDARD DRAWING 211 (TYPICAL STANDARD PRECAST CONCRETE MANHOLE FOR PIPES UP TO 24") A



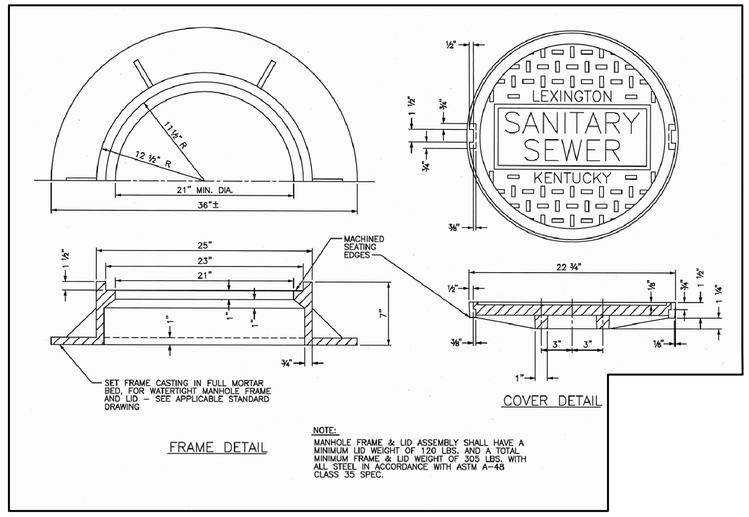
PIPE BACKFILL DESCRIPTIONS	
ZONE 1	NO. 9 STONE
ZONE 2	NO. 9 OR NO. 57 STONE
ZONE 3	COMPACTED DGA
ZONE 4	CONSOLIDATED SOIL (NO ROCK GREATER THAN 6" DIAMETER), NO. 9, OR NO. 57 STONE
ZONE 5	12" MAX. TOPSOIL NO ROCK ALLOWED

NOTES:

1. COVER, UP TO AND INCLUDING ZONE 4 SHALL BE ESTABLISHED BEFORE TRENCH EXCAVATION.
2. ALL SANITARY SEWER LINES CONSTRUCTED FROM NON-METALLIC MATERIALS SHALL HAVE MAGNETIC MARKER TAPE INSTALLED IN THE TRENCH ABOVE THE SANITARY SEWER LINE.
3. MAGNETIC MARKER TAPE FOR SANITARY SEWER ONLY.

SANITARY SEWER PIPE BEDDING IN ROCK OR SOIL

N.T.S. LFUCG STANDARD DRAWING 200 (TRENCHING, LAYING, BACKFILLING AND BEDDING OUTSIDE R/W LIMITS) C



SANITARY SEWER MANHOLE FRAME & COVER

N.T.S. LFUCG STANDARD DRAWING 222 (STANDARD WATERTIGHT MANHOLE FRAME AND COVER) B

STATE OF KENTUCKY
ROBERT A. VAUGHAN
22305
LICENSED
PROFESSIONAL ENGINEER

DATE	REVISION DESCRIPTION

SITE SANITARY DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. _____ ; RMP ID No. _____

elementdesign
landscape architecture + civil engineering + planning
400 old vine street suite 206
lexington, kentucky 40507
p. 859.389.6333
f. 859.389.6334
www.elementdesign.com

DRAWN: RAF

CHECKED: RAF

DATE: APRIL 6, 2016

Scale: AS NOTED

JOB:

SHEET: L7.1

GENERAL NOTES

DESIGN LIVE LOADS

FLOOR LIVE LOAD

SLABS ON GRADE	100 PSF
ROOF LIVE LOAD	20 PSF MIN

ROOF SNOW LOAD (PER ASCE 7-10)

GROUND SNOW LOAD	Pg = 15 PSF
IMPORTANCE FACTOR	Is = 1.0
SNOW EXPOSURE FACTOR	Ce = 1.0
THERMAL FACTOR	Ct = 1.2
RAIN ON SNOW SURCHARGE	Pr = 5 PSF
FLAT-ROOF SNOW LOAD* (Pf = 0.7CeCtIsPg + Pr ≥ (I Pg))	Pf = 15.0 PSF
SLOPED-ROOF SNOW LOAD* (Ps = Cs Pf)	Ps = 12.6 PSF

*(INCREASE FOR DRIFTING PER ASCE 7-10, SECTION 7.7)

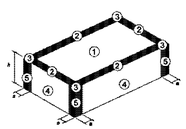
WIND LOAD (PER ASCE 7-10)

ULTIMATE DESIGN WIND SPEED	V_{ULT}= 115 MPH
NOMINAL DESIGN WIND SPEED	V_{ASD}= 89 MPH
RISK CATEGORY	CATEGORY II
WIND EXPOSURE	EXPOSURE C
INTERNAL PRESSURE COEFFICIENT	GC_{Pi} = ± 0.18

COMPONENTS & CLADDING EXTERNAL PRESSURE ULTIMATE (LRFD) LOADS (PSF)

EFFECTIVE WIND AREA (SQ FT)	LOCATION PER ASCE 7-10: ①	②	③	④	⑤
≤10	16.0 -23.8	16.0 -39.9	16.0 -60.1	23.8 -25.8	23.8 -31.9
20	16.0 -23.2	16.0 -35.7	16.0 -49.8	22.7 -24.7	22.7 -29.7
50	16.0 -22.4	16.0 -30.1	16.0 -36.1	21.3 -23.3	21.3 -26.9
100	16.0 -21.8	16.0 -25.8	16.0 -25.8	20.2 -22.2	20.2 -24.7
500	↓	↓	↓	17.7 -19.8	17.7 -19.8

NOTES:
1. WIND LOADING PROVIDED ARE ULTIMATE (LRFD) LOADING. FOR ALLOWABLE STRESS DESIGN MULTIPLY LOADS PROVIDED BY 0.6.
2. PRESSURES SHOWN ARE APPLIED NORMAL TO THE SURFACE.
3. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.
4. FOR HIP ROOFS WITH θ ≤ 25°, ZONE 3 SHALL BE TREATED AS ZONE 2.
5. EACH COMPONENT MUST BE DESIGNED FOR MAXIMUM POSITIVE AND NEGATIVE FORCES.
6. FOR COMPONENTS HAVING EFFECTIVE AREAS IN BETWEEN TABULATED VALUES, DESIGN LOADS MAY BE INTERPOLATED. OTHERWISE DESIGN LOAD MUST BE TAKEN FROM THE NEXT LOWEST EFFECTIVE AREA.
7. INTERNAL PRESSURE FOR ENCLOSED BUILDING IS INCLUDED IN ABOVE VALUES.
8. THE NET C&C PRESSURE (INCLUDING INTERNAL PRESSURE) FOR ANY COMPONENT SHALL NOT BE TAKEN LESS THAN 16 PSF ACTING IN EITHER DIRECTION NORMAL TO THE SURFACE.
9. NOTATION:
   a: 10 PERCENT OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 3 FT.
   h: MEAN ROOF HEIGHT, IN FEET, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES θ < 10%
   θ: ANGLE OF PLANE OF ROOF FROM HORIZONTAL, IN DEGREES.



NEAR - FLAT ROOF (θ ≤ 7°)

EARTHQUAKE DESIGN DATA

COUNTY / STATE	FAYETTE / KENTUCKY
RISK CATEGORY	CATEGORY II
IMPORTANCE FACTOR	Ie = 1.0
MAPPED SHORT PERIOD RESPONSE ACCELERATION	Ss = 0.196
MAPPED 1 SECOND PERIOD RESPONSE ACCELERATION	S1 = 0.092
SITE CLASS	CLASS D
DESIGN SHORT PERIOD SPECTRAL RESPONSE COEFFICIENT	Sds = 0.200
DESIGN 1 SECOND PERIOD SPECTRAL RESPONSE COEFFICIENT	Sd1 = 0.145
SEISMIC DESIGN CATEGORY	CATEGORY C
BASIC STRUCTURAL SYSTEM	BUILDING FRAME SYSTEM
SEISMIC RESISTING SYSTEM	STEEL STRUCTURE NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
RESPONSE MODIFICATION FACTOR	R = 3.0
SEISMIC RESPONSE COEFFICIENT	Cs = 0.067
METHOD OF ANALYSIS	EQUIVALENT LATERAL FORCE PROCEDURE
SEISMIC BASE SHEAR	= 1.6 KIPS

DESIGN STRESSES

CONCRETE (STRENGTH DESIGN) MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS:	
FOOTINGS	f'c = 3,000 PSI
WALLS AND PIERS	f'c = 4,000 PSI
CONCRETE SUBJECT TO DE-ICING SALTS	f'c = 4,500 PSI
REINFORCING BARS (ASTM A615 GRADE 60)	fy = 60,000 PSI
WELDED WIRE FABRIC (ASTM A1064)	fy = 65,000 PSI
CHANNELS, ANGLES, PLATES AND BARS (ASTM A36)	fy = 36,000 PSI
STEEL ROOF DECK (ASTM A653)	fy = 33,000 PSI
HOLLOW STRUCTURAL SECTIONS - RECTANGULAR STEEL TUBES (ASTM A500 GRADE B)	fy = 46,000 PSI
WEATHERING STEEL - RECTANGULAR STEEL TUBES AND PLATES (ASTM A588)	fy = 50,000 PSI
SOIL BEARING PRESSURE FOR FOUNDATIONS (NATURAL SOILS – ASSUMED)	2,000 PSF

GENERAL

1. THE REQUIREMENTS OF THESE GENERAL NOTES APPLY UNLESS OTHERWISE NOTED ON PLANS OR IN SPECIFICATIONS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES WHICH MAY EXIST.
3. ANY DISCREPANCIES BETWEEN STRUCTURAL AND SITE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE SITE ARCHITECT AND STRUCTURAL ENGINEER.
4. DO NOT SCALE DRAWINGS.
5. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION AND IS THEREFORE DEPENDENT UPON DIAPHRAGM ACTION OF THE ROOF DECK AND ATTACHMENT TO THE FRAMES FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY BRACING REQUIRED TO PROPERLY CONSTRUCT THE BUILDING UNTIL THESE ELEMENTS ARE COMPLETE AND CAPABLE OF PROVIDING THIS SUPPORT.
6. THE CONTRACTOR SHALL BE SOLEY RESPONSIBLE FOR MEANS AND METHODS TO CONSTRUCT THE STRUCTURE, INCLUDING VERIFICATION OF LOAD CAPACITY OF THE STRUCTURE, NEW OR EXISTING, TO SUPPORT CONSTRUCTION ACTIVITIES, EQUIPMENT, ETC. AND FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. DAMAGE TO THE STRUCTURE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE CORRECTED BY THE RESPONSIBLE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
7. SHOP DRAWINGS MUST BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION.
8. NON-STRUCTURAL ELEMENTS OF THE BUILDING (ARCHITECTURAL FINISHES, MASONRY VENEER AND ASSOCIATED TIES, INSULATION, SHEATHING, DUCTWORK, PIPING, ETC.) ARE TYPICALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. WHERE NON-STRUCTURAL ELEMENTS ARE SHOWN ON THE STRUCTURAL DRAWINGS, THEY ARE SHOWN FOR REFERENCE AND DESIGN INTENT ONLY. NON-STRUCTURAL ELEMENTS SHALL BE CONSTRUCTED AS SHOWN ON THE ARCHITECTURAL, ELECTRICAL AND PLUMBING DRAWINGS.
9. ELEVATIONS SHOWN ON STRUCTURAL DRAWINGS ARE IDEALIZED ELEVATIONS BASED ON DECK THICKNESS AND SLOPES SHOWN ON DRAWINGS AND DO NOT ACCOUNT FOR BEAM OR JOIST CAMBER. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO COORDINATE ANY CAMBER OF THEIR WORK WITH OTHER TRADES AND ADJUST ELEVATIONS AS NECESSARY TO ACCOUNT FOR DEAD LOAD DEFLECTION AND THIS CAMBER.
10. WALL TERMINATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE DIAGRAMMATIC ONLY. WALL TERMINATIONS AND OPENING JAMBS, HEADS, AND SILLS SHALL BE CONSTRUCTED AS SHOWN ON THE SITE DRAWINGS. IF THE SITE DRAWINGS DO NOT INCLUDE DETAILS FOR ANY OF THESE CONDITIONS, CONSULT WITH ARCHITECT FOR DIRECTION.
11. DETAILS NOT SPECIFICALLY INDICATED SHALL BE SIMILAR TO DETAILS SHOWN FOR SIMILAR CONDITIONS.

FOUNDATION CONSTRUCTION

1. THE OWNER HAS ELECTED TO NOT PROVIDE A GEOTECHNICAL INVESTIGATION AND REPORT FOR THIS PROJECT. FOUNDATIONS HAVE BEEN DESIGNED FOR THE ASSUMED ALLOWABLE BEARING PRESSURE. THE CONTRACTOR SHALL EMPLOY A GEOTECHNICAL ENGINEER TO VERIFY THAT THE BEARING STRATA IS ADEQUATE TO SUPPORT THE DESIGN LOAD AND MAKE RECOMMENDATIONS FOR OVEREXCAVATION AND ENGINEERED BACKFILL AS REQUIRED. THE GEOTECHNICAL INVESTIGATION SHALL INCLUDE DRILLING AND SAMPLING TO ASTM STANDARDS D1586, D1587 AND D2113; DISCOVERY AND ASSESSMENT OF ANY IN-SITU FILL BELOW THE NEW CONSTRUCTION; AND ANALYSIS OF SOILS TO ASCERTAIN PRESENCE OF POTENTIALLLY EXPANSIVE, DELETERIOUS, OR CHEMICALLY ACTIVE MATERIALS.
2. ELEVATIONS GIVEN ARE TO THE TOP OF FOOTINGS.
3. IN GRANULAR SOILS (SANDS AND GRAVEL) THE SOIL SHALL BE MECHANICALLY TAMPED TO A HARD SURFACE IMMEDIATELY PRIOR TO PLACING FOOTING.
4. LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF CONSTRUCTION. COORDINATE WITH UTILITY COMPANIES FOR ANY SHUT-OFF REQUIREMENTS OF STILL ACTIVE LINES.
5. WHEN EXCAVATIONS APPROACH THE GROUND WATER LEVEL, THE WATER LEVEL SHALL BE LOWERED BY AN ACCEPTABLE DEWATERING SYSTEM SO THAT THE WATER LEVEL IS MAINTAINED CONTINUOUSLY A MINIMUM OF 2'-0" BELOW THE EXCAVATION.
6. BEFORE BACKFILL, ALL WALLS MUST BE ADEQUATELY BRACED. FOR BACKFILL REQUIREMENTS, SEE SPECIFICATIONS.
7. RETAINING WALLS SHALL NOT BE BACKFILLED UNTIL COMPRESSIVE STRENGTH TESTS DEMONSTRATE THAT THE CONCRETE HAS DEVELOPED 100% OF THE REQUIRED 28-DAY COMPRESSIVE STRENGTH FOR THE CLASS OF CONCRETE SPECIFIED. THE CONTRACTOR MAY ELECT TO PREPARE ADDITIONAL TEST CYLINDERS IN ORDER TO DEMONSTRATE THAT THE REQUIRED COMPRESSIVE STRENGTH PRIOR TO THE MANDATORY 28-DAY COMPRESSIVE STRENGTH TESTS. IN NO CASE SHALL WALLS BE BACKFILLED PRIOR TO SEVEN (7) DAYS FROM PLACEMENT.
8. FOR PLACEMENT AND COMPACTION OF FILL UNDER SLABS ON GRADE, SEE SPECIFICATIONS. IF NOT OTHERWISE NOTED, COMPACT ALL FILL TO 98% OF OPTIMUM LABORATORY DENSITY IN ACCORDANCE WITH ASTM D698 STANDARD PROCTOR METHOD. PLACE FILL IN 6" TO 8" LAYERS AND COMPACT WITH VIBRATORY TAMPING EQUIPMENT.
9. SEE SITE DRAWINGS FOR CONTOUR AND LAYOUT OF SITE WALKS AND BREEZEWAYS. SLOPE EXTERIOR CONCRETE 1/8"/ FT AWAY FROM BUILDING, UNLESS NOTED OTHERWISE.
10. SURFACE RUNOFF SHALL BE DIRECTED AWAY FROM FOUNDATION EXCAVATIONS AND NOT BE PERMITTED TO POND WITHIN THE BUILDING FOOTPRINT. PROVIDE DRAINAGE TRENCHES FROM FOUNDATION EXCAVATIONS TO DIRECT RAINWATER OUT OF EXCAVATIONS.

CONCRETE CONSTRUCTION

1. ALL CONCRETE CONSTRUCTION TO BE IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI 301-10, ACI 318-11 AND ACI DETAILING MANUAL, EXCEPT THAT CONSTRUCTION AND REMOVAL OF FORMS AND RESHORING SHALL BE INSPECTED BY THE CONTRACTOR'S ENGINEER.
2. FURNISH BAR SUPPORTS WHERE NECESSARY DURING CONSTRUCTION.
3. PROVIDE PLASTIC, PLASTIC-COATED (NOT PLASTIC-TIPPED) OR STAINLESS STEEL CHAIRS IN ALL CONCRETE EXPOSED TO VIEW IN COMPLETED STRUCTURE.
4. PROVIDE PIPE SLEEVES AND INSERTS IN CONCRETE WORK WHERE REQUIRED. SEE SITE AND MECHANICAL DRAWINGS.
5. CONSTRUCTION JOINTS SHALL BE POSITIONED SO AS NOT TO CHANGE THE STRUCTURAL DESIGN REQUIREMENTS. RATIO OF LENGTH TO WIDTH OF POUR SHALL NOT EXCEED 2. LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER.
6. WELDING OF REINFORCING BARS (INCLUDING TACK WELDING) IS NOT PERMITTED.
7. PROVIDE HORIZONTAL KEYWAYS IN CONSTRUCTION JOINTS IN WALLS AND WALL FOOTINGS; MINIMUM 1 1/2" DEPTH WITH HEIGHT EQUAL TO ONE-THIRD OF MEMBER DEPTH, UNLESS OTHERWISE SHOWN OR NOTED.
8. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED 45 DEGREES. MINIMUM CHAMFER TO BE 1/2". CURVE THE LEADING EDGE OF STAIR TREADS TO 1/2" RADIUS.
9. REINFORCING FOR SLABS ON GROUND (IN FLAT SHEETS) SHALL BE IN THE MIDDLE OF THE SLAB EXCEPT AS OTHERWISE NOTED AND SHALL BE POSITIVELY SUPPORTED AND MAINTAINED IN THIS POSITION DURING PLACEMENT OF CONCRETE.
10. BEND ALL HORIZONTAL WALL AND FOOTING BARS 1'-0" AROUND CORNERS OR PROVIDE CORNER BARS WITH 2'-0" LAP.
11. PROVIDE FOUNDATION DOWELS FOR ALL WALLS AND PIERS SAME SIZE AND SPACING AS VERTICAL STEEL.
12. SPLICES: ALL REINFORCING SPLICES SHALL BE AS TENSION LAP, U.N.O.
    A. LAP ALL COMPRESSION SPLICES 30 BAR DIAMETERS OF THE LARGER BAR.
    B. LAP ALL TENSION SPLICES IN ACCORDANCE WITH THE FOLLOWING TABLE. MODIFY LENGTHS AS NOTED:

BAR SIZE	CONCRETE COMPRESSIVE STRENGTH 3,000 PSI	4,000 PSI	5,000 PSI	1. INCREASE SPLICE LENGTH BY THE FOLLOWING: 2. NOTE: INCREASED LENGTHS ARE ACCUMULATIVE
#3	21"	19"	17"	
#4	29"	25"	22"	1. HORIZONTAL TOP BARS WITH GREATER THAN 12" OF CONCRETE BELOW +30 %
#5	36"	31"	28"	2. BAR SPACING LESS THAN 2 BAR DIAMETERS +50 %
#6	43"	37"	33"	
#7	62"	54"	48"	

13. CONCRETE PROTECTION FOR REINFORCEMENT: COVER
    A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ..... 3"
    B. CONCRETE EXPOSED TO EARTH OR WEATHER NO. 5 BAR, W31 OR D31 WIRE AND SMALLER ..... 1 1/2"

STEEL CONSTRUCTION

1. STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE, AND THE AWS STRUCTURAL WELDING CODE.
2. CONNECTIONS - WELDED OR HIGH STRENGTH BOLTED:
   A. A325-N WITH HARDENED WASHERS - USE FOR ALL CONNECTIONS U.N.O.
   B. UNLESS SNUG TIGHT CONNECTIONS ARE NOTED ON THE DRAWINGS AS BEING PERMITTED, ALL BOLTS SHALL BE TIGHTENED TO FULL PRETENSIONING LOAD.
   C. UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR WITHOUT WRITTEN PERMISSION FROM THE ENGINEER, ALL BOLTS FOR THE PROJECT SHALL BE OF ONE ASTM TYPE AND ONE DIAMETER.
   D. USE STANDARD HOLES WITH THE FOLLOWING EXCEPTIONS: OVERSIZE HOLES ARE PERMITTED WHEN BOLTS ARE LOADED IN TENSION; SHORT SLOTTED HOLES ARE PERMITTED FOR SHEAR LOADING PERPENDICULAR TO THE SLOT.
   E. HARDENED WASHERS SHALL BE USED OVER ALL OVERSIZED OR SHORT-SLOTTED HOLES IN AN OUTER PLY. WHERE LONG-SLOTTED HOLES ARE USED IN AN OUTER PLY, 5/16" THICK A36 PLATE WASHERS OR CONTINUOUS BAR WITH STANDARD HOLES SHALL BE PROVIDED.
3. WELDING ELECTRODES SHALL BE E70XX EXCEPT WHERE OTHER ELECTRODES ARE REQUIRED FOR COMPATIBILITY WITH MATERIAL BEING WELDED. FOR WELDING TO WEATHERING STEEL, ELECTRODES SHALL BE COMPATIBLE FOR USE WITH WEATHERING STEEL SUCH AS E8018.
4. ALL SLIP CONNECTIONS SHALL BE PROVIDED WITH A MEANS OF PREVENTING THE NUTS FROM UNTHREADING.
5. SHOP DRAWINGS ARE REQUIRED AND SHALL NOTE TYPE OF ELECTRODES, SIZE OF ALL WELDS, AND TYPE AND SIZE OF ALL BOLTS.
6. SEE SPECIFICATIONS FOR ALL PRIMING REQUIREMENTS.
7. ALL SHOP AND FIELD WELDING SHALL BE DONE BY A CERTIFIED WELDER.
8. PROVIDE MINIMUM OF (4) 3/4" DIAMETER x 1'-0" EMBED ANCHOR BOLTS AND 2" GROUT UNDER ALL COLUMN BASE PLATES.
9. MISCELLANEOUS STEEL MEMBERS (ANGLES, TEES, CHANNELS, ETC) WHICH SUPPORT DECK AROUND THE PERIMETER OF A FLOOR OR ROOF AREA SHALL BE CONTINUOUS, EXCEPT AT BUILDING EXPANSION JOINTS. WHERE SPLICES IN THESE MEMBERS MUST OCCUR TO FACILITATE ERECTION, PROVIDE PARTIAL PENETRATION SQUARE GROOVE WELD (BUTT JOINT) WITH 3/16" EFFECTIVE THROAT ON ONE SIDE, EACH LEG.

