



# WILDWOOD

CITY COUNCIL  
AGENDA  
**COUNCIL CHAMBERS**  
**6:00 P.M. - 7:20 P.M.**  
**03/28/16**

If you would like to submit a comment regarding an item on this meeting agenda, please visit the [Form Center](#).

## WORK SESSION AGENDA

- I. MAYOR'S COMMENTS/ANNOUNCEMENTS/APPOINTMENTS - None
- II. CITY ADMINISTRATOR DISCUSSION ITEMS
  - II.I. Presentation Of The Final Report From Environmental Stewardship Concepts (ESC) Regarding The Ellisville Superfund Site By Dr. Peter DeFur (Ward – Two)  
  
Documents: [WS - DR. DEFUR PRESENTATION DOCUMENT 1 FINAL ESC REPORT ON ELLISVILLE SITE 3 14 16.PDF](#), [WS - DR. DEFUR PRESENTATION DOCUMENT 2 - STRECKER FOREST WELL INSTALL REPORT.PDF](#)
  - II.II. Request For Building Permit Authorization – 18634 Hawks Trail Drive (Ward – Six)  
  
Documents: [WS - REQUEST FOR BUILDING PERMIT AUTHORIZATION - 18634 HAWKS TRAIL DRIVE.PDF](#)
- III. COMMITTEE ACTION ITEM(S)/RECOMMENDATION(S)
  - III.I. Update On Rural Internet Access Project (Wards – All)  
  
Documents: [WS - UPDATE ON RURAL INTERNET ACCESS PROJECT.PDF](#)
  - III.II. Administration/Public Works Committee
    - III.II.A. Employee Retirement Plan Management (Wards – All)  
  
Documents: [WS - EMPLOYEE RETIREMENT PLAN MANAGEMENT.PDF](#)
    - III.II.B. Salary Plan Update (Wards – All)  
  
Documents: [WS - SALARY PLAN UPDATE.PDF](#)
  - III.III. Board Of Public Safety
    - III.III.A. Proposed Update To Hunting And Firearms Regulations (Wards – All)  
  
Documents: [WS - HUNTING AND FIREARMS.PDF](#)
  - III.IV. Planning/Economic Development/Parks Committee

III.IV.A. Special Event Liquor License For The Wildwood Farmers Market – 2016 (Ward – Eight)

Documents: [WS - SPECIAL EVENT LIQUOR LICENSE FOR THE WILDWOOD FARMERS MARKET 2016.PDF](#)

III.IV.B. Al Foster Memorial Trailhead Bid Results For Project's Construction (Ward – Six)

Documents: [WS - AL FOSTER MEMORIAL TRAILHEAD BID RESULTS.PDF](#)

III.IV.C. On-Going And Long-Term Maintenance Costs For Parks And Trail Facilities (Wards – All)

Documents: [WS - ON-GOING AND LONG-TERM MAINTENANCE COSTS FOR PARKS AND TRAILS FACILITIES.PDF](#)

IV. EXECUTIVE [CLOSED] SESSION

with regard to legal actions, causes of action, litigation or privileged communications between the City's representatives and its attorneys [RSMO 610.021(1) 1994]; lease, purchase or sale of real estate [RSMO 610.021 (2) 1994]; hiring, firing, disciplining or promoting employees by a public governmental body [RSMO 610.021 (3) 1994]; bidding specification [RSMO 610.021 (11) 1994]; sealed bids and related documents, until the bids are opened and sealed proposals and related documents or any documents related to a negotiated contract until a contract is executed, or all proposals are rejected [RSMO 610.021 (12) 1994]; and/or individually identifiable personnel records, performance ratings or records pertaining to employees or applicants for employment [RSMO 610.021 (13) 1994]

V. ADJOURNMENT

**If you would like to submit a comment regarding an item on this meeting agenda, please visit the [Form Center](#).**

City Council Will Consider and Act upon the Matters Listed above and Such Others as May Be Presented at the Meeting and Determined to Be Appropriate for Discussion at That Time.