STEEL DECK CONSTRUCTION

1. STEEL DECK DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE LATEST, AWS STRUCTURAL WELDING CODE AND THE STEEL DECK INSTITUTE SPECIFICATIONS.
2. STEEL ROOF DECK SHALL BE CONTINUOUS OVER A MINIMUM OF 3 SPANS.
3. DO NOT HANG OR SUPPORT ANY LOADS SUCH AS STUD WALLS, BULKHEADS, PIPES, ETC FROM STEEL ROOF DECK.

INSPECTION

AN APPROVED INDEPENDENT TESTING LABORATORY SHALL PROVIDE INSPECTION AND TESTING SERVICES PER ASTM E329. REPORTS OF INSPECTION AND TESTING SHALL BE SENT TO THE ARCHITECT. SUCH INSPECTION AND TESTING SHALL INCLUDE:

1. CONCRETE: MIX DATA, DAILY POUR REPORTS, CYLINDER TESTS, SLUMP, ENTRAINED AIR TESTS, AND TEMPERATURE
2. REINFORCEMENT: PLACEMENT, TYPE, AND SIZE.
3. STRUCTURAL STEEL: WELDING AND BOLTING IN THE SHOP AND FIELD.
4. FOUNDATIONS: BEARING SURFACE.
5. EARTH FILL: CERTIFICATION OF ALL FILL MATERIAL AND IN-PLACE DENSITY TESTS.

STRUCTURAL ABBREVIATIONS

ARCH	ARCHITECTURAL	LLH	LONG LEG HORIZONTAL
BOT	BOTTOM	LLV	LONG LEG VERTICAL
CLR	CLEAR	LFH	LONG FACE HORIZONTAL
C.L.S.M.	CONTROLLED LOW STRENGTH MATERIAL	LFV	LONG FACE VERTICAL
C.M.U.	CONCRETE MASONRY UNIT	MAX	MAXIMUM
CONT	CONTINUOUS	MIN	MINIMUM
D	DEEP	N.D.	NOMINAL DIAMETER
DET	DETAIL	N.S.	NEAR SIDE
DWGS	DRAWINGS	N.T.S.	NOT TO SCALE
E.F.	EACH FACE	O.C.	ON CENTER
ELEV	ELEVATION	OPH	OPPOSITE HAND
EMBED	MINIMUM EMBEDMENT DEPTH INTO SUBSTRATE	PL	PLATE
E.W.	EACH WAY	R	RADIUS
E.O.S.	EDGE OF SLAB	SIM	SIMILAR
EXP	EXPANSION	S.O.G.	SLAB ON GRADE
F.S.	FAR SIDE	T&G	TONGUE AND GROOVE
F.F.E.	FINISHED FLOOR ELEVATION	TYP	TYPICAL
GA	GAUGE	VERT	VERTICAL
GALV	GALVANIZED	W	WIDE
HORIZ	HORIZONTAL	W.W.F.	WELDED WIRE FABRIC

MATERIAL LEGEND

BEDROCK

NATIVE EARTH / ENGINEERED FILL

CRUSHED STONE

CONCRETE

BROWN + KUBICAN PSC
STRUCTURAL ENGINEERS
2224 Young Drive
Lexington, KY 40505
Phone: 859-543-0935
Fax: 859-543-0733

CBROWN + KUBICAN, PSC

DATE | REVISION DESCRIPTION

GENERAL NOTES

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CANE RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

DRAWN: MWW | CHECKED: BSM
DATE: APRIL 6, 2016 | Scale: AS NOTED
JOB: | SHEET: S-1.0

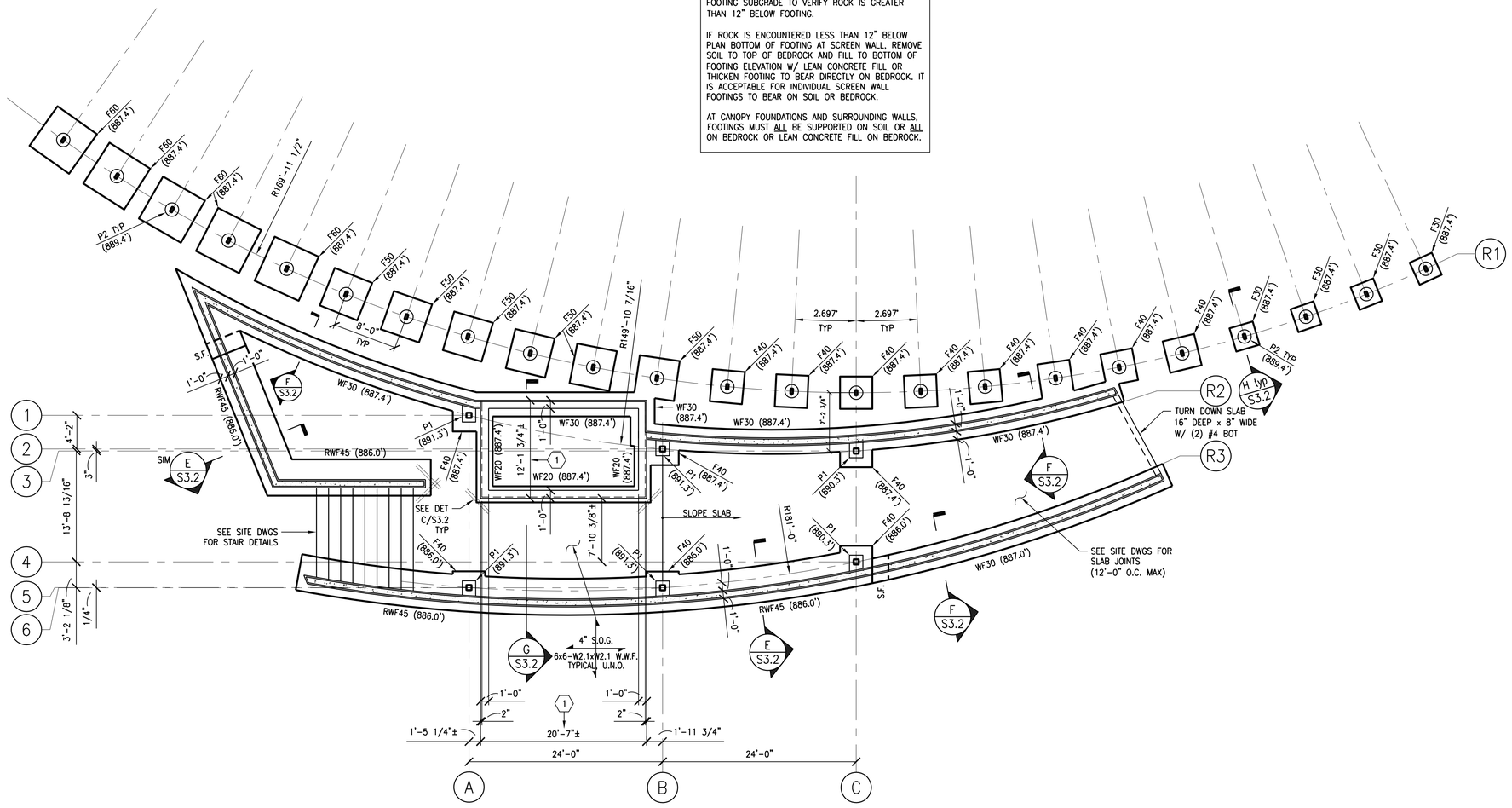
Ref: ELEMENT DESIGN 13.62.01
PLOT DATE: 5 April 2016 - 10:04 AM

BIM ELEMENT DESIGN 19182.01

FOUNDATION BEARING NOTE:
FOUNDATIONS TO BEAR ON NATURAL SOILS OR ENGINEERED FILL WITH ALLOWABLE BEARING CAPACITY OF 2,000 PSF. EXISTING GEOTECHNICAL INFORMATION INDICATES THAT BEDROCK MAY BE SHALLOW (WITHIN 4'-0" OF EXISTING GRADE). CONTRACTOR TO PROBE FOOTING SUBGRADE TO VERIFY ROCK IS GREATER THAN 12" BELOW FOOTING.

IF ROCK IS ENCOUNTERED LESS THAN 12" BELOW PLAN BOTTOM OF FOOTING AT SCREEN WALL, REMOVE SOIL TO TOP OF BEDROCK AND FILL TO BOTTOM OF FOOTING ELEVATION W/ LEAN CONCRETE FILL OR THICKEN FOOTING TO BEAR DIRECTLY ON BEDROCK. IT IS ACCEPTABLE FOR INDIVIDUAL SCREEN WALL FOOTINGS TO BEAR ON SOIL OR BEDROCK.

AT CANOPY FOUNDATIONS AND SURROUNDING WALLS, FOOTINGS MUST ALL BE SUPPORTED ON SOIL OR ALL ON BEDROCK OR LEAN CONCRETE FILL ON BEDROCK.



FOUNDATION PLAN
1/8"=1'-0"

A S2.0

PLAN NOTES

1. ELEVATIONS SHOWN ARE TO THE TOP OF THE FOUNDATION AND ARE ARE REFERENCED FROM MEAN SEA LEVEL ELEVATION 0'-0".
2. CENTER ALL WALL FOOTINGS ON WALL CENTERLINE U.N.O.
3. CENTER ALL SPREAD FOOTINGS ON COLUMN GRID INTERSECTION U.N.O.
4. SEE DWG S1.0 FOR GENERAL NOTES.
5. SEE DWGS S3.1 & S3.2 FOR TYPICAL FOUNDATION DETAILS.
6. SLAB ON GRADE SHALL BE PLACED OVER 4" MINIMUM COMPACTED CRUSHED STONE OR DENSE GRADED AGGREGATE.
7. AN ELECTRONIC DRAWING FILE (dwg) OF THE FOUNDATION PLAN WILL BE PROVIDED TO CONTRACTOR TO ASSIST IN LAYOUT OF FOUNDATIONS.
8. SEE SITE DRAWINGS FOR WALL LAYOUT DIMENSIONS NOT SHOWN ON THIS SHEET.
9. SEE SITE DRAWINGS FOR TOP OF SLAB ELEVATIONS AND SLOPE.

TAG NOTES

(1) = COORDINATE DIMENSION WITH PRE-ENGINEERED BUILDING SHOP DRAWINGS.

LEGEND

F40 = SPREAD FOOTING. SEE SCHEDULE.
WF30 = WALL FOOTING. SEE SCHEDULE.
P1 = COLUMN PIER. SEE DETAIL D/S3.2.
S.F. = STEP FOOTING. SEE DETAIL D/S3.1.
(886.0') = TOP OF FOOTING OR PIER ELEVATION.

2,000 PSF

SPREAD FOOTING SCHEDULE

MARK	SIZE	REINFORCING E.W. BOTTOM
F30	3'-0" x 3'-0" x 1'-0"	(5) #5
F40	4'-0" x 4'-0" x 1'-0"	(6) #5
F50	5'-0" x 5'-0" x 1'-0"	(7) #5
F60	6'-0" x 6'-0" x 1'-0"	(9) #5

2,000 PSF

WALL FOOTING SCHEDULE

MARK	SIZE (WIDTH x DEPTH)	REINFORCING CONT. BOTTOM
WF20	2'-0" x 1'-0"	(3) #4
WF30	3'-0" x 1'-0"	(4) #4
RWF45	4'-6" x 1'-0"	SEE SECTION

PROVIDE #4 TRANSVERSE ERECTION BARS @ 48" O.C.

PROJECT

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD

BROWN + KUBICAN PSC
STRUCTURAL ENGINEERS
2224 Young Drive
Lexington, KY 40505
Phone: 859-543-0933
Fax: 859-543-0733

©BROWN + KUBICAN, PSC

REVISION DESCRIPTION | DATE

FOUNDATION PLAN

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CANE RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

DRAWN: MWW | CHECKED: BSM
DATE: APRIL 6, 2016 | Scale: AS NOTED
JOB: | SHEET: S-2.0

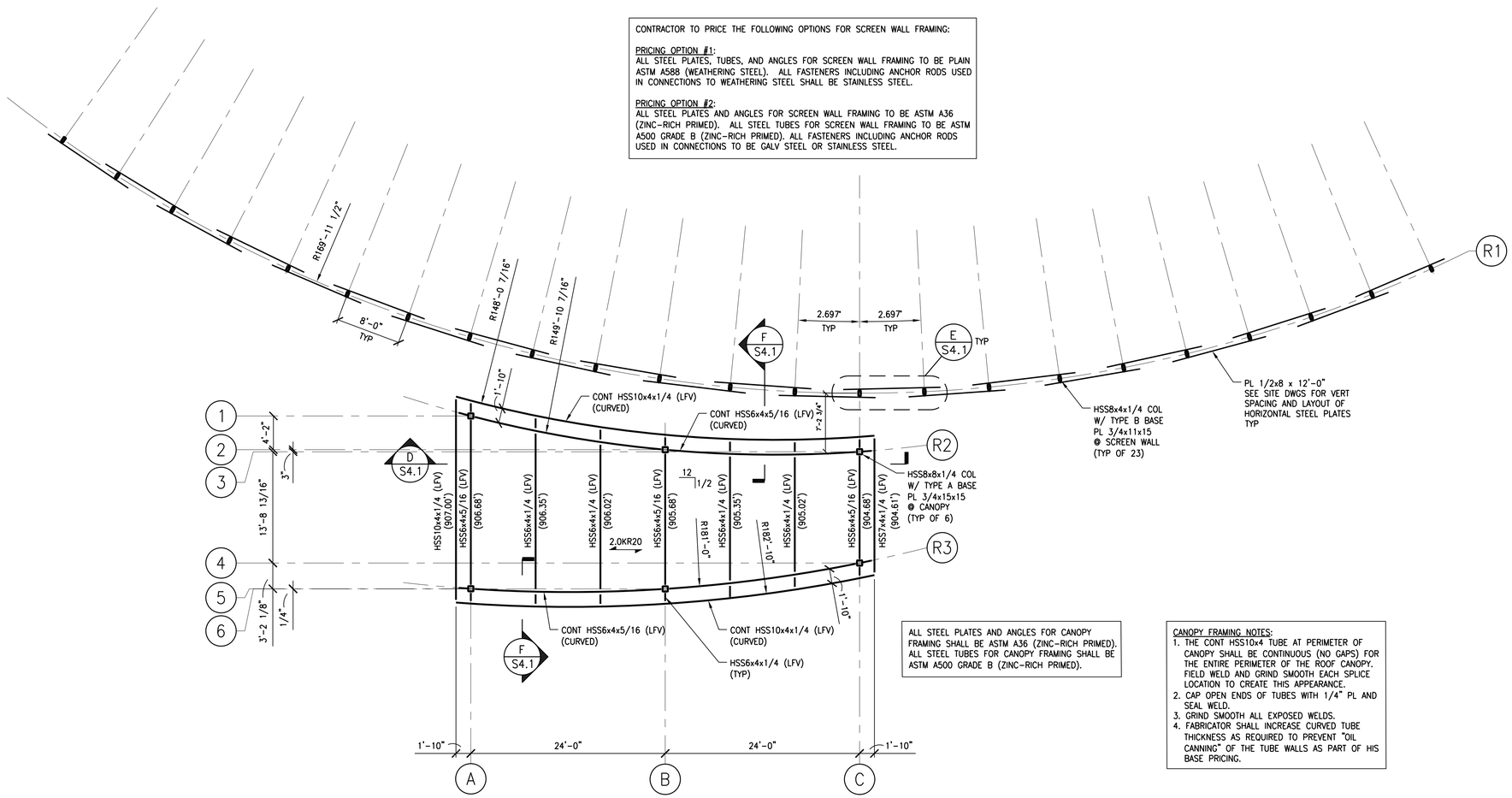
PLOT DATE: 5 April 2016 - 10:14 AM

BW# ELEMENT DESIGN 151821.01

CONTRACTOR TO PRICE THE FOLLOWING OPTIONS FOR SCREEN WALL FRAMING:

PRICING OPTION #1:
ALL STEEL PLATES, TUBES, AND ANGLES FOR SCREEN WALL FRAMING TO BE PLAIN ASTM A588 (WEATHERING STEEL). ALL FASTENERS INCLUDING ANCHOR RODS USED IN CONNECTIONS TO WEATHERING STEEL SHALL BE STAINLESS STEEL.

PRICING OPTION #2:
ALL STEEL PLATES AND ANGLES FOR SCREEN WALL FRAMING TO BE ASTM A36 (ZINC-RICH PRIMED). ALL STEEL TUBES FOR SCREEN WALL FRAMING TO BE ASTM A500 GRADE B (ZINC-RICH PRIMED). ALL FASTENERS INCLUDING ANCHOR RODS USED IN CONNECTIONS TO BE GALV STEEL OR STAINLESS STEEL.



CANOPY ROOF FRAMING PLAN

1/8"=1'-0"

A S2.1

ALL STEEL PLATES AND ANGLES FOR CANOPY FRAMING SHALL BE ASTM A36 (ZINC-RICH PRIMED). ALL STEEL TUBES FOR CANOPY FRAMING SHALL BE ASTM A500 GRADE B (ZINC-RICH PRIMED).

CANOPY FRAMING NOTES:
1. THE CONT HSS10x4 TUBE AT PERIMETER OF CANOPY SHALL BE CONTINUOUS (NO GAPS) FOR THE ENTIRE PERIMETER OF THE ROOF CANOPY. FIELD WELD AND GRIND SMOOTH EACH SPLICE LOCATION TO CREATE THIS APPEARANCE.
2. CAP OPEN ENDS OF TUBES WITH 1/4" PL AND SEAL WELD.
3. GRIND SMOOTH ALL EXPOSED WELDS.
4. FABRICATOR SHALL INCREASE CURVED TUBE THICKNESS AS REQUIRED TO PREVENT "OIL CANNING" OF THE TUBE WALLS AS PART OF HIS BASE PRICING.

FRAMING PLAN NOTES

1. ELEVATIONS SHOWN ARE TO THE TOP OF STEEL AND ARE REFERENCED FROM MEAN SEA LEVEL ELEVATION 0'-0".
2. SEE DWG S1.0 FOR GENERAL NOTES.
3. SEE DWG S4.1 FOR TYPICAL FRAMING DETAILS.
4. SPACE BEAMS EVENLY THROUGHOUT BAY U.N.O.

LEGEND

2.0KR20 = 2" 20 GA GALV AND PRIME PAINTED KEYSTONE RIB STEEL ROOF DECK.

HSS6x4x1/4 (LFV) — STEEL BEAM SIZE; TUBE LONG FACE ORIENTATION.

(907.00') = TOP OF STEEL BEAM/JOIST ELEVATION REFERENCED FROM MEAN SEA LEVEL ELEVATION.

1/2 12 = ROOF SLOPE.

PROJECT

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD

BROWN + KUBICAN PSC
STRUCTURAL ENGINEERS
2224 Young Drive
Lexington, KY 40505
Phone: 859-543-0933
Fax: 859-543-0733

©BROWN + KUBICAN, PSC

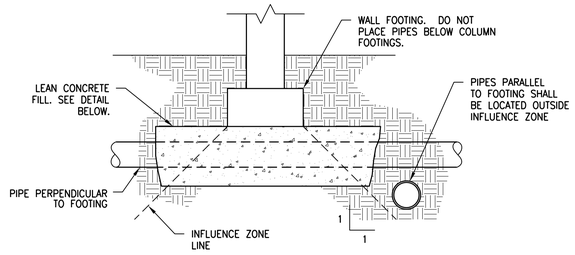
DATE | REVISION DESCRIPTION

FRAMING PLAN

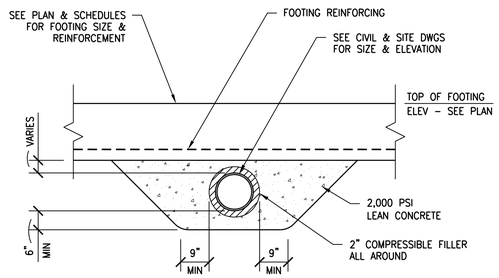
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CANE RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

JOB:
DATE: APRIL 6, 2016 | DRAWN: MWW
Scale: AS NOTED | CHECKED: BSM
SHEET: S-2.1

PLOT DATE: 5 Apr 2016 - 10:43 AM



INFLUENCE ZONE

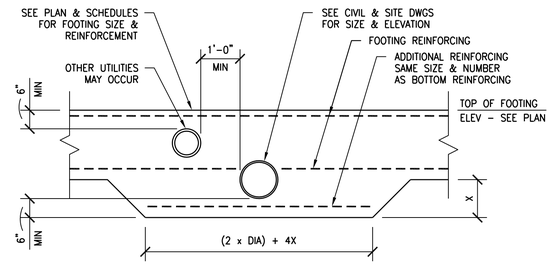


NOTES:
1. PROVIDE CONCRETE PROTECTION AROUND UTILITY LINE WHEN LINE IS WITHIN FOOTING INFLUENCE ZONE. SEE DETAIL ABOVE FOR INFLUENCE ZONE DEFINITION.
2. DETAIL APPLIES WHEREVER TOP OF PIPE IS WITHIN 4 PIPE DIAMETERS TO BOTTOM OF FOOTING OR IF UTILITY IS INSTALLED AFTER FOOTING PLACEMENT (REGARDLESS OF DEPTH).

TYPICAL UTILITY LINE BELOW FOOTING DETAIL

NOT TO SCALE

A / S3.1

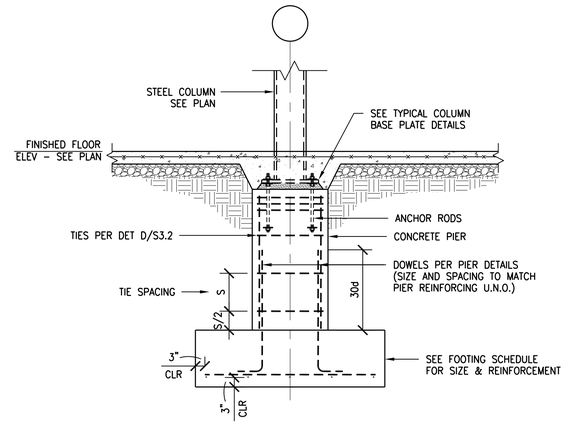


NOTES:
1. IN LIEU OF SLEEVE, IF DIRECT PENETRATION OF PIPE IS REQUIRED PROVIDE 2" COMPRESSIBLE FILLER UNIFORMLY PLACED AROUND PIPE.

TYPICAL FOOTING PENETRATION / SLEEVE DETAIL

NOT TO SCALE

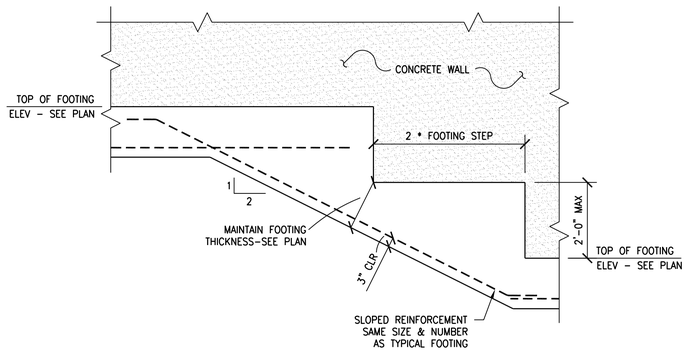
B / S3.1



TYPICAL STEEL COLUMN, PIER, AND FOOTING DETAIL

NOT TO SCALE

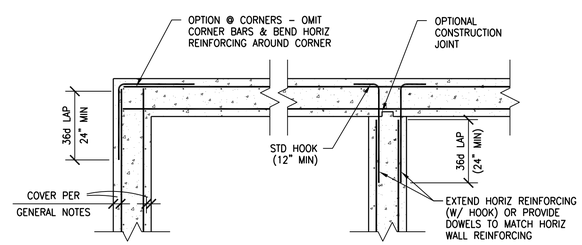
C / S3.1



TYPICAL STEP FOOTING DETAIL

NOT TO SCALE

D / S3.1



NOTE:
WHERE BAR SIZES DIFFER, LAP FOR LARGER SIZE.

TYPICAL CONCRETE WALL REINFORCING DETAIL

NOT TO SCALE (TWO LAYERS OF WALL REINFORCING)

E / S3.1

BROWN + KUBICAN PSC
STRUCTURAL ENGINEERS
2224 Young Drive
Lexington, KY 40505
Phone: 859-543-0933
Fax: 859-543-0733

©BROWN + KUBICAN, PSC

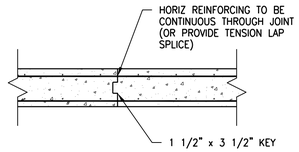
DATE	REVISION DESCRIPTION

TYPICAL FOUNDATION DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CANE RUN WET WEATHER STORAGE
LFUCG BID No. _____ ; RMP ID No. _____

JOB:
DATE: APRIL 6, 2016
DRAWN: MWW
SHEET: S-3.1
Scale: AS NOTED
CHECKED: BSM

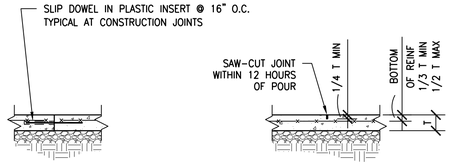
BK# ELEMENT DESIGN 15182.01
PLOT DATE: 5 April 2016 – 10:15 AM



NOTES:
1. MAXIMUM LENGTH OF WALL POUR = 40'-0".
2. PERMIT 48 HOURS BETWEEN ADJACENT POURS.
3. FOR STEM WALLS WHICH ARE BELOW GRADE (BOTH SIDES), MAXIMUM POUR LENGTH MAY BE INCREASED TO 60'-0".

TYPICAL CONCRETE WALL CONSTRUCTION JOINT DETAIL

NOT TO SCALE — A S3.2

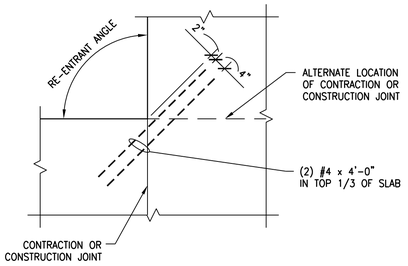


CONSTRUCTION JOINT — SAWN CONTRACTION JOINT

NOTES:
1. JOINTS SHALL BE INSTALLED IN SLABS ON GROUND AT A MAXIMUM SPACING IN FEET OF 3 TIMES THE SLAB THICKNESS IN INCHES IN EACH DIRECTION BY EITHER OF THE ABOVE METHODS. MAXIMUM LENGTH OF ANY SLAB ON GROUND POUR TO BE 100'-0" BETWEEN CONSTRUCTION JOINTS. RATIO OF LENGTH TO WIDTH SHALL NOT EXCEED 2. THIS SPACING OF JOINTS SHALL APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE.
2. REINFORCING SHALL BE DISCONTINUOUS THROUGH CONSTRUCTION JOINTS.
3. SEE SITE DWGS FOR LAYOUT OF SLAB JOINTS AND FOR TOOLED JOINT DETAIL.

SLAB ON GROUND JOINT DETAIL

NOT TO SCALE — B S3.2



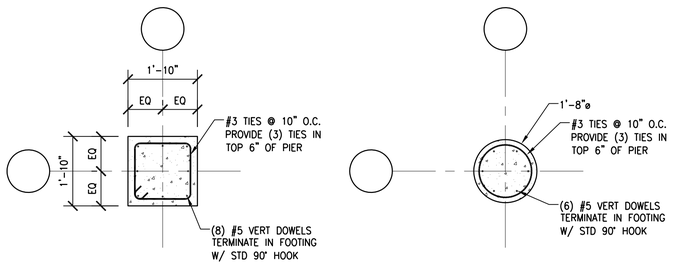
TYPICAL SLAB ON GRADE JOINT AT RE-ENTRANT CORNER

NOT TO SCALE — C S3.2

FOUNDATION BEARING NOTE:
FOUNDATIONS TO BEAR ON NATURAL SOILS OR ENGINEERED FILL WITH ALLOWABLE BEARING CAPACITY OF 2,000 PSF. EXISTING GEOTECHNICAL INFORMATION INDICATES THAT BEDROCK MAY BE SHALLOW (WITHIN 4'-0" OF EXISTING GRADE). CONTRACTOR TO PROBE FOOTING SUBGRADE TO VERIFY ROCK IS GREATER THAN 12" BELOW FOOTING.

IF ROCK IS ENCOUNTERED LESS THAN 12" BELOW PLAN BOTTOM OF FOOTING AT SCREEN WALL, REMOVE SOIL TO TOP OF BEDROCK AND FILL TO BOTTOM OF FOOTING ELEVATION W/ LEAN CONCRETE FILL OR THICKEN FOOTING TO BEAR DIRECTLY ON BEDROCK. IT IS ACCEPTABLE FOR INDIVIDUAL SCREEN WALL FOOTINGS TO BEAR ON SOIL OR BEDROCK.

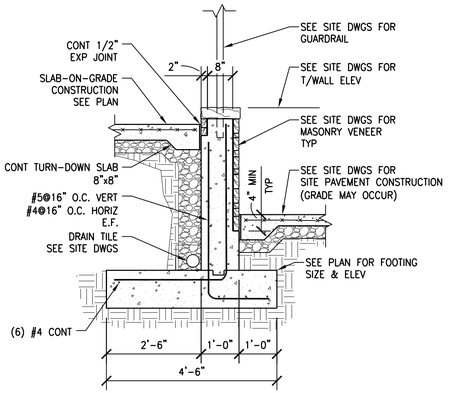
AT CANOPY FOUNDATIONS AND SURROUNDING WALLS, FOOTINGS MUST ALL BE SUPPORTED ON SOIL OR ALL ON BEDROCK OR LEAN CONCRETE FILL ON BEDROCK.



P1 — P2

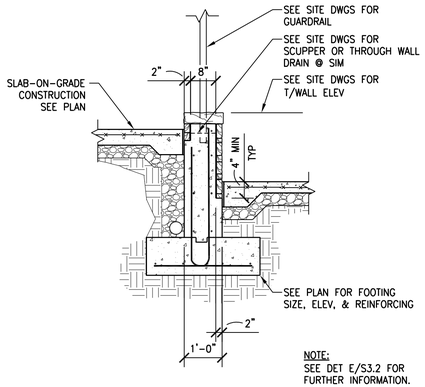
CONCRETE PIER DETAILS

NOT TO SCALE — D S3.2



SECTION

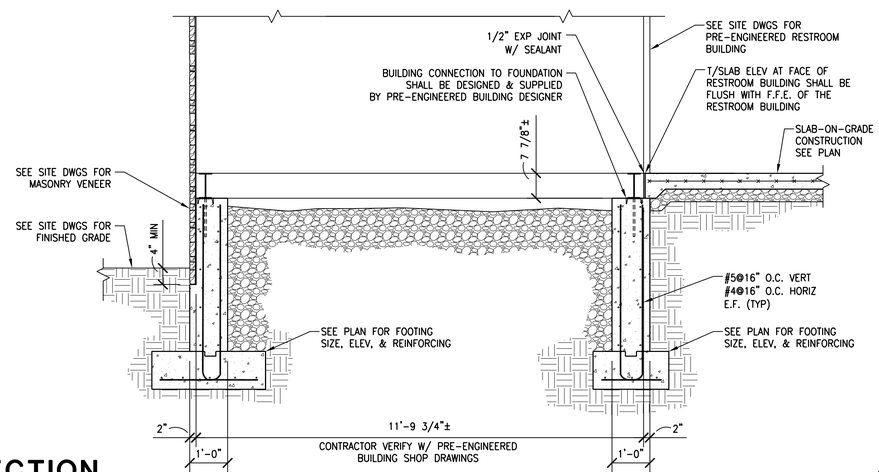
1/2"=1'-0" — E S3.2



NOTE:
SEE DET E/S3.2 FOR FURTHER INFORMATION.

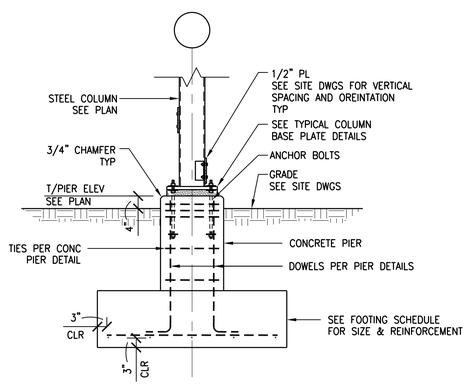
SECTION

1/2"=1'-0" — F S3.2



SECTION

1/2"=1'-0" — G S3.2



TYPICAL PIER DETAIL AT SCREEN WALL

NOT TO SCALE — H S3.2

BROWN + KUBICAN PSC
STRUCTURAL ENGINEERS
2224 Young Drive
Lexington, KY 40505
Phone: 859-543-0935
Fax: 859-543-0733
BROWN + KUBICAN, PSC

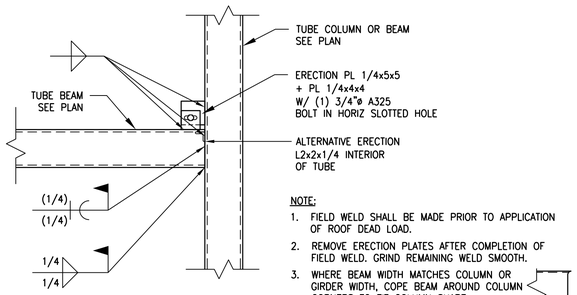
DATE	REVISION DESCRIPTION

TYPICAL FOUNDATION DETAILS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CANE RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

DRAWN: MWW | CHECKED: BSM
DATE: APRIL 6, 2016 | Scale: AS NOTED
JOB: | SHEET: S-3.2

Ref: ELEMENT DESIGN 19.B2.01
PLOT DATE: 5 April 2016 - 10:15 AM



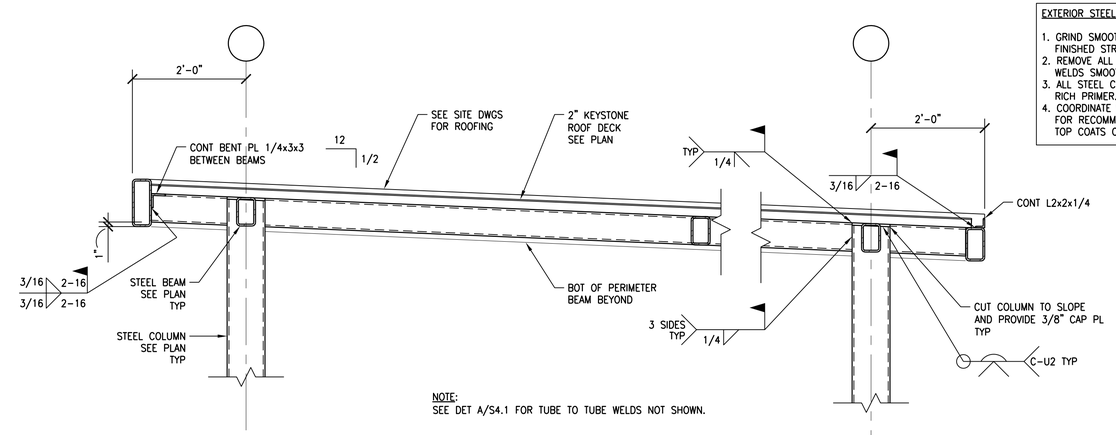
NOTE:

1. FIELD WELD SHALL BE MADE PRIOR TO APPLICATION OF ROOF DEAD LOAD.
2. REMOVE ERECTION PLATES AFTER COMPLETION OF FIELD WELD. GRIND REMAINING WELD SMOOTH.
3. WHERE BEAM WIDTH MATCHES COLUMN OR GIRDER WIDTH, COPE BEAM AROUND COLUMN CORNERS TO FIT COLUMN SHAPE.
4. WHERE BEAM WIDTH IS NARROWER THAN COLUMN FACE PROVIDE FILLET WELD ALL AROUND.
5. WELD AT ERECTION PLATES TO BE DETERMINED BY FABRICATOR/ERECTOR CONSIDERING ORIENTATION OF PL, MEMBER WEIGHTS, AND ERECTION FORCES.

TYPICAL TUBE TO TUBE CONNECTION DETAIL

NOT TO SCALE

A S4.1



NOTE:
SEE DET A/S4.1 FOR TUBE TO TUBE WELDS NOT SHOWN.

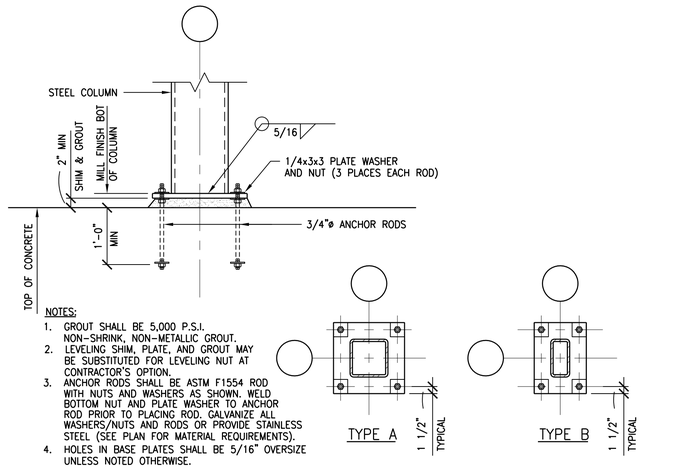
EXTERIOR STEEL CANOPY NOTES:

1. GRIND SMOOTH ALL WELDS EXPOSED TO VIEW IN THE FINISHED STRUCTURE.
2. REMOVE ALL ERECTION BOLTS AND PLATES AND GRIND WELDS SMOOTH. FILL ANY HOLES AND GRIND SMOOTH.
3. ALL STEEL COMPONENTS SHALL BE PRIMED WITH ZINC RICH PRIMER. SEE SPECIFICATIONS.
4. COORDINATE WITH ZINC RICH PRIMER MANUFACTURER FOR RECOMMENDATIONS AND TIMELINE FOR PAINTING TOP COATS OVER ZINC RICH PRIMER.

CANOPY SECTION

3/4"=1'-0"

D S4.1



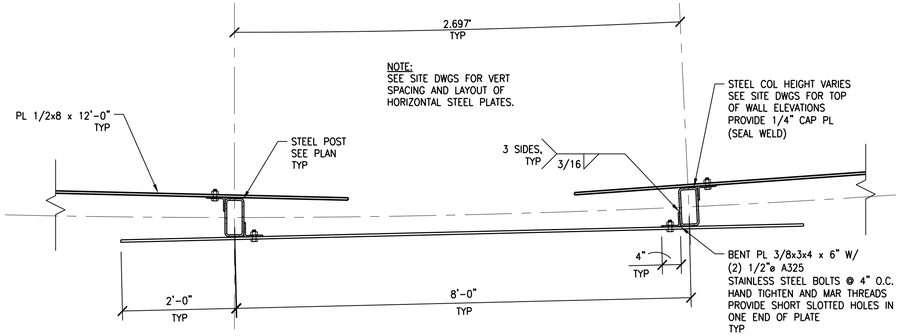
NOTES:

1. GROUT SHALL BE 5,000 P.S.I. NON-SHRINK, NON-METALLIC GROUT.
2. LEVELING SHIM, PLATE, AND GROUT MAY BE SUBSTITUTED FOR LEVELING NUT AT CONTRACTOR'S OPTION.
3. ANCHOR RODS SHALL BE ASTM F1554 ROD WITH NUTS AND WASHERS AS SHOWN. WELD BOTTOM NUT AND PLATE WASHER TO ANCHOR ROD PRIOR TO PLACING ROD. GALVANIZE ALL WASHERS/NUTS AND RODS OR PROVIDE STAINLESS STEEL (SEE PLAN FOR MATERIAL REQUIREMENTS).
4. HOLES IN BASE PLATES SHALL BE 5/16" OVERSIZE UNLESS NOTED OTHERWISE.