*Notice is hereby given that the City Council may also hold a closed meeting for the purpose of dealing with matters relating to one or more of the following: Legal Actions, Causes of Action, Litigation or Privileged Communications Between the City's Representatives and its Attorneys [RSMO 610.021(1) 1994]; Lease, Purchase or Sale of Real Estate [RSMO 610.021 (2) 1994]; hiring, firing, disciplining or promoting employees by a public governmental body [RSMO 610.021 (3) 1994]; bidding specification [RSMO 610.021 (11) 1994]; sealed bids and related documents, until the bids are opened' and sealed proposals and related documents or any documents related to a negotiated contract until a contract is executed, or all proposals are rejected [RSMO 610.021 (12) 1994]; and/or individually identifiable personnel records, performance ratings or records pertaining to employees or applicants for employment [RSMO 610.021 (13) 1994]*

The City of Wildwood Is Working to Comply with the Americans with Disabilities Act Mandates. Individuals Who Require an Accommodation to Attend a Meeting Should Contact City Hall, (636) 458-0440 at Least 48 Hours in Advance.

Report to the City of Wildwood on Ellisville Site EPA documents  
Prepared by ESC, LLC  
March 14, 2016

This report examines the EPA documents (reports, letters, data, etc.) produced after the removal action at the Ellisville Site, Strecker Forest and Bliss properties conducted during 2014.

Specific documents:

Removal Action Report, August 6, 2015

Removal Action Report, Appendix D: 42 files with Chain-of-Custody Records and Lab results for samples collected and analyzed as part of the removal action

EPA Archive folder with 26 files of data, analyses, reports and memos

Letter from City of Wildwood to EPA, August 25, 2015

EPA response to Wildwood, December 9, 2015

EPA summary document, July 16, 2016

EPA Regional Screening Levels (<http://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2015>)

## SUMMARY & EVALUATION

The Removal Action Report prepared by Tetra Tech is dated August 2015 and reports on the removal action work conducted under EPA authority in 2014.

The description of the site is incomplete (Section 3, page 3) in not discussing groundwater as a contaminated medium in the original site investigation or in subsequent monitoring. The groundwater monitoring was turned over to the state and monitoring results indicated the presence of a number of volatile and semi-volatile organic chemicals, all of which are site-related.

The removal action was conducted to achieve a goal of 820 ppt of dioxin in surface soils and 2460 ppt of dioxin in subsurface soils in the remediated area denoted by EPA as recreational areas. Both recreational standards are dioxin levels greater than unrestricted (i.e. residential) soil clean-up standards applied elsewhere in the country. As a reference, the EPA regional soil clean-up standards for dioxin are 5.5 ppt and 55 ppt for cancer and non-cancer, respectively for residential land use (EPA document on Regional Soil PRGs USEPA PRG for Dioxin in Surface Soil, 2013 and EPA RSL from web site: <http://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables->

november-2015). The clean-up levels for the Ellisville action in 2014 were for recreational use (non home site) and require institutional controls (ICs) to restrict access and use of the site and prevent residential construction or land disturbance at depth. The files received by ESC, LLC include a restrictive environmental covenant that implements the land disturbance and residential restrictions. ICs would be needed and are called for by EPA to prevent unrestricted access and residential construction/use of the site that remains contaminated with dioxins.

The Removal Action Report provides the data on soil remaining after the first round of soil removals in May through July of 2014. Results of these soil samplings are presented in Tables 1 (EA 3), 2 (EA 2) & 3 (EA 1) of the EPA report. Some of the soil samples from the floor of the excavated cells, subsurface and sidewall sampling exceeded the dioxin levels that EPA determined were the clean-up goals. The Tables suggest, but do not clearly indicate that original soil samples were followed by samples with results that meet the EPA remediation goals for EA's 2 & 3. In Table 3, the results for samples SFRA 157 & 158 (dioxin levels of 7,173 and 3,384 ppt, respectively) exceed the remediation goals set by EPA. These results present a problem for concluding that the remedy succeeded in reducing the soil dioxin levels to 820 ppt/2460 ppt for surface and subsurface soil, respectively.

The soil removed by the EPA contractors was also sampled to determine the appropriate disposal facility. These results, presented in Table 4, indicate that indeed, the soil removed was highly contaminated with dioxin. Soil dioxin concentrations of the soil removed ranged from a low of 151 ppt to more than 42,000 ppt. Most sample concentrations were thousands of ppt dioxin.

Soil samples were also collected from a few other locations, to check if there was soil above the clean-up goals set for this action. The additional soil samples were in the vicinity of Areas 1 and 2 near the temporary retention pond and Bliss barn on or near the property line. The results of this sampling are in Table 5 and results from three samples exceeded the clean-up goals, and additional soil was removed in Area 1, southeast corner. Most of the results in these samples were well above EPA RSL dioxin level and some sub-surface results were well above 100 ppt. These extra areas (EA 1 ) where dioxin levels exceeded the site specific clean-up levels were remediated, according to the EPA report.

Furthermore, sampling at sites 34, 35, and 36 indicates the presence of VOCs, PAHs, and phthalates that are over 1000 ppb, exceeding natural background levels that are normally not present, or present in trace amounts. The EPA Report highlights a number of these chemicals that are present in concentrations above detection limits, or reporting

limits (SFRA 34, 35, 36 Level 2 Report Final Report Test America.pdf from Test America to Tetra Tech). These chemicals include xylenes, benzenes, pyrene, toluene, and acetone. Additionally, Bis(2-ethylexyl) phthalate was present in over 1000 ppb in sample 128. These contaminants can pose a significant risk to human health, including lung impairment, liver and kidney damage, and cancer, and therefore need to be addressed. Data from SFRA 34, 35, 36 (Analytical Report from Test America, 5/15/2014), indicate the chemicals with high concentrations in soil. These chemicals pose a risk to human health and the environment based on the nature of the chemicals present and the concentrations detected. Xylene concentrations in SFRA 34, 35, and 36 ranged from 9400-16000 ppb. If these chemicals remain, health threats may exist for different groups. The spatial extent has not been determined, the depth distribution has not been determined, and the downstream and groundwater distributions have not been assessed for these chemicals. EPA needs to provide sampling that confirm all areas meet appropriate standards.

No groundwater sampling was conducted as part of the 2014 removal action. Previous groundwater sampling efforts indicated the presence of volatile and semi-volatile organic chemicals, one reason why the City of Wildwood and citizens were concerned.

The standard procedure during a removal action is to sample the area following the removal to insure that the remaining soil meets the clean-up goals. In the present case, samples were collected and analyzed (Removal Action Report, Tables 1, 2, 3 & 4), indicating which samples had elevated dioxin levels and required additional removal. The text of the report indicates that additional removal and sampling was conducted (see below), but no results are given in the report itself. The text refers to Appendix D for the results. We were unable to locate any confirmation samples taken after the second round of soil removal. The Removal Action Report states:

#### *5.2 Soil Excavation, page 7*

*After excavation of the cells to the depth that had been indicated during RSE activities, post-excavation samples were collected. A nine-aliquot surface soil sample was collected from the floor of the excavated cells. Additionally, a nine-aliquot soil sample was collected from each of the completed side wall faces. Equal portions of each of the side wall samples were then homogenized into one ICS sample and submitted with the floor sample to CFA for dioxin TEQ analysis. Laboratory data were typically provided on a 72-hour turnaround basis. **Additional excavation was conducted when the sample results exceeded RALs.** If a combined side wall sample for an excavation area exceeded the appropriate RAL, archived samples from each of the individual walls (following ICS protocol) were submitted for analysis to determine where additional excavation would be required.*

#### *5.2.1 Excavation Area 3, pg. 8*

On April 29, 2014, **additional excavation was conducted in EA 3 cells D and E, because previous post-excavation sample results remained above the dioxin TEQ RAL.** In the central portion of these cells, additional odorous, stained soil and debris were exposed; excavation was again halted, and it was determined that additional disposal profile sampling would occur.

#### 5.2.3 Excavation Area 1, pg. 10

Additional roadway construction and tree clearing were required before excavation at EA 1 to allow movement of roll-off boxes to the area. On May 1 and 2, 2014, the contaminated area that had been identified during assessment activities was excavated to 3 feet bgs. **Post-excavation sampling results exceeded the RALs, so additional excavation was required.** On May 16, 2014, additional soil was excavated from EA 1; the area was expanded in all directions, and an additional foot was excavated from the floor of the area. **Laboratory results from post-excavation samples collected from the floor and walls (SFRA-46 through -51) were received on May 23, 2014, and all results still exceeded the RALs.**

#### 5.4 Additional Soil Sampling, pg. 15

**Additional soil sampling activities occurred during the RA to confirm that no additional dioxin-contaminated areas would have to be addressed.** The area between EA 3 and EA 2 was divided into two subareas: the south half was identified as EA 4, and the north half was designated as EA 5. The east boundary of these areas was the horse arena, and the west boundary was the roadway next to the west side of EA 3 and EA 2 (see Appendix A, Figure 3). Previous surface soil sampling had not identified elevated concentrations of dioxin within these areas.