STEEL COLUMN BASE PLATE DETAIL

NOT TO SCALE

B S4.1



EXTERIOR STEEL SCREEN WALL NOTES:

1. ALL EXPOSED STEEL SHALL MEET THE REQUIREMENTS OF AISC ARCHITECTURALLY EXPOSED STEEL (AESS) SPECIFICATIONS.
2. BEVEL/EASE ALL EDGES AND CORNERS OF PLATES.
3. REMOVE ALL ERECTION BOLTS AND PLATES AND GRIND WELDS SMOOTH. FILL ANY HOLES AND GRIND SMOOTH.
4. ALL STEEL COMPONENTS (EXCEPT FASTENERS) TO BE PLAIN ASTM A588 (WEATHERING STEEL). ALL FASTENERS INCLUDING ANCHOR RODS USED IN CONNECTIONS TO WEATHERING STEEL SHALL BE STAINLESS STEEL. PROVIDE WELDS COMPATIBLE WITH BASE MATERIAL. (PRICING OPTION #1)
5. ALL STEEL COMPONENTS SHALL BE PRIMED WITH ZINC RICH PRIMER. SEE SPECIFICATIONS. (PRICING OPTION #2)

ENLARGED SCREEN WALL FRAMING PLAN

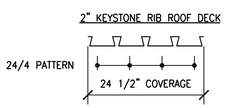
3/4"=1'-0"

E S4.1

FASTEN STEEL ROOF DECK AS INDICATED BELOW FOR EACH DIAPHRAGM.

A. FASTEN DECK UNITS AT ENDS AND AT INTERMEDIATE SUPPORTS WITH FASTENERS AS NOTED IN SCHEDULE ACCORDING TO FOLLOWING PATTERNS.

2" KEYSTONE RIB ROOF DECK



DIAPHRAGM ZONE	DECK TYPE	PANEL ENDS AND INTERMEDIATE SUPPORTS	DECK SIDE LAPS
ALL	2.0KR	#12 TEK SCREW @ 24/4 PATTERN	#12 TEK SCREW @ 24" O.C. MAX

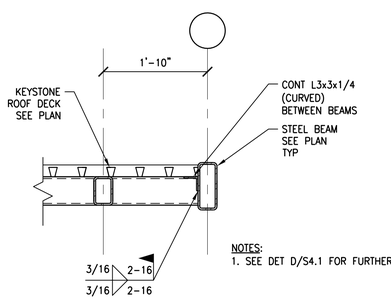
B. FASTEN DECK SIDE LAPS, INCLUDING DECK TO CLOSURE PLATES, WITH #10 SELF DRILLING SCREWS AS NOTED IN SCHEDULE.

C. FASTEN DECK PERIMETER SIDE EDGES (PARALLEL TO DECK SPAN), INCLUDING CLOSURE PLATES, TO STEEL SUPPORTS WITH #12 TEK SCREWS SPACED AT 12" ON CENTER.

STEEL FLOOR / ROOF DECK FASTENING SCHEDULE

NOT TO SCALE

C S4.1



NOTES:
1. SEE DET D/S4.1 FOR FURTHER INFORMATION.

SECTION

3/4"=1'-0"

F S4.1

BROWN + KUBICAN PSC
STRUCTURAL ENGINEERS
2224 Young Drive
Lexington, KY 40505
Phone: 859-543-0935
Fax: 859-543-0733

DATE | REVISION DESCRIPTION

FRAMING SECTIONS

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CANE RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

JOB: | DATE: APRIL 6, 2016 | DRAWN: MWW | CHECKED: BSM
SHEET: S-4.1 | Scale: AS NOTED

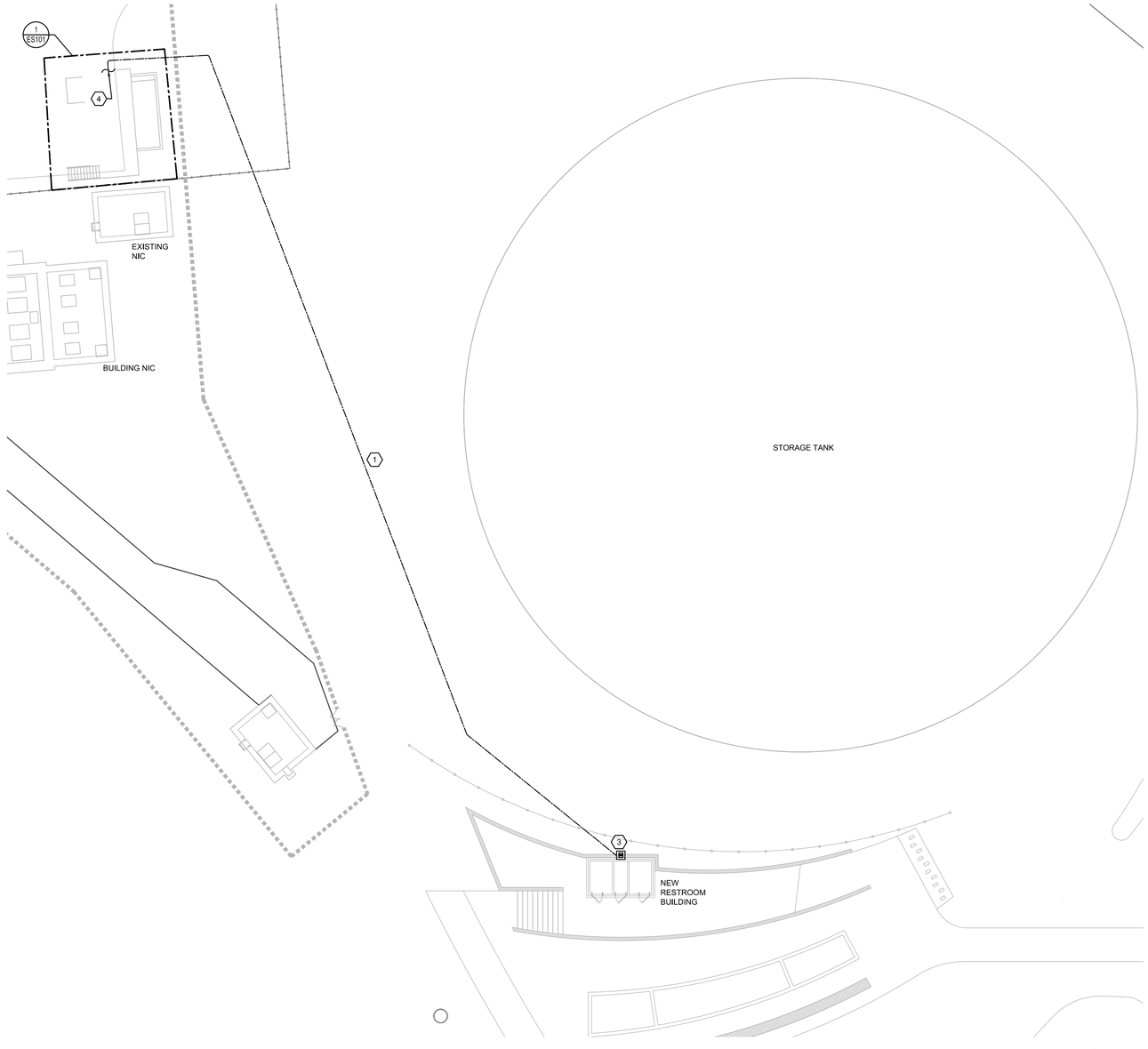
BIM ELEMENT DESIGN 19.2.01
PLOT DATE: 5 April 2016 - 10:16 AM

GENERAL NOTES

A. THE RESTROOM IS PRE-FABRICATED. THE SCOPE OF THIS PROJECT IS TO PROVIDE SERVICE CONNECTIONS ONLY.

KEYED NOTES

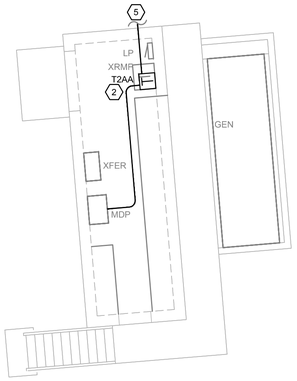
1. NEW UNDERGROUND FEED FOR RESTROOM. COORDINATE EXACT ROUTING IN FIELD AND LOCATION OF ANY PULL BOXES IN FIELD.
2. MOUNT NEW TRANSFORMER ON WALL ABOVE EXISTING TRANSFORMER. COORDINATE WALL MOUNTING WITH TRANSFORMER MANUFACTURER.
3. PROVIDE NEMA 3R CIRCUIT BREAKER ON EXTERIOR OF BUILDING TO FEED 100A, 120/240V, 1P PANEL "RR" IS PROVIDED WITH RESTROOM.
4. REFER TO ENLARGED STORAGE BUILDING ON THIS SHEET FOR CONTINUATION.
5. REFER TO SIRE ELECTRICAL PLAN ON THIS SHEET FOR CONTINUATION.



SITE ELECTRIC PLAN

SCALE 1" = 20'-0"

0 10 20 40 60 N



1 / ES101 ENLARGED STORAGE BUILDING

SCALE 1/8" = 1'-0"

0 10 N

STATE OF KENTUCKY
STEPHEN N. FEDERLE
27329
LICENSED
PROFESSIONAL ENGINEER
4-5-16

DATE	REVISION DESCRIPTION
3/10/2016	95% Owner Review Documents
3/30/2016	Final Owner Review Documents
4/06/2016	Proposal Request

SITE ELECTRIC

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE

LFUCG BID No. _____ ; RMP ID No. _____

KLH ENGINEERS
333 EAST MAIN ST. SUITE 175 FORT THOMAS, KENTUCKY
LEXINGTON, KENTUCKY 40507 COLUMBUS, OHIO
800-354-9783 NEW YORK, NEW YORK
859-410-2575
859-410-2576 FAX

JOB: 18007	DATE: APRIL 6, 2016	DRAWN: JLF
SHEET: ES101	Scale: AS NOTED	CHECKED: BCL

J:\LEX\Jobs\18000-18999\18000-18099\18007\18007.00ES101.dwg — Apr 06, 2016 8:37am — jflora

SINGLE LINE FEEDER SCHEDULE

50-3C	(3)#6 AWG CU & (1)#10 AWG CU GND. IN 1" CONDUIT
T100-3C	(3)#1 CU, (1)#6 CU GND IN 1-1/2" CONDUIT
100-3C	(3)#1 AWG CU & (1)#8 AWG CU GND. IN 1-1/2" CONDUIT
175-3C	(3)#2/0 AWG CU & (1)#6 AWG CU GND. IN 2" CONDUIT

FEEDER SCHEDULE GENERAL NOTES

- FEEDERS DENOTED BY A "*" HAVE BEEN OVERSIZED TO COMPENSATE FOR VOLTAGE DROP.
- "CU" = COPPER CONDUCTOR
- "AL" = ALUMINUM CONDUCTOR
- ALL CONDUCTOR AND CONDUIT SIZES SHOWN ARE MINIMUM REQUIREMENTS. INCREASE SIZES AS NEEDED TO ACCOMMODATE VOLTAGE DROP, DE-RATING, SITE CONDITIONS, AND MEANS AND METHODS USED FOR INSTALLATION OF FEEDERS.

MDP

ROOM

MOUNTING REFER TO SINGLE-LINE DIAGRAM

FED FROM UTILITY

NOTE

VOLTS 480Y/277V 3P 4W

BUS AMPS REFER TO SINGLE-LINE DIAGRAM

NEUTRAL 100%

AIC REFER TO SINGLE-LINE DIAGRAM

MAIN BKR REFER TO SINGLE-LINE DIAGRAM

LUGS STANDARD

CKT #	CIRCUIT DESCRIPTION	KVA LOAD A	B	C	BREAKER TRIP/POLES
1	(EX) MCG-101	0.333	0.333	0.333	SEE SINGLE-LINE
2	(EX) MCG-102	0.333	0.333	0.333	SEE SINGLE-LINE
3	(EX) FP-100	2.17	2.17	2.17	SEE SINGLE-LINE
4	(EX) MCV-400	0.333	0.333	0.333	SEE SINGLE-LINE
5	(EX) AC-1	4.44	4.44	4.44	SEE SINGLE-LINE
6	(EX) PUMP 1	49.6	49.6	49.6	SEE SINGLE-LINE
7	(EX) PUMP 2	49.6	49.6	49.6	SEE SINGLE-LINE
8	(EX) PUMP 3	49.6	49.6	49.6	SEE SINGLE-LINE
9	(EX) PUMP 4	49.6	49.6	49.6	SEE SINGLE-LINE
10	(EX) XRMF LP	7.72	7.72	7.72	SEE SINGLE-LINE
11	(EX) LCP-251	2.11	2.11	2.11	SEE SINGLE-LINE
12	(EX) PP	1	1	1	SEE SINGLE-LINE
13	XFMR T2AA	7.3	6.76		SEE SINGLE-LINE
14	SPARE	0	0	0	SEE SINGLE-LINE
15	SPARE	0	0	0	SEE SINGLE-LINE
	TOTAL CONNECTED KVA BY PHASE	224	224	217	

	CONN. KVA	CALC. KVA			CONN. KVA	CALC. KVA	
LIGHTING	0.715	0.894	(125%)	CONTINUOUS	0	0	(125%)
LARGEST MOTOR	149	186	(125%)	HEATING	5.5	5.5	(100%)
OTHER MOTORS	498	498	(100%)	NONCONTINUOUS	6.54	6.54	(100%)
RECEPTACLES	4.2	4.2	(50%>10)	KITCHEN EQUIP	0	0	(N/A)
COOLING	1	0	(0%)	NONCOIN/DIVERSE	0	0	(N/A)
				TOTAL KVA	665	701	

BALANCED THREE PHASE AMPS 843

THE POST CONSTRUCTION LOAD AMPS IS LESS THAT THE MAIN OVERCURRENT PROTECTION OF THE EXISTING SERVICE. THE EXISTING SERVICE MAY REMAIN

POWER DISTRIBUTION CONDUCTOR KEY

U250-4AI*

- FEEDER SIZED TO COMPENSATE FOR VOLTAGE DROP
- SPECIAL: ISOLATED GROUND (I)*
- CONDUCTOR MATERIAL: C=COPPER, A=ALUMINUM
- TOTAL NUMBER OF PHASE AND GROUNDED ("NEUTRAL") CONDUCTORS
- CONDUCTOR AMPACITY
- U = EQUIPMENT GROUNDING CONDUCTOR REMOVED FOR SERVICE ENTRANCE FROM UTILITY (U).
- P = PROVIDE PARITY-SIZED EQUIPMENT GROUNDING CONDUCTOR.
- X = EXISTING FEEDER TO REMAIN UNLESS OTHERWISE NOTED.
- D = DISCONNECT AND REMOVE EXISTING FEEDER BACK TO SOURCE.

* PROVIDE CONTINUOUS INSULATED ISOLATED EQUIPMENT GROUNDING CONDUCTOR(S) FROM INSULATED ISOLATED GROUND BAR(S) TO RESPECTIVE UPSTREAM SERVICE ENTRANCE OR DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR AS APPLICABLE.

DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR SCHEDULE

TRANSFORMER kVA	GROUNDING ELECTRODE CONDUCTOR SIZE
15	#4 CU
25	#4 CU
30	#4 CU
45	#4 CU
75	#2 CU
112.5	#1/0 CU
150	#2/0 CU
200	#3/0 CU
225	#3/0 CU
300	#3/0 CU
400	#3/0 CU
500	#3/0 CU

NOTE: PROVIDE GREEN-COLORED INSULATED CONDUCTOR(S), OR EQUIVALENT GREEN-COLORED IDENTIFICATION TO THE EXTENT COMPLIANT WITH ARTICLE 250 OF NFPA 70.

GENERAL ELECTRICAL INSTALLATION NOTES

A. EXTERIOR ELECTRICAL WORK SHALL NOT ONLY BE WEATHERPROOF AND WATER-TIGHT, BUT SHALL ALSO BE RUST-RESISTANT.

B. PROVIDE XHHW-2 CONDUCTORS FOR ALL APPLICATIONS THAT ARE BELOW GRADE OR SUBJECT TO MOISTURE.

C. UNLESS INDICATED OTHERWISE, PROVIDE FULLY-RATED OR SERIES-RATED OVERCURRENT PROTECTION (OCP) AS REQUIRED TO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 70. PROVIDE EQUIPMENT AND OCP RATED TO MEET OR EXCEED THE CALCULATED AVAILABLE SERIES-RATED FAULT CURRENT AT THE RESPECTIVE NODE IN THE POWER DISTRIBUTION SYSTEM. FURNISH ELECTRONIC COPIES OF THE ELECTRICAL DOCUMENTS TO THE MANUFACTURER'S REPRESENTATIVE AND/OR EQUIPMENT SUPPLIER SO THAT PROPERLY RATED AND BRACED EQUIPMENT IS PROVIDED UNDER BASE BID.

D. PROVIDE GROUNDING ELECTRODE CONDUCTORS IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.66. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.

E. PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.122. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.

F. LOCATIONS AND ROUTING INDICATED ON PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. LAYOUT AND INSTALL ALL ELECTRICAL WORK IN STRICT COMPLIANCE WITH CHAPTER 1, PART II, ARTICLE 110.26 OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70).

G. HOLD ALL NEW OVERHEAD ELECTRICAL WORK AS TIGHTLY AS POSSIBLE TO THE BOTTOM OF THE OVERHEAD STRUCTURE. DO NOT INSTALL ANY ELECTRICAL WORK WITHIN SIX INCHES OF ROOF DECKING.

H. LAYOUT ALL PROPOSED RACEWAY ROUTING, ELEVATIONS, INSTALLATION METHODS, ETC. ON COORDINATION DRAWINGS AND COORDINATE ALL PROPOSED RACEWAY ROUTING WITH ALL AFFECTED TRADES PRIOR TO COMMENCING WITH WORK. IN ADDITION, REVIEW THE INFORMATION WITH ARCHITECT, ENGINEER AND OWNER FOR ALL AREAS WHERE THE RACEWAYS WILL BE VISIBLE AFTER COMPLETION OF CONSTRUCTION.

I. REFER TO AND COORDINATE WITH POWER FLOOR PLANS, EQUIPMENT SCHEDULE DRAWINGS OF ALL TRADES, ALL DIVISIONS AND SECTIONS OF SPECIFICATIONS AND INSTALLERS OF ALL TRADES. BASED ON ACTUAL EQUIPMENT BEING PROVIDED, DETERMINE AND PROVIDE APPROPRIATE BREAKERS, FUSES, CONDUCTORS, CONTROLS, POWER DISTRIBUTION EQUIPMENT, ETC. PERFORM THESE SERVICES PRIOR TO FURNISHING POWER DISTRIBUTION EQUIPMENT SUBMITTALS.

J. REFER TO DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR SCHEDULE FOR MINIMUM GROUNDING ELECTRODE CONDUCTOR SIZES.

K. LOCATE JUNCTION AND PULL BOXES SO THAT THEY REMAIN ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF THE WORK.

L. UNLESS INDICATED OTHERWISE, PROVIDE NEMA 3R ENCLOSURES FOR ALL OUTDOOR EQUIPMENT AND ALL INDOOR EQUIPMENT THAT IS SUBJECT TO MOISTURE. PROVIDE NEMA 1 ENCLOSURES FOR ALL OTHER INDOOR EQUIPMENT.

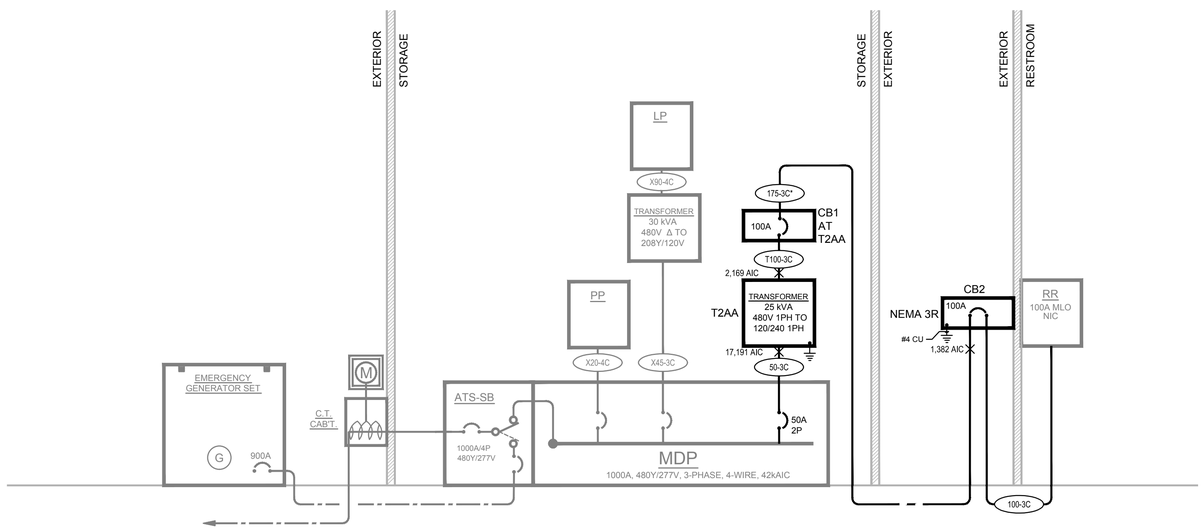
M. IN ADDITION TO PANEL LABELING REQUIRED WITHIN THE SPECIFICATIONS, EACH PANEL SHALL ALSO BE LABELED WITH ITS CORRESPONDING MAXIMUM AIC (AVAILABLE INRUSH CURRENT) AS INDICATED NEXT TO EACH PANEL ON THIS PLAN PER NEC REQUIREMENTS.