Several issues arise from the 2014 removal action, indicated in the 2015 Removal Report:

1.) Soil a few feet deep in at least one area sampled has high concentrations of a long list of organic chemicals (SFRA 34, 35, 36 Analytical Report from Test America dated 5/15/2014) both solvents and semi-volatile chemicals including xylenes, acetone, and Bis(2-ethylhexyl) phthalate, not found in the natural environment. The fact that these chemicals are found in higher concentrations below the surface suggests that the solvents have been washed into the soil by surface waters (precipitation) and probably occur in the underlying groundwater (consistent with previous groundwater sampling data). Because the underlying material is highly fractured (karst formation), the groundwater moves readily in vertical and horizontal directions, moving contaminants with the groundwater and surface water. This situation needs to be investigated and remedied.

2.) The Removal Action Report indicates that additional soil samples were collected from within and outside the target areas (specifically in EA 4 and 5), and elevated dioxin levels were reported from samples in EA 1, indicating that the original remediation of the contaminated area was not adequate and does not capture the entire extent of contamination. Additional sampling is needed, moving outward from the removal areas of the 2014 removal action, until samples have met the cleanup targets of 820 ppt and 2460 ppt (site specific) for recreational use and 5.5 ppt/ 55 ppt for residential use in the residential areas, if indeed, sampling reaches the area intended for residential use. The fact that sampling in areas presumed to have been remediated to dioxin levels below recreational standards raises the question of the adequacy of the remediation and/or the sampling that delineated the removal action boundaries.

3.) EPA summary 2015: EPA indicates that a 5 year review was not conducted because other efforts are in place and adequate to serve the same or similar purpose. There is no indication that ESC, LLC can discern, that indicates that a five year review is an option- it is a required element. The five year review is intended to begin when construction begins and continue as long as site contaminants remain. EPA responses do not provide an authority by which five year reviews are suspended or abandoned. If five year reviews had been conducted, they would have shown that contaminants were still present at unacceptable levels. The current efforts and the proposed future monitoring activities are needed in addition to a required 5-year CERCLA review.

4.) The retention pond constructed near the horse barn was used to collect rainwater from EA 3, where the rainwater infiltrated and evaporated. Previous sampling in the area had not identified elevated dioxin concentrations. Yet no post-excavation testing for dioxins was completed within or directly around the retention pond.

#### 5.) Strecker Forest Development Site

Post sampling analysis has indicated that a large number of chemicals remain at the Ellisville Site (samples SFRA 34, 35, 36) notably in the northeast corner of the Strecker Forest property near the 2014 removal action. The average concentration of toxic contaminants in the northeast area is not acceptable for unrestricted use (see Table 1 below). Institutional controls, such as the use of fencing and information signs around the contaminated area, will need to be implemented. However, there is significant evidence that institutional controls are not fully effective at protecting human health. A GAO study found that relying on institutional controls as a major component of remedial action can jeopardize the effectiveness of the remedy (2005). Fencing and signs will not stop children from unknowingly playing in contaminated areas. Signs are also significantly less effective at communicating health risks to non-English speakers.

Table 1: Post-excavation dioxin levels, numbers taken from EPA Archive Document:  
Post-Excavation Dioxin Concentrations in Soil

Area		Dioxin in ppt
DU 44D		226
SU 36B		138
DU 42B		644
DU 41B		202
DU 41C		82
DU 41D		190
DU 40D		226
DU 40C		331
DU 40B		104
DU 39		263
		2406
	mean	240.6

6.) We identified errors in the file names and contents in Appendix D as follows:

- No data for sample 163 are presented in Tables 1-5.
- No follow up confirmation sample results are clearly labeled as such and presented for samples after the second round of soil removal in those areas where initial confirmation sampling indicated exceedances. The data need to be clearly identified or presented, as the case might be.
- The file for samples 149 through 159 contains a repeat of data for samples 160-161.
- The file for samples 129-133 has no cover sheet, chain of custody or transmittal letter.

## RECOMMENDATIONS

1. Considering that the existing sample results indicate elevated concentrations of dioxin and other toxic chemicals, an interim safety institutional control measure is needed. EPA needs to install fencing and signs around the contaminated area making it clear that the contaminated area is a threat to human health.
2. Continue sampling soil and groundwater and removing contaminated materials until the site is clean.
3. Reinstate the five year review process.
4. Implement additional sampling to delineate the extent of contamination.
5. Correct the errors in the files sent to the City.
6. Match up the existing soil data with the groundwater data and initiate remedial actions to correct the contamination of soil and groundwater.