N. PROVIDE LUGS, LUG KITS AND RELATED ACCESSORY WORK AS REQUIRED TO ACCOMMODATE THE CONDUCTOR SIZES AND QUANTITIES NEEDED FOR EACH APPLICATION. COORDINATE WITH SINGLE-LINE DIAGRAM, FIELD CONDITIONS, ETC.

O. PROVIDE NEW BRANCH CIRCUIT BREAKERS, TO MATCH EXISTING IN MANUFACTURER, MODEL AND AIC RATING, AS REQUIRED TO RENDER ALL NEW AND MODIFIED ELECTRICAL WORK FULLY OPERATIONAL.

P. UNLESS LOCATED IN THE SAME ROOM WITHIN 25 FEET OF THE SOURCE OF PRIMARY POWER AND WITHIN SIGHT OF SAME, PROVIDE LOCAL PRIMARY DISCONNECT SWITCH FOR EACH TRANSFORMER. PROVIDE FUSED DISCONNECT SWITCH FOR APPLICATIONS WHERE A TAP RULE IS BEING APPLIED, OTHERWISE THE DISCONNECT SWITCH MAY BE NON-FUSED.

Q. PROTECT EXISTING ELECTRICAL WORK SERVING EXISTING SPACES AND EQUIPMENT THAT MUST REMAIN OPERATIONAL DURING PART OR ALL OF THE CONSTRUCTION PERIOD, AND ENSURE POWER CONTINUITY IS MAINTAINED FOR SAME THROUGHOUT DURATION OF CONSTRUCTION ACTIVITIES. SEE SPECIFICATIONS FOR FURTHER INFORMATION.



STATE OF KENTUCKY
STEPHEN N. FEDERLE
27329
LICENSED
PROFESSIONAL ENGINEER
4-5-16

DATE	REVISION DESCRIPTION
3/10/2016	95% Owner Review Documents
3/30/2016	Final Owner Review Documents
4/06/2016	Proposal Request

Electrical Power - Single Line Diagram/ Details

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____ ; RMP ID No. _____

KLH ENGINEERS
339 EAST MAIN ST, SUITE 175, FORT THOMAS, KENTUCKY
LEXINGTON, KENTUCKY 40507 COLUMBUS, OHIO
800-354-9783 NEW YORK, NEW YORK
859-410-2575
859-410-2576 FAX

JOB: 18007 | DATE: APRIL 6, 2016 | DRAWN: JLF
SHEET: EP601 | Scale: AS NOTED | CHECKED: BCL

J:\LEXJobs\18000-18999\18000-18099\18007\18007.00EP601.dwg — Apr 06, 2016 8:37pm — jflora

DIVISION 26 - ELECTRICAL SPECIFICATION

26 05 01.00 - COMMON REQUIREMENTS FOR ELECTRIC

General Requirements

The General Provisions of the Contract including the General and Supplemental Conditions and General Requirements apply to the work in this section. Before submitting a bid, examine documents of all other trades, visit the site and get acquainted with all conditions that may in any way affect the execution of this contract. Take measurements and be responsible for exact size and locations of all openings required for the installation of work. Figured dimensions are reasonably accurate and should govern in setting out work. Where detailed method of installation is not indicated or where variations exist between described work and approved practice, direction of the Owners representative on job site shall be followed.

Whenever the words "contractor", "this contractor", etc. appear on drawings or in these specifications for the Electrical Work, it shall refer to the Electrical Sub-Contractor. Whenever the word "Provide" appears in these documents, it shall be interpreted to mean "Furnish and Install". Whenever the word "Relocate" appears in these documents, it shall be interpreted to disconnect electrical feed, make safe including lock out, store and protect device, reinstall, rework and extend conduit and wire to new location, re-energize and test.

The exact mounting height of devices shall be determined in the field with relation to architectural details and equipment being served. It shall be the responsibility of this contractor to coordinate outlet location with equipment. The Owners representative shall be permitted to relocate any outlet prior to installation within a 15 foot limit at no additional charge in contract price. All fasteners, hangers and methods of hanging exposed work in finished areas shall be submitted to the Owners representative for approval before installation.

The contract includes all items of material and labor required for the complete installation and full operation of the electrical work as shown on the drawings and hereinafter specified. All materials and methods shall be in accordance with applicable codes, regulations and/or ordinances and meet the approval of local inspection authority having jurisdiction. The latest edition of NFPA 70 shall be the minimum requirement for all work. Examine the drawings and specifications for compliance with the above codes, regulations and ordinances and base bid and work accordingly. Obtain and pay for all permits and inspections related to this work. A certificate of approval for work from inspection authority shall be given to the Owner before final acceptance will be given by Owners representative.

All work, materials, and equipment shall have a one year warranty after acceptance of the work by the Owner. Any defective items shall be removed and replaced at the electrical sub-contractors expense and to the satisfaction of the engineer and owner's representative.

Perform work under this contract in close harmony with other contractors so completed work shall present a neat and workmanlike installation. Exposed finished materials and equipment shall be carefully cleaned and wiped to remove grease, smudges, fingerprints, dust and other spots and left smooth and clean. During the progress of the work, the electrical sub-contractor shall carefully clean the job site and shall leave the premises and all portions of the building in which he is working free of debris and in a clean and safe condition.

This contractor shall be responsible for the training of owner's representatives of each system to the satisfaction of the Owners representative.

The Electrical Contractor shall consult the Plumbing, HVAC and Structural plans (where applicable) in all instances before installing his work so that his work will not interfere with those branches. In the event of a conflict, this contractor shall report to the Owners representative at once and do no further work to be installed until a satisfactory arrangement is decided upon. Any work done, or equipment placed in position by this contractor, creating a conflict in violation hereof, shall be readjusted to the satisfaction of the Owner's representative at the expense of the contractor. The decision of the Owners representative shall be final in regard to changes due to conflicting conditions. Contractor shall complete his work or any part thereof at such time as may be designated by the Owner, so that it can be used for temporary or permanent use and such use of the system shall not be construed as an acceptance of same by Owner.

Record Drawings and Operating Instructions and Service Manual

Two sets of electrical drawings shall be provided as record drawings which shall be separate, clean, copies reserved for the purpose of showing a complete picture of the work as actually installed. These drawings shall also serve as work progress report sheets and the electrical contractor shall make any notations, neat and legible thereon daily as work proceeds. The drawings shall be available for inspection at all times and shall be kept at the job at a location designated by the Owners representative. At the completion of the work, these record drawings shall be signed by the electrical contractor, dated and returned to the Owners representative. Final payment of contract will not be made until receipt and review of said drawings.

Provide two neatly bound (with tabbed sections) copies of maintenance books, instruction books and parts list pertaining to all equipment furnished. Submit to the Owners representative for approval. Final payment will not be made until drawings for record, maintenance and instruction manuals are delivered to the Owners representative.

26 05 02.00 - COMMON ELECTRICAL MATERIALS AND METHODS

All materials and equipment shall be new. All materials, apparatus and equipment shall bear the seal of Underwriters Laboratories Inc. (UL), or a similar credible testing agency, label where regularly supplied. Certain manufacturers of material and equipment are specified and plans are detailed according to this material. This contractor shall base his bid on furnishing and installing this make of material and equipment.

Where more than one make of material or equipment is specified, the contractor shall state in his bid which make he proposes to furnish. Shop drawings shall be submitted on material and equipment to be furnished by the contractor for Engineers approval. This approval to be obtained prior to shipment of equipment.

Hold routing of new raceways in new and existing buildings as tightly as possible to the structure above. Obtain approval of owner's representative prior to installation. Do not install any electrical work within 6 inches of roof decking.

Neatly dress all work. Install all work parallel and perpendicular to surfaces or exposed structural members, and follow surface contours, where possible. Keep conductor splices to minimum. Install splice and tap connectors which possess equivalent or better mechanical strength and insulation rating than conductors being spliced. Use splice and tap connectors which are compatible with conductor material. All wires shall be run continuous from outlet to outlet/luminaire to luminaire. Insulation value of joints shall be 100% in excess of wire. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors no larger than 10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.

Maintain a uniform elevation for all cable runs wherever possible. All cables shall be supported/anchored at maximum 4 foot intervals and within 12" of box or outlet and shall not sag. Install cables in a manner that prevents overheating. Cables shall be fastened directly to the structure using factory clamps/clips specifically designed for the respective cable (Caddy or equal).

Keep conductor splices to minimum. Pull conductors simultaneously where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, where necessary. Increase wire sizes per NFPA 70 to offset voltage drop as/if required.

Branch subfeeder circuits shall be installed as shown on the floor plans. Where outlets are indicated by letters on plans, they shall be controlled by corresponding switches.

Mechanical wire splicers shall be Scotchlock insulated type, TandB Stakon or approved equal. The conductors terminating at each wired outlet shall be left not less than 8" long at their outlet fittings to facilitate installment of devices or luminaires. Friction and rubber tape conform to Federal Specifications HH-T-11 and HH-T-111. Plastic electrical tape shall be Scotch #33+ or approved equal.

Provide grounding electrode conductors per NFPA 70 for service entrances and derived systems.

Provide all feeders and branch circuits with insulated (green covering) equipment grounding conductors per NFPA 70.

Maintain a uniform elevation for all cable runs wherever possible. All cables shall be supported/anchored at maximum 4 foot intervals and within 12" of box or outlet and shall not sag.
Install cables in a manner that prevents overheating. Cables shall be fastened directly to the structure using factory clamps/clips specifically designed for the respective cable (Caddy or equal).

Only where installed for normal utility circuits; all wiring for emergency system feeders and receptacle branch circuits shall be in conduit (EMT), no exceptions.

This contractor shall provide all cutting and patching required for the admission of his work. Any damage done by this contractor to the building during the progress of his work shall be made good at his own expense. All patching shall be done by a skilled craftsman in that respective trade. It shall be the responsibility of this contractor to supervise the installation of, and pay for all additional members, wood or metal and labor which may be required to support any type of permanent or temporary electrical apparatus employed in the execution of this contractors work.

Seal all new floor, ceiling, wall, slab, etc. penetrations to match or exceed existing assembly fire ratings. Provide sleeve seals for all sleeves, provide sleeves for all penetrations. All penetrations of fire-rated or smoke-rated wall, floors ceilings, etc. shall be sealed immediately after raceways are installed. All new electrically related work shall be supported directly from building structural members. New electrically related work shall not be supported from ductwork, ductwork hanger, ceiling supports, existing conduit support, etc.

26 05 03.00 - SUBMITTALS FOR ELECTRICAL SYSTEMS

General

Provide submittals in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

Some Divisions may include a division-specific "Submittal Requirements for ...." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.
The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

Submittal Requirements

Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings. Separate PDF file packages shall be supplied for each section, for each submittal type. Each PDF shall represent a single standalone submittal.

Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration.

Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal. An editable and printable PDF form created with editable fields and specification compliant appearance is available from KLH upon request. It is also downloadable from the KLH website at www.klhengrs.com.

Include an index: The index shall enumerate the contents of the submittal.

Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal. Supply complete submittals: Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 - Original submission, 01 - First Resubmission, 02 - Second Resubmission, etc…). Resubmittals shall include a copy of the reviewers comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.

Name electronic files to match the submittal ID and cover sheet: The electronic file name of submittals shall match the submittal ID included on the submittals cover page. For example: The original/first product data submittal for Section 260519 would be labeled as "260519.00-PD-00"; the first resubmittal of same shall be labeled "260519.00-PD-01". The original/first shop drawings submittal file for the same section would be labeled "260519.00-SD-00"; the first resubmittal of same shall be labeled "260519.00-SD-01".

Use of Electronic Drawings from the Owner's Design Team

Plan drawings for the project were created with AutoCAD.

If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG or similar non-editable electronic form, at the sole discretion of the Design Professional.

The Request Drawings form can be accessed, filled out and submitted at the following internet address (scroll down to bottom of home page): http://www.klhengrs.com.

26 05 05.00 - EXISTING CONDITIONS

General Requirements

Perform a detailed pre-bid walk-through field inspection to review the existing structures and premises, to determine existing conditions, and to determine scope of required electrically related work. Include applicable accessible ceiling cavity areas in this inspection.

It is not the intent of this section, or of drawings, that existing conditions be accurately shown. Existing electrical work is shown to a very limited extent on drawings and is shown for general planning reference only. Locations and information were derived from cursory visual observations or from portions of documents that were prepared for previously installed work (not from record drawings or "as-builts").

Do not reuse removed electrical materials unless specifically indicated in project manual or on drawings. Existing wiring systems may be utilized only to the extent indicated in project manual, or on drawings, or as directed by Owner's representative in field.

Determine which existing branch circuits must remain active. Reconnect (or maintain in operation where applicable) and schedule them. Completely re-type panelboard directories for panelboards affected by this project using accurate "as-built" information. Where applicable ensure that reconnected shared neutrals are properly balanced with the correct phase conductors. Where applicable, provide correct color-coding for insulation of reconnected conductors in a manner compliant with NFPA 70.

If required to accommodate construction related activities temporarily remove, store in protected location on site, and reinstall conflicting electrical equipment, luminaires, or devices that are to remain or to be relocated.

The following applies to electrical materials that will remain or be reused under this project: Protect during construction activities; Clean and re-lamp luminaires immediately prior to occupancy of the finished construction area; Clean and service (if service is required) equipment in the construction area immediately prior to occupancy of the area.

Maintain existing electrical service and feeders to occupied areas and operational facilities, unless otherwise indicated, or when authorized otherwise in writing by owner's representative. Provide temporary service during interruptions to existing facilities. Schedule momentary outages when necessary for replacing existing wiring systems with new wiring systems. When that "cutting-over" has been successfully accomplished, remove related wiring that has been abandoned.

Carefully coordinate work and system shutdowns in advance with owner's representative, and with affected trades so that normal building activities and other construction trades are minimally affected. Perform electrically related construction work, which will affect an occupied area (including those which are located outside the immediate area of project work) at special times as directed by owner's representative in field.

Provide work in a manner that ensures existing systems and components remain fully operational in occupied spaces during occupied periods.

Provide and maintain temporary partitions and dust barriers adequate to prevent the spread of dust and dirt to adjacent finished areas and other system components. Protect adjacent installations during cutting and patching operations. Remove protection and barriers after demolition operations are complete.

Inspect existing electrical work in areas accessed under this project and bring into compliance with current NFPA 70. This applies only to the extent that such work is uncovered in the immediate project areas affected by construction activities, and only to the limited extent that it applies to pre-existing general installation methods such as missing junction box plate, open junction box knockout, minor conduit re-anchoring and minor exposed wiring/connections. If more extensive code or safety violations are discovered, immediately bring them to the attention of the Owner's representative (detailed in writing) along with proposed cost for corrections and impact (if any) on the construction schedule.

Power Continuity Requirements

The following notes broadly define some of the specialty base bid scope of work required to provide special temporary power for new and existing facilities to accommodate utility power interruptions. Field verify all specifics and provide materials, normal time labor, premium time labor, services, etc. for all work under base bid, including but not limited to the following.

Minimize risks to individuals and property throughout the duration of the project. Keep full electrical services online during all periods of time that any affected facility is occupied. Coordinate with and obtain approval from the owner and engineer for all materials, methods, steps, locations, installations, etc. prior to commencement of work. Determine and employ means and methods as required to safely and securely implement all related work.

During construction related electrical outages, switchovers, disconnections, reconnections, etc. provide all temporary insulated conductors, taps, jumpers, etc. to and from existing and new or temporary electrical equipment, including but not limited to, conductors, splices, lug fittings, rework, premium time, security and safety measures, etc.

Schedule all outages in advance with owner, at days of week and times of day or night as directed by owner, as necessary to accommodate all construction related electrical outages, switchovers and related connections and disconnections.

Interim Air Quality (IAQ) Work

Prevent airborne dust and particulate matter resulting from electrical work from entering occupied spaces, and from entering air intakes to operating HVAC systems.

Make required electrical openings through walls and floors immediately prior to installation of work.

Properly and permanently seal electrical openings immediately after installation of work. Provide temporary seals for applications where penetrations are made but cannot be permanently sealed within four hours.
Meet with HVAC installer to determine special IAQ requirements related to electrical that may apply to this project. Cooperate fully with HVAC IAQ requirements that affect electrical work and are affected by electrical work.

26 05 19.00 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

General

Furnish and install all necessary cable of the size and type indicated on the drawings or specified hereinafter. All wire shall be copper. All wiring shall be new. No wire smaller than #12 AWG shall be installed unless specifically designated. Use of #14 color coded wire will be allowed for control circuits only. Provide stranded conductors for all sizes unless indicated otherwise.

Provide THHN/THWN-2 insulation for all conductors as appropriate for the locations where installed. Provide color coded insulation/jacket for phase identification. All wires shall be rated at 600 volts. Provide type XHHW-2 insulation for all wiring below grade or subject to moisture.

Provide the following minimum AWG conductor sizes for general branch circuiting grounds that are not indicated on drawings, based on using copper conductors. Where applicable increase as required to accommodate voltage drop and to accommodate special conditions. Do not derate any grounded (neutral) conductors. Temperature ratings listed below pertain to both wire and terminations.

Source Breaker/Fuse	60 Deg. C Rating AWG Wire Size	Equipment Grounding AWG Wire Size
15 Ampere	#12	#12
20 Ampere	#12	#12
25 Ampere	#10	#10
30 Ampere	#10	#10
35 Ampere	# 8	#10
40 Ampere	# 8	#10
45 Ampere	# 6	#10
50 Ampere	# 6	#10
60 Ampere	# 4	#10
70 Ampere	# 4	#8
80 Ampere	# 3	#8
90 Ampere	# 2	#8
100 Ampere	# 1	#8

All conductors shall be rated for 90 deg. C. minimum. Provide with full parity sized green insulated equipment ground conductor. Provide compatible steel fittings with integral red plastic insulated throat bushings, compliant with NFPA 70, article 330. Cables shall be 90 deg. C. rated with all components and fittings listed for grounding and compliant with the following.

UL Std.4 and UL Std. 83.
ANSI E119 and E814.
NFPA 70, Articles 250 and 330.

26 05 26.00 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

All metallic conduit, surface raceways, wireways, supports, cabinet and equipment shall be grounded in accordance with the latest issue of the NFPA 70.

26 05 29.00 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

Conduit shall be supported by approved straps, fasteners and hangers. Hangers shall be suspended from rods. Perforated straps will not be acceptable. Fasteners shall be lead expansion shields in block or concrete, toggle bolts in hollow walls, machine screws on metal surfaces and wood screws on wood construction. All conduit shall be supported independently from all other building systems and shall be supported directly from structural components. At building expansion joints and where deflection is expected, conduits shall be provided with expansion fittings with bonding jumpers. Conduits passing through structural members shall be provided with stub and coupling or sleeve in the member. Where moisture conditions are encountered, a hole shall be drilled at the lowest point in the conduit run. Also provide sleeves for all fire wall and smoke partition penetrations (sealed accordingly).

26 05 33.00 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

Raceways

Normal system power feeders and branch circuits shall be installed in separate raceways from emergency system power.

All wiring for different power voltages shall be installed in raceway systems separate from each other.

All wiring for the various electrical systems shall be installed in raceway systems separate from each other.

All conduit installed indoors shall be galvanized steel EMT (3/4" minimum); all fittings shall be set-screw or compression type steel, with insulated throats. Unless indicated otherwise on drawings or in other parts of the electrical specifications, all wiring of all systems shall be installed in conduit. Conduit fill shall not exceed NFPA 70 requirements.

Conduit shall be cleaned inside before any wires are pulled. Conduit ends shall be capped and plugged with standard accessories as soon as conduit has been permanently installed. Conduit installed without conductors shall be provided with sweep bends and baling wire for pulling.

All joints shall be made tight with watertight couplings matching conduit and all corners shall be made with long radius elbows. The ends of all conduits shall be cut square and reamed and all joints brought to a shoulder. Conduit shall be continuous between outlets to make a complete installation and to provide a continuous ground. Suitable supports and fastening shall be provided for conduit.

All raceways shall be entirely free of plaster, mortar, water and other foreign matter.

Junction and Switchboxes

All switch and junction boxes shall be made of code galvanized steel complete with rings and screw cover plates and located where shown and noted on drawings. Where conduit is concealed, boxes shall not be less than 4" square x 1-1/2" deep. All boxes shall be equipped with proper covers to bring flush with finished wall surface.