7. Because two of the three Ellisville site properties have recent documentation of contamination, no part of the Ellisville Site should be delisted. The current work on the Bliss/Strecker Forest properties of the Ellisville Site, and the Callahan Property indicate contamination remaining in surface and/or subsurface soils. The contamination at the Bliss/Strecker Forest property had contamination known to be a significant threat to health and the environment. Further investigation of the Callahan property was not conducted after chemicals were identified during a groundwater well installation. Therefore, EPA has not affirmatively demonstrated that the Ellisville Site as a whole is free from significant threats to human health.

#### Sources

United States Environmental Protection Agency. July 2013. *Preliminary Remediation Goals (PRGs) for Dioxin in Surface Soil Proposed Strecker Forest Development, Wildwood, Missouri*. United States Government Accountability Office. January 2005. "HAZARDOUS WASTE SITES: Improved Effectiveness of Controls at Sites Could Better Protect the Public." GAO-05-163.

**MONITORING WELL INSTALLATION REPORT  
STRECKER FOREST AND CALLAHAN PROPERTIES  
ELLISVILLE SITE  
St. Louis County, Missouri**

**January 17, 2012**

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## **INTRODUCTION**

The U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division initiated an Expanded Site Review (ESR) at property adjoining the Ellisville site located in Wildwood, Missouri, in early September of 2011. The study area for the ESR, as described in the “Expanded Site Review Work Plan for the Proposed Strecker Forest Development, Wildwood, Missouri” (Tetra Tech, 2011), includes the proposed Strecker Forest residential development and a portion of the Ellisville site known as the Callahan property. The Missouri Department of Natural Resources (MDNR), Division of Geology and Land Survey (DGLS), Geological Survey Program (GSP) assisted the EPA by conducting one component of the ESR, the installation of groundwater monitoring wells. This report describes the installation of three monitoring wells on the Strecker Forest property and three monitoring wells on the Callahan property designed to evaluate the direction of groundwater flow in the shallow bedrock aquifer and to determine if contaminants are present in groundwater.

## **SITE LOCATION**

The Bliss subsite of the Ellisville site is located in Wildwood, Missouri, at 149 Strecker Road in west St. Louis County. The 18.3-acre proposed Strecker Forest development comprises three former residential tracts along the north side of Strecker Road; the Dozier property at 165 Strecker Road, the Primm property at 173 Strecker Road, and the Schoessel property at 177 Strecker Road. The Callahan property is located south of the Strecker Forest tract at 210 Strecker Road. These properties are located within the SE ¼ of the NE ¼ and the NE ¼ of the SE ¼ of Section 31, Township 45 North, Range 4 East of St. Louis County.

## **HISTORY**

A summary of the site history and environmental actions at the site is provided in the work plan for the ESR (Tetra Tech, 2011). During previous site investigations monitoring wells were installed on the Bliss and Strecker Forest properties. Six wells were installed on the Bliss property (BMW-01 through BMW-06 on fig. 1). The first three were installed in 1997 as part of the remedial action on the Bliss property. The second three (BMW-04 through BMW-06 on fig. 1) were installed in 2010 by the Missouri Department of Natural Resources to further investigate groundwater (MDNR, 2010). In 2009, seven monitoring wells (MW-01 through MW-07 on fig. 1) were installed on the Strecker Forest property as part of a phase II environmental site assessment (Mundell, 2010). All of these monitoring wells were completed in the uppermost groundwater aquifer below the surface.

## **GENERAL GEOLOGIC AND HYDROLOGIC SETTING**

The Strecker Forest and Callahan properties of the Ellisville site straddle a northwest trending ridge of the Caulks Creek drainage. Most surface-water runoff on the Strecker Forest property drains to the north to an unnamed tributary of Caulks Creek. Surface-

water runoff on the Callahan property drains generally south to another unnamed tributary of Caulks Creek. Caulks Creek flows north about 5 ½ miles to the Missouri River valley. Water tracing conducted by MDNR has shown that Caulks Creek and its tributaries are losing streams that recharge Lewis Spring located about 2 ½ miles north of the Ellisville site (MDNR, 1993).