Where boxes occur in block, cinder, or concrete block, facing tile or other material where such materials form the finished wall surface, the opening for the box shall be cut neatly and of the size that the cover plate will cover all parts of the opening. Condulets shall be used on exposed raceways. In general, junction boxes shall be furnished and required by NFPA 70, of the proper sizes, and shall be constructed of #12 gauge steel with removable front fastened on with counter sunk head screws or other approved means. For special application, junction boxes shall be noted, detailed and/or sized on the drawings or in the field as required.

26 05 43.00 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

SITE INFORMATION

Subsurface conditions may have been investigated during the design of the project. If so, review reports of these investigations. Follow recommendations of these reports.

PROTECTION OF OPEN EXCAVATIONS

Protect excavated openings with substantial railings, fencing, signage, shoring, and steel roadway plates in strict compliance with OSHA/NIOSH, with local Department of Transportation (DOT) standards, with authorities having jurisdiction, and as directed by owner's representative in field.

Provide traffic detours per DOT standards during active construction work shift time periods. Provide related barricades, signage, portable flashing lights, etc. (per DOT standards) at specific locations as determined in field.

Provide steel roadway plates, properly installed and anchored per DOT standards, over roadway cuts during inactive periods (i.e. between construction work shifts, while concrete is curing, and while flowable backfill is curing).

Finish work affecting the roadways, and restore/pave roadway cuts, as quickly as possible after starting those segments of work. Carefully coordinate scheduling for roadway related work to allow adequate time for inspections and curing, while keeping overall related time to a minimum.

PROJECT CONDITIONS

Existing Utilities: Locate existing underground utilities in excavation areas, which are to remain. Support and protect these services during excavation operations.

Uncharted or Incorrectly Charted Utilities: Contact utility owner immediately for instructions.

Provide temporary utility services to affected areas. Give owner's representative minimum 48-hour notice prior to utility interruption.

MISCELLANEOUS MATERIALS

Use excavated or borrowed material for backfill. Prior to backfilling, remove rock and gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetable matter, and other deleterious matter.
Use gravel or stone where so specified on details on drawings, or otherwise included in specifications.

Provide premixed, factory-packaged, non-staining, non-corrosive, nongaseous grout, recommended for interior and exterior applications.

Subbase refers to the compacted layer used in pavement systems between the subgrade and the pavement base course material. Provide subbase consisting of graded mixture of crushed gravel, crushed stone, crushed slag, or sand.

CONTROLLED LOW STRENGTH MATERIAL (CLSM - "FLOWABLE BACKFILL")

Controlled-Low-Strength-Material (CLSM) is a material that has a specified compressive strength of 1200 pounds per square inch (PSI) at 28 days. This material is not concrete and is in a flowable state at the time of placement.

Provide CLSM mixture consisting of water, Portland Cement (Type I or II conforming to ASTM C-150, Type "F" fly ash, and fine aggregate.

If fly ash is not used, provide CLSM using high dosages of an air entraining admixture to help flowability and lower strength for removability.
Non-standard materials may be used only after receiving special permission from owner's representative.
Provide water used in mixing and curing that is as clean and free of oil, salt, acid, alkali, sugar, vegetable, and other substances injurious to the finished product as possible. Test water in accordance with the requirements to AASHTO T 26. Water known to be of potable quality may be used without testing.

A. Use fine aggregates conforming to ASTM C 33 in CLSM.

Provide proportion of materials used in CLSM as follows:

1. Cement: 50-100 pounds (lbs) per cubic yard (cy)
2. Type "F", Fly Ash: 250-300 lbs/cy
3. Sand: 2700-2800 lbs/cy
4. Water: 400-500 lbs/cy

Other proportions may be used only after receiving special permission from owner's representative.
Conform to the following flowability test:

1. Fill a 3-inch diameter by 6-inch long open ended cylinder with the mixture, then strike off to level. Remove the cylinder by pulling straight up and ensure the diameter of the CLSM, after spreading, is a minimum of 8-inches.

Transport CLSM by mixer truck. Provide continuous agitation from mixing to placement.

Retain records of all mixes, tests, etc. and include in Operation and Maintenance Manuals. Submit copies during construction if requested.

INSTALLATION

Locate junction and pull boxes so they remain accessible after all construction work is complete. Coordinate all work with all other trades prior to commencement of the work.
Layout and install all electrical work in strict compliance with Chapter 1, Part B, Section 110.26 of the latest adopted edition of NFPA 70. Locations and routing that may be shown on plans are schematic and diagrammatic in nature.
Coordinate trench locations in reference to other underground utilities. Ensure no other utilities are placed directly above or below, when parallel to conduits.
Layout all proposed raceway routing, elevations, installation methods, etc. on coordination drawings and coordinate all proposed raceway routing with all affected trades prior to commencing with work. In addition review the information with Owner and design professionals for all areas where work will be visible after completion of construction, to ensure a neatly organized installation occurs.
Use of synthetic or plastic "tie-wraps", "zip ties", "wire ties" and similar products are not permitted as a permanent means of anchoring, securing, supporting or otherwise installing any cables, conductors, conduits, raceways, devices, equipment or other electrical work.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation operations.

Comply with codes in jurisdiction. Provide sloped sides, and shore and brace as required when trenching to achieve stability. Provide excavation and backfilling required for electrical work and consult with utilities prior to beginning excavation. Remove materials of every nature and description encountered in obtaining required lines and grades. Remove excess excavated earth materials from the site.

Properly restore streets, sidewalks, concrete and blacktop surfaces that were broken for installing piping.

Where subsidence occurs at electrical installation excavations during a period of 12 months after Substantial Completion, remove surface treatment (i.e., pavement, lawn, or other finish), add backfill material, compact to specified conditions, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent areas.

EXCAVATION

Establish requirements for trench shoring and bracing to comply with local codes and authorities. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Slope sides of excavations to comply with local codes and ordinances. Shore and brace as required for stability of excavation. Remove shoring and bracing when no longer required.
Install sediment and erosion control measures in accordance with local codes and ordinances.

Prevent surface water, subsurface water, and ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of bearing materials. Provide and maintain dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey surface water to collecting/run-off areas. Do not use trench excavations as temporary drainage ditches.

Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
Locate and retain soil materials away from edge of excavations. Do not store within drip-line of trees.
Remove from site, and legally dispose of, excess excavated materials and materials not acceptable for use as backfill or fill.

Excavate trenches to the uniform width, sufficiently wide to provide ample working room.
Excavate trenches to depth indicated or otherwise necessary to full project requirements.
All trench widths indicated on drawings are minimum required widths.

Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees Fahrenheit.

Place soil materials in layers to required elevations for each area classification listed below, using materials specified in Part 2 of this Section.

Backfill excavations as promptly as work permits, but not until completion of the following:

A. Inspection, testing, and approval.
B. Recording locations of underground utilities.
C. Removing concrete formwork.
D. Curing of concrete.
E. Removing shoring and bracing, and backfilling of voids.
F. Removing trash and debris.

Place backfill and fill materials in layers of not more than 8 inches in loose depth for material compacted by heavy equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification specified below. Do not place backfill or fill material on surfaces that are muddy, that are frozen, that contain frost, or that contain ice.
Place backfill and fill materials evenly adjacent to structures, piping, and equipment to required elevations. Prevent displacement of raceways and equipment by carrying material uniformly around them to approximately same elevation in each lift.
Compact each layer of backfill or fill material to 95 percent standard compaction.

Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water. Apply water in minimum quantity necessary to achieve required moisture content and to prevent water appearing on surface during, or subsequent to, compaction operations.

CONTROLLED LOW STRENGTH MATERIAL (CLSM - "FLOWABLE BACKFILL") INSTALLATION

See details and/or notes on drawings for applications where CLSM encasement is required for underground conduits/duct banks.

In general, unless directed otherwise in field, use the sides of the excavated trenches as forms for CLSM encasement.
If required for special applications in field, provide forms made of steel, wood, or other suitable material of size and strength to resist movement during CLSM placement, and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms or laminated boards to form radius bends. Do not remove forms for at least 48 hours after CLSM has been placed. Set forms to required grades and lines, rigidly braced and secured. Provide sufficient quantity of forms to allow continuous progress of work, and so that forms can remain in place at least 24 hours after CLSM placement. Clean forms after each use, and coat with form release agent as often as required to ensure separation from CLSM without damage.
Form areas that involve termination of spare conduits below grade, or that involve continuation of conduits by others, accordingly to accommodate easy future access to the ends of conduits for future extensions.

Remove loose material from subbase surface immediately before placing CLSM.
Check subbase and forms for line and grade before placing CLSM. Moisten subbase if required to provide a uniform dampened condition at time CLSM is placed.
Use splash boards to divert the flow of CLSM away from the trench sides, and to avoid dislodging soil and stones.
Coordinate with owner's representative at least 72 hours prior to CLSM encasement. Line up CLSM trucks as required to achieve one continuous pour. Do not backfill until a minimum of 48 hours have passed.

Provide premolded joint filler for expansion joints abutting manholes, cable pits, and similar structures.

Smooth surface by screeding after striking-off and consolidating CLSM.
Broom finish CLSM aprons around pullboxes and structures.
Protect CLSM from damage until acceptance of work. Exclude traffic over affected areas for at least 14 days after placement.

Place CLSM directly from the truck chute or pump it. No additional compaction is required.

PREPARATION FOR TOPSOIL AND SEEDING

Separately stockpile excavated topsoil adjacent to the excavated areas and trenches and utilize it in the final stage of backfilling operation.

26 05 44.00 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

Wall Sleeves through exterior walls above and below grade:

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

PVC-Pipe Sleeves: ASTM D 1785, Schedule 40 (if permitted by authorities having jurisdiction).

Molded-PVC Sleeves: With nailing flange for attaching to wooden forms (if permitted by authorities having jurisdiction).

Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

Sleeves for Rectangular Openings:

A. Material: Galvanized sheet steel.
B. Minimum Metal Thickness:
   1. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
   2. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

SLEEVE-SEAL SYSTEMS

Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

Acceptable Manufacturers: Subject to being equivalent and subject to compliance with requirements, provide product by one of the manufacturers listed below.

A. Advance Products & Systems, Inc.
B. CALPICO, Inc.
C. Metraflex Company (The).
D. Pipeline Seal and Insulator, Inc.
E. Proco Products, Inc.
F. OZ/Gedney
G. Link-Seal

Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe. Provide EPDM unless hydrocarbons are present in the soil, in which case provide Nitrile (Buna N) rubber gasket material.
Include composite if exposed to moisture.

Pressure Plates: Composite.
Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

SLEEVE-SEAL FITTINGS

Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

A. Presealed Systems
B. Bio FireShied
C. MetaCaulk

GROUT

Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

Packaging: Premixed and factory packaged.

SILICONE SEALANTS

Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

A. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

Comply with NECA 1.

Comply with NEMA VE 2 for cable tray and cable penetrations.

Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

A. Interior Penetrations of Non-Fire-Rated Walls and Floors:
   1. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 079200 "Joint Sealants."
   2. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.
B. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
C. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.
D. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
E. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors. If unsleeved core-drilling methods are proposed for use, obtain advance case-by-case permission from Owner and design professionals.

Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

Aboveground, Exterior-Wall Penetrations: Seal penetrations using rigid steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

SLEEVE-SEAL-SYSTEM INSTALLATION

Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

SLEEVE-SEAL-FITTING INSTALLATION

Install sleeve-seal fittings in new walls and slabs as they are constructed.

Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

Secure nailing flanges to concrete forms.

Using grout, seal the space around outside of sleeve-seal fittings.

26 05 53.00 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

Provide manufacturers standard self-adhesive vinyl tape not less than 3 mils thick by 1-1/2" wide. Where applicable, install on all concealed raceways at connection to all junction boxes, pull boxes, equipment, wall/floor/roof penetrations, etc. Unless otherwise indicated or required by governing regulations, provide orange tape with black letters. Provide circuit identification bands for all cables and conductors. Provide manufacturers standard color coding for cable/conductor jacket and/or insulation for all cables and conductors of all systems. Match identification with marking system used in existing systems (where applicable), shop drawings, contract documents, and similar previously established identification for projects electrical work. Provide on all conductors of all systems.

The following insulation color code shall be used for system and voltage identification. This shall apply to both feeder and branch circuit wiring. Interchange of colors shall not be permitted.

208Y/120V System:	Black, Red, Blue and White (neutral)
Equipment Grounding:	Green
Systems:	To match existing where applicable - verify in field.

The use of Scotch color coding tapes for phase identification shall be permitted on feeder cables only.

Install engraved plastic-laminate sign on major units of electrical equipment, including panelboards, disconnects, starters, control panels, etc. Except as otherwise indicated, provide single line of text, 1/2" high lettering, on 1-1/2" high sign (2" high where 2 lines are required), white lettering in black field. Unless determined otherwise in field, provide text matching terminology and numbering of the contract documents and shop drawings. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

Equipment to Be Labeled: (Project may not include all pieces of equipment listed here.)

- Enclosed switches.
- Enclosed circuit breakers.
- Enclosed controllers/starters.
- Contactors.
- Miscellaneous Control Stations.
- Enclosures and electrical cabinets.
- Access doors and panels for concealed electrical items.
- Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
- Other similar equipment designated by owner's representative, architect or engineer in field.

All equipment and system identification nomenclature shown on drawings or listed herein is shown for general design and installation reference only. The actual nameplate, etc. nomenclature for this project shall be verified by electrical contractor in field prior to fabrication and where applicable, shall be an extension of existing nomenclature used on the site as determined in field by electrical contractor.

26 22 00.00 - LOW-VOLTAGE TRANSFORMERS

Specifications below are applicable to all distribution transformers rated 600V and less, with capacities up to 1000 kVA. Subject to compliance with requirements, provide equipment of one of the following manufacturers:

Eaton Electrical Inc.; Cutler-Hammer Business Unit.
General Electric Company; GE Consumer and Industrial - Electrical Distribution.
Siemens Energy and Automation, Inc.
Square D; a brand of Schneider Electric.

Transformers shall be factory-assembled and -tested, air-cooled units for 60-Hz service, grain-oriented, non-aging silicon steel cores, and listed for continuous operation at listed kVA. Provide terminal enclosure, with cover, to accommodate primary and secondary coil wiring connections, and to accommodate electrical supply raceway terminal connectors. Provide terminal leads with connectors installed. Provide wiring connectors suitable for copper or aluminum wiring. Coils shall be continuously wound copper windings without splices other than at the taps. Coil connections shall be brazed or pressure type.

Enclosures shall be NEMA 250 Type 1 for indoor applications and Type 3R for exterior applications. Transformer enclosures shall be gray in color.

Insulation shall be 220 degree C, UL-component-recognized insulation system with a maximum of 150 degree C rise above 40 degree C ambient temperature.

Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement and formwork requirements are specified with concrete. Coordinate structure-hanging supports/wall-mounting supports with actual transformer that is provided.

Transformers shall have a minimum number of taps as follows:

Smaller than 3 kVA:	One 5% tap above normal full capacity
Between 7.5 and 24kVA:	One 5% tap above normal full capacity
Above 24kVA:	Two 2.5% taps above and four 2.5% taps below full capacity.

Maximum sound levels, when factory tested according to IEEE C57.12.91 shall be as follows

Smaller than 9kVA:	45dB
30 to 50kVA:	45dB
51 to 150kVA:	50dB

26 28 13.00 - FUSES

All fuses shall be of the same manufacturer. Subject to compliance with requirements, provide fuses of one of the following: Bussman, LittelFuse, Shawmut (A4BQ series).

Except as otherwise indicated, provide fuses of types, sizes, ratings, and average time-current and peak let-through current characteristics indicated, which comply with manufacturer's standard design, materials, and constructed in accordance with published product information, and with industry standards and configurations. Fuses 1 ampere through 600 amperes shall be rejection type. Fuses 601 amperes through 6000 amperes shall be Hi-Cap, bolt type.
Provide UL Class L current-limiting, time-delay, dual-element (with pure silver links) fuses equal to Bussman # KRP-C (low peak) rated 600 volt, 60 Hz with 200,000 RMS symmetrical interrupting current rating for protecting transformers, motors, circuit-breakers, service entrances and distribution feeders above 600 amperes.
Provide UL Class RK1 time-delay, dual-element (with pure silver links) fuses equal to Bussman #LPS-RK1 (600V) or Bussman #LPN-RK1 (250V) rated 60 Hz with 200,000 RMS symmetrical interrupting current rating for protecting service entrances and distribution feeders 600 amperes and below.

Provide factory fuse identification labels, installed on the inside of the door of each switch indicating type and size of fuses installed. For types and ratings required, furnish additional fuses, amounting to 10 percent of fuses supplied, but not less than one set of 3 of each kind.

Each fuse shall be clearly factory marked with classification, characteristics, ampere ratings, voltage ratings, etc. Fuses shall not be shipped installed in switches nor shall they be installed in the equipment until the equipment until the equipment is ready to be energized.

Prior to installing fuses for protection of specific equipment, motors, etc., verify recommended fuse size/type in field from respective equipment manufacturer. If a conflict in fuse size/type results between manufacturer's recommendations and above specifications, contact engineer. Provide all required fuses under base bid. Install fuses in fused switches.

26 28 16.00 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

Acceptable Manufacturers: Subject to being equivalent and subject to compliance with requirements, provide product by one of the manufacturers listed below. If not listed, submit as substitution.

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution
3. Siemens Industry, Inc.
4. Square D; a brand of Schneider Electric

Characteristics:

A. 50 through 60 Hz., with RMS symmetrical interrupting current rating as required to accommodate the available fault current for the respective application.
B. 600VAC rated, for projects with service-entrance line to line voltage not exceeding 600V

General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Provide adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:

A. Instantaneous trip

Features and Accessories:

A. Standard frame sizes, trip ratings, and number of poles.
B. Lugs: Mechanical type, suitable for number, size, trip ratings, and conductor material.
C. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.
D. Ground-Fault Protection: Comply with UL 1053; remote-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
E. Auxiliary Contacts: One single pole, double throw with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.

Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location. Refer to drawings for NEMA type. Provide the following enclosure types if not noted on drawings, or if not noted otherwise on drawings.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.
3. Wash-Down Areas: NEMA 250, Type 4X, Stainless Steel.
4. Other Wet or Damp, Indoor Locations: Type 3R.
5. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.

Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.

Proceed with installation only after unsatisfactory conditions have been corrected.

Install individual wall-mounted units with tops at uniform height unless otherwise indicated, or unless units must be stacked vertically, or unless field conditions otherwise dictate.

Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

Install fuses in fusible devices.

Comply with NECA 1.

Install disconnect switches within sight of controller position unless otherwise indicated.

Size units according to load being served or as noted on drawings, whichever requirement is larger. Provide units with horsepower ratings suitable to the loads where applicable. Install overloads and fuses as necessary to fulfill requirements of each application as applicable.

Subsequent to completion of installation of equipment, energize circuits and demonstrate capability and compliance with requirements. Begin by demonstrating switch operation through six opening/closing cycles with circuit unloaded. Open each switch enclosure and inspect interiors, inspect mechanical and electrical connections, inspect fuse/overload installations, and verify accuracy of type and rating of fuses/overloads installed. Correct deficiencies then retest to demonstrate compliance. Remove and replace defective units with new units and retest.

Test insulation resistance for each unit, component, connecting supply, feeder, and control circuit.
Test continuity of each circuit.

Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
Perform the following infrared scan tests and inspections and prepare reports:

A. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
B. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.
C. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

Prepare test and inspection reports, including a certified report that identifies enclosed switches and breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
Set field-adjustable circuit-breaker trip ranges per drawings

END OF SPECIFICATION

STATE OF KENTUCKY
STEPHEN N. FEDERLE
27329
LICENSED
PROFESSIONAL ENGINEER
4-5-16

DATE	REVISION DESCRIPTION
3/10/2016	95% Owner Review Documents
3/30/2016	Final Owner Review Documents
4/06/2016	Proposal Request

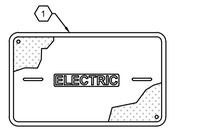
Electrical Power - Specifications

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ______; RMP ID No. ______

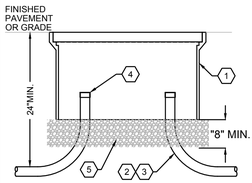
KLH ENGINEERS
333 EAST MAIN ST, SUITE 175 LEXINGTON, KENTUCKY 40507
800-354-9783
859-410-2575
859-410-2576 FAX
FORT THOMAS, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

DATE: APRIL 6, 2016 | DRAWN: JLF
Scale: AS NOTED | CHECKED: BCL
JOB: 18007
SHEET: E-002

J:\LEXJobs\18000-18999\18007\18007.00E-002.dwg — Apr 06, 2016 8:37am — jflora



TOP VIEW



SECTION VIEW

KEYED NOTES:

1. PROVIDE POLYMER CONCRETE IN-GRADE PULLBOX ASSEMBLY 17" X 30", 18" DEEP. OPEN BOTTOM STYLE WITH HEAVY DUTY GASKETED COVER WITH (2)BOLTS AND LOGO "ELECTRIC" SKID RESISTANT SURFACE AND GREEN COLOR EMBEDDED MATERIAL. QUAZITE PART NO. PG1730BA18 BOX; PG1730HG00 COVER OR EQUIVALENT.
2. PROVIDE SCHEDULE 40 ELECTRICAL PVC CONDUIT AS NOTED ON PLANS. BACKFILL WITH EXCAVATED OR BORROWED MATERIAL. MATERIAL SHALL BE FREE OF ROCKS 1" DIAMETER AND LARGER. COMPACT TO 90% IN MAX 8" LIFTS OF LOOSE SOIL.
3. NUMBER AND SIZE OF CONDUITS AS NOTED ON PLANS, WITH MINIMUM 24" RADIUS.
4. PROVIDE RUBBER "CAP", PROPERLY FIT TO CONDUIT SIZE AND SECURED WITH STAINLESS STEEL HOSE-CLAMP TYPE DRAW-BANDS, ON EMPTY CONDUITS TO PROTECT FROM COLLECTING DIRT, DEBRIS AND WATER.
5. PROVIDE MINIMUM 8" PEA GRAVEL BASE, EXTENDING AT LEAST 8" BEYOND ENCLOSURE PERIMETER TO PROVIDE A "BASE" TO PLACE THE ENCLOSURE AND TO FACILITATE DRAINAGE.

GENERAL NOTES:

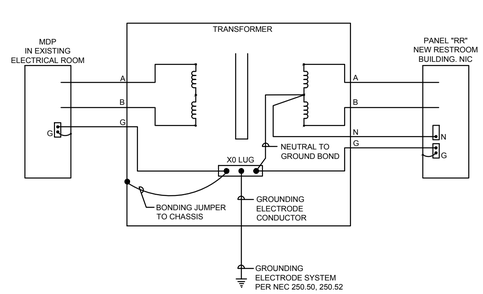
A. THIS DETAIL APPLIES FOR IN-GRADE JUNCTION BOXES, PULL BOXES AND HAND-HOLES FOR ELECTRICAL WORK WHERE INSTALLED IN PAVED OR LAWN AREAS FOR BELOW-GRADE CONDUIT ACCESS.
B. SEE PLANS AND SPECIFICATIONS FOR SIZES AND QUANTITIES OF CONDUITS.
C. PROVIDE SMOOTH AND EVEN BOTTOM TO EXCAVATION FOR BOX AND ADJOINING TRENCH AND ENSURE ALL BACKFILL SURROUNDS CONDUITS WITH EVEN BEARING AND WITHOUT DAMAGING CONDUITS.
D. COORDINATE TRENCH LOCATION IN REFERENCE TO OTHER UNDERGROUND UTILITIES. ENSURE NO OTHER UTILITIES ARE PLACED DIRECTLY BELOW, WHEN PARALLEL TO CONDUITS.

260533.00-02 IN-GRADE BOX/HAND-HOLE DETAIL

SCALE: NONE

GROUNDING NOTES:

A. BOND GROUNDING ELECTRODE CONDUCTOR TO NEAREST GROUNDING ELECTRODE PER NFPA 70 ARTICLE 250.30(A)(4), AND SIZED PER NFPA 70 TABLE 250.66.
B. SIZE NEW DERIVED SYSTEM GROUND PER NFPA 70 TABLE 250.66 AND PROVIDE CONTINUOUS UNSPLICED CONDUCTOR TO FIRST DISCONNECTING MEANS ON SECONDARY SIDE OF TRANSFORMER.
C. SIZE ALL BONDING JUMPERS PER NFPA 70 TABLE 250.102(C)(1).
D. COORDINATE ADDITIONAL GROUNDING REQUIREMENTS WITH LOCAL UTILITY.

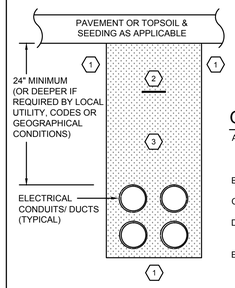


260526.00-04 TRANSFORMER GROUNDING DETAIL

SCALE: NONE

KEYED NOTES:

1. PROVIDE TRENCH IN UNDISTURBED OR ENGINEERED COMPACTED SOIL AS APPLICABLE.
2. PROVIDE 3" WIDE DETECTABLE CAUTION TAPE 8" BELOW FINISHED SURFACE.
3. BACKFILL USING EXCAVATED OR BORROWED MATERIAL, FREE OF ROCKS 1" DIAMETER & LARGER. COMPACT TO 90% IN MAXIMUM 8" LIFTS OF LOOSE SOIL UNDER UNPAVED AREAS. USE FLOWABLE FILL UNDER ALL PAVEMENT AREAS.



GENERAL NOTES:

A. THIS DETAIL APPLIES FOR ALL BRANCH CIRCUIT, TECHNOLOGY AND SIMILAR SCALE APPLICATIONS WHERE ELECTRICAL CONDUITS ARE REQUIRED TO BE INSTALLED BELOW GRADE, PAVEMENT OR SLABS.
B. THIS DETAIL IS TYPICAL FOR ALL CONDUITS/DUCTS, REGARDLESS OF QUANTITY.
C. SEE PLANS AND SPECIFICATIONS FOR SIZES AND QUANTITIES OF CONDUITS/DUCTS.
D. PROVIDE SMOOTH AND EVEN BOTTOM TO TRENCH AND ENSURE ALL BACKFILL SURROUNDS CONDUITS WITH EVEN BEARING AND WITHOUT DAMAGING CONDUITS.
E. COORDINATE TRENCH LOCATION IN REFERENCE TO OTHER UNDERGROUND UTILITIES. ENSURE NO OTHER UTILITIES ARE PLACED DIRECTLY ABOVE OR BELOW, WHEN PARALLEL TO CONDUITS.

260508.00-04 UNDERGROUND BRANCH CIRCUIT CONDUIT / DUCTBANK DETAIL

SCALE: NONE

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
MISCELLANEOUS	
	HEAVY DUTY DISCONNECT SWITCH (FUSED)
M 3	MOTOR NUMBER DESIGNATES DESIGN-BASE HORSEPOWER - VERIFY IN FIELD
VFD	VARIABLE FREQUENCY DRIVE / VARIABLE SPEED DRIVE
	EMERGENCY-POWER-OFF (EPO) PUSHBUTTON STATION WITH DESCRIPTIVE ENGRAVED PLATE PROVIDE ACCESSORIES TO PREVENT ACCIDENTAL ACTIVATION
	RECESSED OR SURFACE MOUNTED PANELBOARD AS INDICATED ON PLANS
T	TRANSFORMER
SINGLE LINE DIAGRAM	
	ENCLOSED CIRCUIT BREAKER IN NEMA 1 ENCLOSURE UNLESS OTHERWISE NOTED (LEFT) CIRCUIT BREAKER (CENTER) - FUSED SWITCH IN SWITCHGEAR OR DISTRIBUTION BOARD (RIGHT)
	INDICATES GROUNDING ELECTRODE PER NFPA 70 ARTICLE 250 MINIMUM
M	ELECTRIC UTILITY COMPANY METER AND ASSOCIATED CURRENT TRANSFORMER(S) AND WIRING
MAIN LUGS ONLY	RECESSED OR SURFACE MOUNTED PANELBOARD AS INDICATED ON PLANS TRIANGLE SYMBOL (RIGHT) WITHIN PANELBOARD = PROVIDE WITH FEED-THROUGH OR SUB-FEED LUGS
	SWITCHBOARD / DISTRIBUTION PANEL
	NON-FUSED HEAVY DUTY DISCONNECT SWITCH (LEFT) AND FUSED HEAVY DUTY DISCONNECT SWITCH (RIGHT)
	AUTOMATIC TRANSFER SWITCH (UNLESS NOTED OTHERWISE)
RACEWAY/WIRE/CABLE	
	CABLING/RACEWAY, CEILING OR WALL. SEE SPECS. FOR APPLICABLE CONDUIT/RACEWAY REQ'TS. (FULLY CONCEALED IN FINISHED AREAS, CONCEALED TO OVERHEAD STRUCTURE IN UNFIN. AREAS)
	CABLING / RACEWAY BELOW FLOOR OR GRADE.
J	JUNCTION BOX ABOVE ACCESSIBLE CEILING OR AT OVERHEAD STRUCTURE IN AREAS WITH NO CEILING
J	JUNCTION BOX OR PULL BOX AS APPLICABLE - INSTALL WALL MOUNTED BOXES FLUSH IN FINISHED AREAS INSTALL OUTDOOR IN-GROUND BOXES FLUSH WITH FINISHED GRADE OR PAVEMENT AS APPLICABLE
P	PULL BOX (CONCEALED IN FINISHED AREAS)
HH	HANDHOLE

ABBREVIATIONS AND NOTES

E.C.	WORK UNDER DIVISION 26
C.T.C.	WORK UNDER DIVISION 27 OR 28 AS APPLICABLE
H.C.	WORK UNDER DIVISION 23
P.C.	WORK UNDER DIVISION 22
S.C.	WORK UNDER DIVISION 21
FBO	FURNISHED BY OTHERS - INSTALLED AND WIRED BY E.C.
FIBO	FURNISHED AND INSTALLED BY OTHERS - WIRED BY E.C.
FWE	FURNISHED WITH EQUIPMENT BY OTHERS - INSTALLED AND WIRED BY E.C.
OFE	OWNER-FURNISHED EQUIPMENT - INSTALLED AND WIRED BY E.C.
UNO	UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS
NIC	NOT IN CONTRACT (SHOWN FOR REFERENCE ONLY)
VIF	VERIFY IN FIELD (PRIOR TO ROUGH-IN WHERE APPLICABLE AND PRIOR TO SUBMITTING A BID WHERE APPLICABLE)
AFF	ABOVE FINISHED FLOOR (OR GRADE/PAVEMENT WHERE APPLICABLE) TO CENTER OF OUTLET (UNLESS OTHERWISE NOTED)
TAAC	TO ABOVE ACCESSIBLE CEILING
VFD / VSD	VARIABLE FREQUENCY / SPEED DRIVE
GND	GROUND
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE (UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS, DO NOT FEED DOWNSTREAM OUTLETS FROM LOAD SIDE TERMINALS OF GFI RECEPTS.)
C/B	CIRCUIT BREAKER

PLAN-VIEW LINE TYPES

	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK (UNLESS INDICATED OTHERWISE)
	WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE (UNLESS INDICATED OTHERWISE)

ELECTRICAL DESIGN CRITERIA

2013 KENTUCKY BUILDING CODE (BASED ON THE 2012 INTERNATIONAL BUILDING CODE)

2012 INTERNATIONAL FIRE CODE (NEW CONSTRUCTION PROJECTS, ONLY WHEN SPECIFICALLY REFERENCED BY THE BODY OF KBC)

2014 NFPA 70 - NATIONAL ELECTRICAL CODE (EFFECTIVE OCTOBER 1, 2014)

2010 NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE

2012 INTERNATIONAL ENERGY CONSERVATION CODE

STATE OF KENTUCKY
STEPHEN N. FEDERLE
27329
LICENSED
PROFESSIONAL ENGINEER
4-5-16

DATE	REVISION DESCRIPTION
3/10/2016	95% Owner Review Documents
3/30/2016	Final Owner Review Documents
4/06/2016	Proposal Request

Electrical Power - Legend

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

KLH ENGINEERS
333 EAST MAIN ST. SUITE 175 FORT THOMAS, KENTUCKY
LEXINGTON, KENTUCKY 40507 COLUMBUS, OHIO
800-354-9783 NEW YORK, NEW YORK
859-410-2575
859-410-2576 FAX

JOB: 18007 | DATE: APRIL 6, 2016 | DRAWN: JLF | CHECKED: BCL
SHEET: E-001 | Scale: AS NOTED

J:\LEX Jobs\18000-18999\18000-18099\18007\18007.00E-001.dwg — Apr 06, 2016 8:37am — jflora

Division 22 - PLUMBING SPECIFICATION

SECTION 22 05 00.00 - COMMON WORK RESULTS FOR PLUMBING

GENERAL

The general conditions, supplementary conditions and instructions to bidders shall apply to and be part of this specification.

Contractor shall comply with all applicable codes, rules and regulations.

Contractor shall obtain and pay for all permits, certificates of inspection and approvals required.

The base bid shall include furnishing all materials, labor, tools, equipment and installation of all work required to provide complete plumbing systems as outlined in Division-22.

Examine the drawings, specifications, and visit the site prior to submitting a bid.

APPLICABLE STANDARDS

The applicable provisions of the following standards shall govern:

American Society for Test Materials (ASTM);

American Standards Association (ASA);

Underwriters Laboratories (UL);

National Fire Protection Association (NFPA);

Kentucky Building Code.

Kentucky Plumbing Code.

The installation of all plumbing work shall conform to the applicable local plumbing codes and statutes.

PLANS

Plans are diagrammatic indicating required size, points of termination of piping and suggested routes. However, it is not intended that drawings indicate all necessary offsets. Install piping in such manner as to conform to the structure, avoid obstructions and preserve headroom. All piping shall be run as straight as possible and symmetrical with architectural items. Piping shall be concealed in pipe shafts, pipe spaces, and furring wherever possible. Piping fabricated before coordination with the other trades will be done at contractors' own risk.

In the event of inconsistencies or conflict within or between the Contract Documents, provide the better quality, more costly or greater quantity of work and comply with the more stringent requirements. Seek the direction of the Engineer of Record for clarification of conflicts as soon as a conflict is identified. (Prior to installation)

CUTTING, PATCHING AND DEMOLITION

Contractor shall include all necessary cutting and patching required to perform their work.

Care shall be taken when working in existing spaces so as not to damage existing walls and ceilings where work is being performed.

Provide non-destructive concrete structural scanning or concrete x-ray prior to drilling, cutting or coring.

Core drill all slab penetrations.

Seal around all wall, floor and ceiling pipe penetrations with NFPA approved sealant material to maintain the fire resistant and watertight integrity of the assembly.

Disconnect, demolish, and remove from site all plumbing systems, equipment, and components indicated to be removed and as necessary to perform the described scope of work. No unused plumbing systems, equipment, and components shall be abandoned.

No means of demolition shall be used that would result in damage to structures, materials, equipment or components indicated to remain or endanger the health, safety and welfare of the general public.

EXCAVATION AND BACKFILL

Perform all excavation and backfilling required for this work. Contractor shall consult with utility company prior to beginning excavation.

At a minimum, all piping shall be laid on a bed of sand, 6" deep, well tamped into place and properly graded to permit the pipe to have an even bearing throughout its entire length. Sand shall be installed around the piping and to a point 6" above the piping.

PIPE JOINTS AND CONNECTIONS

Any minor adjustment in location of alignment of new work or connection to existing utilities shall be performed as directed by the engineer without additional cost to the owner.

The contractor shall be responsible for damages to the grounds, walks, road, building, piping systems, electrical systems, and their equipment and contents, caused by leaks in the piping systems being installed or having been installed by him. The contractor shall repair at his expense all damaged so caused. All repair work shall be done as directed by and in such manner as satisfactory to the architect.

Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the contractor's guarantee bond nor relieving the contractor of his responsibilities during the bonding period.

project conditions

Where new plumbing systems are required to be connected to existing plumbing systems, it is the contractor's responsibility to verify the location, size, invert elevation, pressure, condition, and they shall verify that the existing plumbing system is indeed the correct and appropriate plumbing system before any work is done. Provide all necessary camera scoping and dye testing as necessary. If there is any need for concern, if it is determined that the existing plumbing system is not a correct or appropriate plumbing system or not connected to a correct or appropriate plumbing system, if the condition of the existing plumbing system is not viable for re-use, or any other condition that would not allow the proper functioning of the new plumbing system, the contractor shall notify the engineer in writing immediately via RFI and wait for direction before proceeding.

WARRANTY

This contractor shall warrant that all work under this section shall be free of defective work, materials and parts for a period of one year after acceptance of the work and shall repair, revise, and replace, at no cost to the owner, any such defects occurring within the warranty period.

22 05 03.00 - SUBMITTALS FOR PLUMBING

General

Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

Some Divisions may include a division-specific "Submittal Requirements for ...." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.

The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

Requirements

Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings. Refer to the specifications for identification of which submittals are required for the project. Separate PDF file packages shall be supplied for each section, for each submittal type, where electronic submittals are required. Each PDF shall represent a single standalone submittal.

Separately bound and identified submittals shall be provided where hardcopies are required.

Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration.

Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal. An editable and printable PDF form created with editable fields and specification compliant appearance is available from KLH upon request. It is also downloadable from the KLH website at www.klhengrs.com.

Include an index: The index shall enumerate the contents of the submittal.

Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal.

Supply complete submittals: Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. Do not send half the product data as one submittal and the other half as a separate one. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 - Original submission, 01 - First Resubmission, 02 - Second Resubmission, etc…). Resubmittals shall include a copy of the reviewers comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.

Name electronic files to match the submittal ID and cover sheet: The electronic file name of submittals shall match the submittal ID included on the submittals cover page. For example: The original/first product data submittal for Section 220523 would be labeled as "220523.00-PD-00"; the first resubmittal of same shall be labeled "220523.00-PD-01". The original/first shop drawings submittal file for the same section would be labeled "220523.00-SD-00"; the first resubmittal of same shall be labeled "220523.00-SD-01".

Use of Electronic Drawings from the Owner's Design Team

Plan drawings for the Project were created with AutoCAD.

If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG or similar non-editable electronic form, at the sole discretion of the Design Professional.

The Request Drawings form can be accessed, filled out and submitted at the following internet address (scroll down to bottom of home page): http://www.klhengrs.com.

22 05 23.00 - GENERAL DUTY VALVES

General

Provide stops or isolation valves on domestic water supplies to isolate hot and cold water to each fixture, including all equipment and equipment provided by others.

Fixtures, item or units furnished by the manufacturer with integral stops or stops specified with the fixture are considered to be properly valved at the fixtures.

Access shall be provided to all valves.

Valves on domestic water piping shall be ball valves.

Ball valves - 2 inch and smaller: Lead-Free, 2-piece body, 600 psi CWP, 100 psi at 300OF, cast bronze body, full port, Teflon seats, blowout-proof stem, adjustable packing gland, chrome plated bronze ball, and vinyl-covered steel handle. Provide solder ends. Provide extended valve stems for valves used on insulated lines. Provide equal to Nibco series 585-80-LF.

Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:

American Valve, Inc.

Conbraco Industries, Inc.; Apollo Valves.

Crane Co.; Crane Valve Group; Crane Valves.

Hammond Valve.

Milwaukee Valve Company.

NIBCO INC.

Red-White Valve Corporation.

Watts Regulator Co.; a division of Watts Water Technologies, Inc

22 05 29.00 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

GENERAL

Support all piping and equipment by hangers or brackets. Provide structural steel members where required to support piping and equipment. No portion of piping or valves shall be supported by equipment.

DELEGATED DESIGN

For equipment supports, this contractor shall retain a qualified professional engineer to provide support calculations of static and dynamic loading due to operating equipment weight, seismic and wind forces. The signed and sealed calculations and details shall be submitted by the retained professional engineer.

PIPING

Provide hangers, supports, clamps and attachments to support piping properly from building structure. Support from the decking above is prohibited. Arrange for grouping of parallel runs of horizontal piping supported together on field-fabricated, heavy-duty trapeze hangers where possible. Where piping of various sizes is supported together by trapeze hangers, space hangers for smallest pipe size or provide intermediate supports for smaller diameter pipe as specified above for individual pipe hangers.

Individual pipe hangers to be Anvil International Clevis Hanger Fig. 260, Elcen, or approved equal.

Rod sizes to conform to the following: 3/8" rods for 3/4" to 2" pipe; 1/2" rods for 2-1/2" to 3" pipe; 5/8" rods for 4" to 5" pipe; 3/4" rods for 6" pipe.

Hangers shall be sized to allow insulation to pass through unobstructed, provide saddle support for insulation at all hangers.

Hanger spacing for steel piping unless otherwise noted is to be as follows: 1-1/4" or smaller to be 8' on center; 1-1/2" to 2" to be 10' on center; 2-1/2" and larger to be 12' on center and at each change of direction.

Hanger spacing for copper pipe to be as follows: 1" or smaller 6' on center; 1-1/4" or larger 8' on center.

Hanger spacing for cast iron piping shall be 5'-0" on center.

Piping shall also be supported at each change in direction, valves and equipment.

22 05 53.00 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PIPING

Provide self-adhesive pipe labels with white background and black lettering, contact type with permanent adhesive backing. Include identification of piping service using same designations or abbreviations as used on the drawings and an arrow indicating flow direction.

EQUIPMENT

Provide self-adhesive plastic equipment labels with white background and black lettering, contact type with permanent adhesive backing, 160 degree F temperature. Include equipment's drawing designation and specification section number where equipment is specified.

22 07 19.00 - PLUMBING SYSTEM INSULATION

GENERAL

Insulation shall be listed and labeled per ASTM E 84 for plenum installations employing slip on techniques.

Provide insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.

Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

PIPING SYSTEMS REQUIRING INSULATION

Insulate domestic cold water piping, associated fittings and valves with flexible elastomeric 1/2" wall thickness insulation.

Insulate exposed sanitary drains, domestic water, domestic hot water, and stops for plumbing fixtures for people with disabilities.

FLEXIBLE ELASTOMERIC INSULATION

Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.

Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.

Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:

Aeroflex USA, Inc.; Aerocel.

Armacell LLC; AP Armaflex.