Surficial materials on the hill slopes and ridge tops in the area are composed of cherty, clay-rich residual materials derived from the weathering of the carbonate bedrock. The valley floors of Caulks Creek and the Bliss property are filled with silty clay surface soils over chert gravel alluvial materials. The bedrock in the area is the Mississippian-age Burlington-Keokuk Limestone formation, a gray, cherty limestone that typically displays an irregular weathered surface with cutters and pinnacles. Shallow karst development is also typical of this bedrock formation. These surficial materials and bedrock are generally characterized as having moderate to high permeability.

### **WELL INSTALLATION**

Three monitoring wells (MW-8, -9, and -10) were installed on the Strecker Forest property and three (MW-C01, -C02 and -C03) on the Callahan property by the GSP in September and October of 2011 (fig. 1). All six were drilled into bedrock and constructed to sample the uppermost groundwater aquifer, similar to the construction of existing monitoring wells. The wells were drilled with down-the-hole air hammer methods. The wells were drilled and constructed in accordance with the Missouri Well Construction Rules by GSP staff holding monitoring-well installer permits. All well construction materials used were purchased new and handled in a manner to keep them free of surface contaminants.

Drilling equipment was initially mobilized to the site on September 19, 2011 and drilling was initiated the next day. Drilling of the six wells was completed by October 4 with surface completions installed the following two days. The total depths of the wells ranged from 98 to 168 feet, however, only MW-C02, the first well drilled, was advanced deeper than 121 feet due to difficulty recognizing the uppermost point of saturation in that well. Groundwater recharges into MW-C02 more slowly than the other wells. Due to the initial uncertainty of the water level within the well, the well is constructed with a greater length of screen and sand pack than the other wells.

During the drilling and installation of well MW-C01, positioned at the base of 1983-drum excavation area, organic vapors were detected in the surficial soils near the top of bedrock. Due to the concern that contaminants were present during the drilling and installation of the well, a replacement well was drilled about 15 feet southeast of the original well. During the drilling of the replacement well, additional precautions were taken to isolate the surface soils by installing a temporary surface casing to the top of bedrock. Following the construction of the replacement well, the original MW-C01 well was plugged with bentonite grout through a tremmie pipe after removing the riser pipe. The well screen could not be recovered.

The wells were constructed with 2-inch, schedule 80 PVC flush-threaded riser pipe, factory slotted (0.010 inch slots) screen and above-ground completions. A 2-inch PVC well point was placed on the bottom of each well screen. The screen lengths for each well are 20 feet long, except for MW-C01 which is 30 feet and MW-C02 which is 60 feet. Well screens were positioned in an effort to bracket the groundwater surface within the screened interval, however, the water level in MW-10 rose above the screen several feet. Quartz sand was poured into the annular space from the surface to form a sand pack around the well screen to a depth at least 3 feet above the screen slots. Bentonite chips were similarly emplaced from the surface to form the bentonite seal and annular seal to within a few feet of the surface. Four-inch square steel protective casings were installed at each well and set in at least 2 feet of concrete to form a surface seal. Three bolsters, set in concrete, were placed around each well, except well MW-10 where only two bolsters were used since it was installed adjacent to a wooded area.

The well designations for wells installed on the Strecker Forest property (MW-08, -09 and -10) were chosen to follow the numbering of the initial seven installed by Mundell. The wells installed on the Callahan property included a 'C' in the well number. Measuring points on the rim of the riser pipes were also marked. Following the construction of the wells, water levels were measured in each well from the measuring point with an electronic water-level meter.

Following construction of the wells, the top-of-casing measuring-point elevations were surveyed using a self-leveling survey instrument and stadia rod. The measuring-point elevations of the casing tops of existing wells installed by Mundell were used as datums for the level survey. GSP staff developed the wells by surging and pumping them with a submersible pump and or bailer. Well construction details and location coordinates for the six wells are listed in table 1 below.

Table 1. Location coordinates and construction details for newly installed wells.