K-Flex USA; Insul-Lock, Insul-Tube, and K-FLEX LS.

FIBERGLASS INSULATION

Fiberglass piping insulation: ASTM C 547, Class 1

Encase pipe fittings insulation with one-piece pre-molded PVC fitting covers.

Vapor Barrier Material: Paper-backed aluminum foil, except as otherwise indicated, strength and permeability rating equivalent to adjoining pipe insulation jacketing.

Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.

Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.

Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:

Armstrong World Industries, Inc.

Owens-Corning Fiberglass Corp.

Keene Corp.

CertainTeed.

Johns Manville.

ADHESIVES

Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

Insulation for handicap accessible fixtures

All handicap lavatory p-trap and angle stop assemblies shall be insulated with trap wrap protective kit manufactured by Proflo model PF202WH or equal. Abrasion resistant, anti-microbial vinyl exterior cover shall be smooth. For traps, the insulation shall have a cleanout nut cap to allow service to the trap without disassembly. For stops, the insulation shall have a lock lid that prevents tampering but allows access without removal of the insulation. Fasteners shall remain substantially out of sight.

Manufacturers: subject to compliance with requirements:

Proflo

Truebro

Plumberex

22 11 16.00 - DOMESTIC WATER PIPING

GENERAL

Install piping concealed from view unless noted otherwise, free of sags and bends. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction. Clean and disinfect potable domestic water piping using approved procedures by authorities having jurisdiction.

Install at right angles; diagonal runs are prohibited unless otherwise shown. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal. Coordinate all piping with all other trades.

Provide water pressure regulators where necessary to limit the incoming water pressure to 80 psi inside the building.

DOMESTIC WATER PIPING ABOVE GROUND:

Hard copper tube, ASTM B 88, Type L; wrought-copper, solder-joint fittings; and soldered joints.

Solder Filler Metals: ASTM B 32, lead-free alloys.

Flux: ASTM B 813, water flushable.

Type "L"; copper pressure-seal joint; and pressure-seal joint systems.

CATHODIC PROTECTION

Provide dielectric insulation at points where copper or brass pipe comes in contact with ferrous piping, reinforcing steel or other dissimilar metal in structure.

22 11 19.00 - DOMESTIC WATER PIPING SPECIALTIES

REDUCED PRESSURE BACKFLOW PREVENTERS

Backflow preventer (2" and smaller) - Provide a reduced pressure backflow preventer on water service main where the water service enters the building. Reduced pressure backflow preventer shall be sized equal to the size of the water service and conform to ASSE 1013. Pipe backflow preventer discharge to approved place of disposal.

PRESSURE REDUCING VALVES

Provide pressure reducing valve to regulate incoming domestic water pressure in excessive of 80 psig. Pressure reducing valve shall be equal to Watts model LF223S, comply with ASSE 1003, initial working pressure of 300 psig, integral strainer, lead-free brass body with threaded connections.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and limited to, the following:

Cash Acme; a division of Reliance Worldwide Corporation.

Conbraco Industries, Inc.

Honeywell International Inc.

Watts; a division of Watts Water Technologies, Inc.; Watts Regulator Company.

Zurn Industries, LLC; Plumbing Products Group; Wilkins Water Control Products.

TRAP-SEAL PRIMER DEVICE

The plumbing contractor shall provide trap primers for all floor drains. Trap primer shall be equal to Mifab MR-500 trap primer valve. Provide access panel in wall or ceiling for all concealed trap primers. Install trap seal primer valves with outlet piping pitched down toward drain trap a minimum of 1% and connect to floor drain body, trap or inlet fitting.Coordinate exact location with architect prior to installation.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, and limited to, the following:

MIFAB, Inc.

Precision Plumbing Products, Inc.

Sioux Chief Manufacturing Company, Inc.

Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

Watts; a division of Watts Water Technologies, Inc.; Watts Regulator Company.

WATER HAMMER ARRESTERS

Provide water-hammer arresters in water piping according to PDI-WH 201.

Standard: ASSE 1010 or PDI-WH 201.

Type: Metal bellows or copper tube with piston.

Size: ASSE 1010, sizes AA and A through F, or PDI-WH 201, sizes a through F.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following:

Amtrol, Inc.

Josam Company.

Precision Plumbing Products, Inc.

Sioux Chief Manufacturing Company, Inc.

Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

Watts Drainage

22 13 16.00 - SANITARY, WASTE AND VENT PIPING SYSTEM

GENERAL

Provide a complete soil, waste and vent system in the building and on the site as indicated on the drawings and as specified herein.

Above ground soil, waste and vent piping within buildings including soil stacks, vent stacks, horizontal branches, traps, and connections to fixtures and drains.

Underground building drain piping including mains, branches, traps, connections to fixtures and drains, and connections to stacks, terminating at connection to existing sanitary sewer.

INTERIOR PIPING

Cast iron soil piping and fittings no hub ASTM A-74 with ASTM C-564 gasketed joints.

Waste and vent piping 2-1/2" and under - Type "M" copper ASTM B88.62.

Soil, waste and vent piping 3" and over in size and all underground cast iron soil piping and fittings, ASTM A-74.

No-hub cast iron pipe and fittings may be used above floor for soil, waste, and vent piping.

Piping alignment shall be as indicated on the drawings using approved wye branches or eight bands for direction changes and shall be surely supported or secured to maintain such alignment.

INTERIOR PIPING

Schedule 40 PVC pipe and fittings shall be used throughout. Contractor shall maintain integrity of fire ratings. Piping shall not be run in plenum spaces and contractor shall provide intumescent collars when penetrating a rated wall, floor, or other assembly

EXTERIOR PIPING

Poly (vinyl chloride) pipe (PVCPP): ANSI/ASTM D 3033, Type PSP or ASTM D 3034, Type PSM SDR-35.

Contech construction products a-2000 PVC sewer pipe

Install top of cleanout and cap 6" above finished grade.

Piping alignment shall be as indicated on the drawings using approved wye branches or eighth bends for direction changes and shall be surely supported or secured to maintain such alignment.

Pitch of sanitary piping shall be uniform at a minimum of 1/8" per foot for building drains, drainage piping greater than 2" and as indicated on the drawings. Pitch of sanitary piping shall be uniform at a minimum of 1/4" per foot for drainage piping 2" and smaller and as indicated on the drawings.

Protection shall be given all footings, other structural elements during underground work adjacent to such items. Refer to architectural and/or structural drawings for locations.

Vent all fixtures, connect branch vents to main vent risers at least six inches above flood rim of fixtures. Pitch vent lines back to soil or waste pipe, free of drops and sags.

Cleanouts shall be full size of pipe up to 4", and 4" for larger sizes. For underground and concealed lines, provide cleanouts in accessible positions at each right angle turn and at intervals not to exceed fifty feet. In floors, install flush with finish floor with extension pipe from cleanout wye.

22 13 19.00 - SANITARY WASTE PIPING SPECIALTIES

CLEANOUTS

Floor cleanout equal to Zurn Z-1400 adjustable floor cleanout.

Provide a sanitary tee and threaded cap cleanout plug in suspended waste piping.

Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:

Josam

Jay R Smith

Watts Regulator Co.; a division of Watts Water Technologies, Inc

Mifab

Zurn

FLOOR DRAINS

Josam, Smith, Zurn, Watts, Mifab, Sioux Chief, or Oatey

All floor drains located in rooms which have tile floors shall have square strainers.

Provide floor drains with trap-seal primer fitting.

Refer to plumbing fixture and equipment schedule for project specific floor drain manufacturers and models.

22 40 00.00 - PLUMBING FIXTURES

GENERAL

Refer to plumbing fixture schedule.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following:

American Standard America.

Crane Plumbing, LLC.

Kohler Co.

Toto USA, Inc.

Zurn Industries, LLC; Commercial Brass and Fixtures .

Sterling; a Kohler Company.

Eljer Inc.

STATE OF KENTUCKY
ROBERT A. LONNEMANN
19335
LICENSED PROFESSIONAL ENGINEER
4/6/16

DATE	REVISION DESCRIPTION
3/10/2016	95% Owner Review Documents
3/30/2016	Final Owner Review Documents
4/06/2016	Proposal Request

Plumbing - Specifications

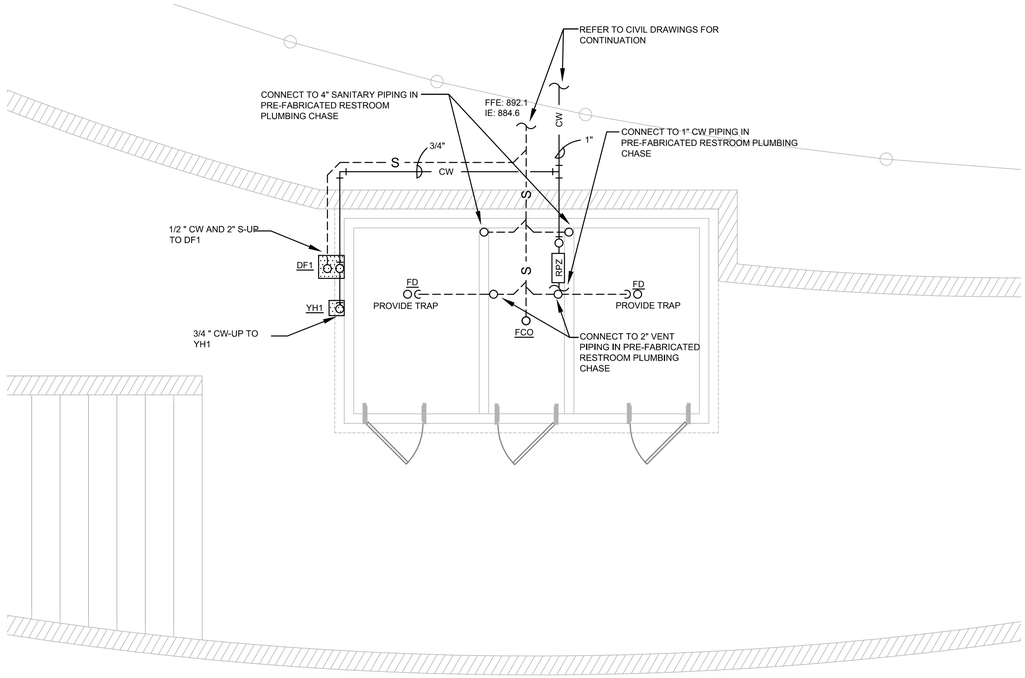
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. _____ ; RMP ID No. _____

KLH ENGINEERS
333 EAST MAIN ST, SUITE 175, FORT THOMAS, KENTUCKY
LEXINGTON, KENTUCKY 40507 COLUMBUS, OHIO
800-354-9783 NEW YORK, NEW YORK
859-410-2575
859-410-2576 FAX

JOB: 18007 | DATE: APRIL 6, 2016 | DRAWN: TJK

SHEET: P-002 | Scale: AS NOTED | CHECKED: KCN

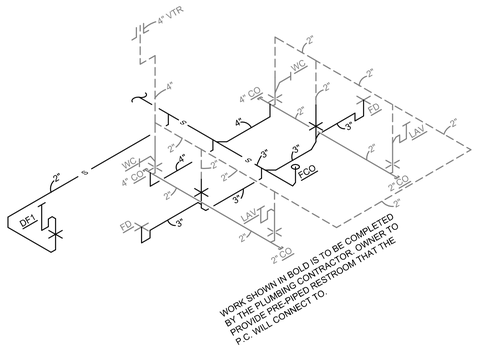
J:\LEX\Jobs\18000-18999\18000-18099\18007\18007.00P-002.dwg — Apr 06, 2016 8:36am — knight



1 P-001 PLUMBING - NEW WORK PLAN

SCALE 1/4" = 1'-0"

PLUMBING FIXTURE SCHEDULE		
MARK	DF1	YH1
DESCRIPTION	DRINKING FOUNTAIN	YARD HYDRANT
LOCATION	EXTERIOR OF RESTROOM	EXTERIOR OF RESTROOM
STATUS		
MFGR	MURDOCK	MURDOCK
MODEL	GYM54	M-175
VALVE/FAUCET MFGR	--	--
VALVE/FAUCET MODEL	--	--
CW SIZE (in)	1/2	3/4
HW SIZE (in)	--	--
INDIRECT DRAIN	NO	NO
SAN SIZE (in)	2	--
TRAP SIZE (in)	1-1/2	--
INT TRAP	NO	--
VENT SIZE (in)	--	--
ACCESS	PEDESTAL MOUNT	



2 P-001 PLUMBING - SANITARY AND VENT RISER DIAGRAM

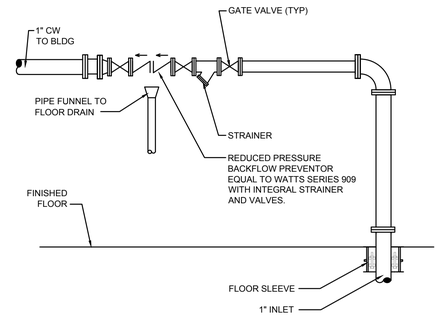
SCALE 1/4" = 1'-0"

STANDARD PLUMBING ABBREVIATIONS

A	COMPRESSED AIR
A/E	ARCHITECT / ENGINEER
AAV	AIR ADMITTANCE VALVE
ACCESS	ACCESSORIES
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AMP	AMPERE
ANG	ANGLE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACCESS PANEL
APPROX	APPROXIMATE
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
AV	ACID VENT
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BFP	BACKFLOW PREVENTER
BIM	BILL OF MATERIALS
BT	BLOWOFF TANK
BTC	BLOWOFF TANK CONTROL VALVE
BTU	BRITISH THERMAL UNIT
BV	BALANCING VALVE
BT	BATHTUB
BTUH	BRITISH THERMAL UNIT PER HOUR
BWV	BACK WATER VALVE
C	CENTIGRADE (CELCIUS)
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CF	CUBIC FEET
CI	CAST IRON
CM/S	CUBIC METER PER SECOND
CO	CLEAN OUT
CPVC	CHLORINATED POLYVINYL CHLORIDE
CW	COLD WATER (POTABLE)
DEG	DEGREE
DELTA	CHANGE IN TEMPERATURE
DF	DRINKING FOUNTAIN
DIA	DIAMETER
EC	ELECTRICAL CONTRACTOR
EJ	EXPANSION JOINT
EL	ELEVATION
ET	EXPANSION TANK
EXP	EXPANSION
EWH	ELECTRIC WATER HEATER
EX	EXISTING
F	FAHRENHEIT
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FFE	FINISHED FLOOR ELEVATION
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSTAT	FREEZESTAT
FT	FEET
FT-LB	FOOT-POUND
FURN	FURNISHED
FW	FILTERED WATER
G	GAS
GA	GAUGE
GAL	GALLONS
GAS	NATURAL GAS
GCO	GRADE CLEAN OUT
GEN	GENERAL
GFWH	GAS FIRED WATER HEATER
GI	GREASE INTERCEPTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GR	GRAINS
GT	GREASE TRAP
GW	GREASE WASTE
H&CW	HOT & COLD WATER
HB	HOSE BIBB
HC	HVAC CONTRACTOR
HD	HUB DRAIN
HDPE	HIGH DENSITY POLYETHYLENE
HGT	HEIGHT
HP	HORSEPOWER
HT	HOT TAP
HW	HOT WATER
HWR	HOT WATER RETURN
I/O	INPUT/OUTPUT
ICU	INTENSIVE CARE UNIT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
IND	INDIRECT
IN WC	INCH WATER COLUMN
IN-LB	INCH-POUND
INST	INSTALLED
KG	KILOGRAM
KG/HR	KILOGRAM PER HOUR
KW	KILOWATT
KWH	KILOWATT HOUR
L	LITER
LAV	LAVATORY
LAS	LIMITED AREA SPRINKLER
L/H	LITERS PER HOUR (OR LITERS/HOUR)
L/M	LITERS PER MINUTE (OR LITERS/MINUTE)
L/S	LITERS PER SECOND (OR LITERS/SECOND)
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LIQ	LIQUID
LPG	LIQUID PROPANE GAS
LVG	LEAVING
M	METER, SI UNIT
M/S	METERS PER SECOND (OR METERS/SECOND)
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BTUH
MGAP	MED GAS ALARM PANEL
MGZV	MED GAS ZONE VALVE
MH	MANHOLE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOCP	MAXIMUM OVERCURRENT PROTECTION
MS	MOP SINK
MV	MIXING VALVE
N	NITROGEN
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NFC	NOT FOR CONSTRUCTION
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO	NITROUS OXIDE
NO	NUMBER
NOAA	NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NOM	NOMINAL
NTS	NOT TO SCALE
NUM	NUMBER
OCP	OVER CURRENT PROTECTION
OD	OUTSIDE DIAMETER
PA	PASCAL
PC	PLUMBING CONTRACTOR
PPM	PARTS PER MILLION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAGE
PVC	POLYVINYL CHLORIDE
QUAN	QUANTITY
RAD	RADIUS
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE VALVE
RV	RELIEF VALVE
S	SANITARY
SAN	SANITARY
SPEC	SPECIFICATION
SP GR	SPECIFIC GRAVITY
SQ	SQUARE
SQ FT	SQUARE FOOT (FEET)
STD	STANDARD
SYS	SYSTEM
TAB	TESTING, ADJUSTING, BALANCE
TEMP	TEMPERATURE
TMV	THERMOSTATIC MIXING VALVE
TP	TRAP PRIMER
UH	UNIT HEATER
UR	URINAL
V	VALVE
VAL	VALVE
VTR	VENT THRU ROOF
W	WATER
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WH	WALL HYDRANT
WF	WATER FILTER
WTR	WATER
YH	YARD HYDRANT
YR	YEAR

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
S	SANITARY DRAINAGE PIPING
V	SANITARY VENT PIPING
CW	DOMESTIC COLD WATER PIPING
HW	DOMESTIC HOT WATER PIPING (120°F)
	PIPE UP
	PIPE DOWN
	PIPE TEE DOWN
	PIPE TEE UP
	UNION
	PIPE CAP
	PIPE CONTINUATION
	CONTROL VALVE , SHUT-OFF VALVE
	CONNECT TO EXISTING (FIELD VERIFY EXISTING UTILITY SERVICE TYPE, PRIOR TO MAKING CONNECTION)
RPZ	BACKFLOW PREVENTER



221113.00-19 BACKFLOW PREVENTER DETAIL

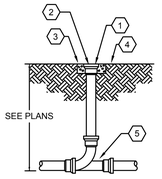
SCALE: NONE

GENERAL NOTES:

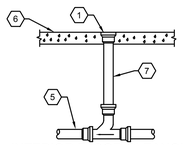
A. PROVIDE CARPET MARKER WHERE CARPET OCCURS.

KEYED NOTES:

1. CLEANOUT WITH COVER FOR DUTY REQUIRED.
2. "CO" TO BE CAST IN COVER.
3. 6" THICK BY 18" SQUARE CONCRETE PAD.
4. GRADE OR PAVING.
5. BUILDING DRAIN OR SEWER MATERIAL AND SIZE AS SPECIFIED.
6. FINISHED FLOOR.
7. EXTENSION - SAME SIZE AS SEWER UP TO 4" DIAMETER.



EXTERIOR CLEANOUT
(LIGHT TRAFFIC AREA)



INTERIOR FLOOR CLEANOUT

221316.00-07 FLOOR CLEANOUTS

SCALE: NONE

GENERAL NOTES:

A. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOR SINK) BY SIZE, MODEL, AND MANUFACTURER.

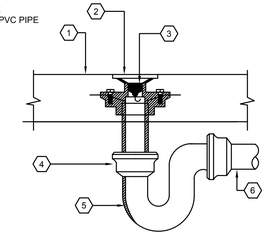
B. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.

C. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

D. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TIGHT SEAL FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD

KEYED NOTES:

1. FINISHED FLOOR.
2. STRAINER.
3. TRAP GUARD SHOWN IN CLOSED POSITION.
4. HUB JOINT.
5. DEEP SEAL "P" TRAP.
6. SUPPORT AT THIS POINT.



221319.00-02 FLOOR DRAIN WITH TRAP SEAL PROTECTION

SCALE: NONE

STATE OF KENTUCKY
ROBERT A. LONNEMANN
19335
LICENSED PROFESSIONAL ENGINEER
4/6/16

DATE	REVISION DESCRIPTION
3/10/2016	95% Owner Review Documents
3/30/2016	Final Owner Review Documents
4/06/2016	Proposal Request

Plumbing - New Work

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LOWER CAN RUN WET WEATHER STORAGE
LFUCG BID No. ____ ; RMP ID No. ____

KLH ENGINEERS
333 EAST MAIN ST. SUITE 175 FORT THOMAS, KENTUCKY
LEXINGTON, KENTUCKY 40507 COLUMBUS, OHIO
800-354-9783 NEW YORK, NEW YORK
859-410-2575
859-410-2576 FAX

JOB: 18007 | DATE: APRIL 6, 2016 | DRAWN: TJK
SHEET: P-001 | Scale: AS NOTED | CHECKED: KCN

J:\LEX\obs\18000-18999\18000-18099\18007\18007.009-001.dwg — Apr 06, 2016 8:36am — tknight