	<b>MW-08</b>	<b>MW-09</b>	<b>MW-10</b>	<b>MW-C01</b>	<b>MW-C02</b>	<b>MW-C03</b>
Latitude (dms)	38 35 55.2	38 35 56.4	38 36 00.4	38 35 47.4	38 35 50.5	38 35 50.3
Longitude (dms)	-90 36 17.2	-90 36 21.7	-90 36 18.9	-90 36 22.5	-90 36 22.4	-90 36 18.3
Borehole diameter (inches)	6.25	6.25	6.25	6.25	6.25	6.25
Total depth (ft)	112	119	120	98	168	121
Screen length (ft)	20.0	20.0	20.0	30.0	60.0	20.0
Measuring point elevation (ft msl)	713.71	720.91	705.09	695.21	728.12	722.47

Construction diagrams for the wells are attached to this report. Also attached are copies of daily field notes recorded during the project.

### **WATER LEVEL MEASUREMENT**

In May of 2011 the Geological Survey Program began measuring water levels monthly in monitoring wells at the Ellisville site, including the six existing wells on the Bliss

property and the seven wells on the Strecker Forest property. Following construction and development of the six new monitoring wells on the Strecker Forest property, the static water levels within all existing monitoring wells were measured in order to determine the direction of groundwater flow at the Ellisville site. Table 2 lists water-level data compiled for all the existing monitoring wells at the Ellisville site. The compiled data includes water-level measurements reported by Mundell (2010) and measurements made during a well sampling event conducted by an EPA contractor on October 31, 2011 (Laura Price, personal communication, November 16, 2011). All measurements made by GSP staff used an electronic water-level indicator with 0.01-ft markings embossed on the measurement tape.

With few exceptions, the water-level measurements show consistency from one date to another. The water level in BMW-02 appears to fluctuate more than the other wells and may be more influenced by precipitation events than the water levels of other wells. Only one set of water-level measurements is available for all of the wells now present, the measurements made on December 2, 2011. The water level elevations from that data set have been plotted on a map of the site and contoured to provide a potentiometric surface map of the uppermost aquifer (fig. 2).

## **DISCUSSION**

All of the wells constructed at the Ellisville site extend into the uppermost groundwater aquifer. Wells MW-02 and MW-C02, however, extend deeper into the aquifer than the other wells. The water levels of these two wells may be slightly deeper than if the wells were constructed similarly to the rest of the wells, however, the overall shape of the potentiometric surface and groundwater flow patterns would not likely be significantly different.

Based upon the data points available it appears that the shape of the uppermost groundwater surface beneath the site somewhat resembles the topographic surface. Groundwater beneath the northern portion of the Strecker Forest tract flows generally northeast toward the northwest arm of the Bliss property. From there, it appears that groundwater flows generally north. Groundwater beneath the western pond area of the Strecker Forest tract appears to flow south to southeast to meet northwest-flowing groundwater from the southeast corner of the Strecker Forest tract (former Dozier residence area). This groundwater then flows southwest toward the northwest corner of the Callahan property and subsequently flows generally to the west toward Caulks Creek.

As mentioned above, both Caulks Creek and its tributary that drains the Bliss property are losing streams and water tracing has demonstrated that these drainages recharge groundwater that discharges from Lewis Spring (MDNR, 1993).

## **REFERENCES**

- Missouri Department of Natural Resources (MDNR). 1993. Report of Water Trace, Ellisville-Bliss Water Trace, St. Louis County, Missouri. Unpublished report of investigation. March 16, 1993.
- Missouri Department of Natural Resources (MDNR). 2010. Monitoring Well Installation Report, Bliss-Ellisville Site, Shallow Groundwater Investigation, St. Louis County. MDNR Division of Geology and Land Survey unpublished report. April 2010.
- Mundell & Associates, Inc. (Mundell). 2010. Phase II Environmental Site Assessment Report, Proposed Strecker Forest Development Site, 165, 173 and 177 Strecker Road, Wildwood, Missouri 63011. MUNDELL Project No. M08044. March 3, 2010.
- Tetra Tech EM Inc. (Tetra Tech). 2011. Expanded Site Review Work Plan for the Proposed Strecker Forest Development, Wildwood, Missouri. Superfund Technical Assessment and Response Team (START) Contract No. EP-S7-06-01, Task Order 0230, prepared for U.S. Environmental Protection Agency, Region 7. July 1, 2011.

**Table 2. Ellisville site well location and water-level information.**

Well ID	Latitude	Longitude	Latitude	Longitude	Installation Date	Total	Ground	TOC	11/16/2009		5/4/2011	
	DMS	DMS	DDEG	DDEG		Depth (FT)	Elevation	Elevation	SWL <sup>1</sup>	ELEV	SWL	ELEV
BMW-01	38 35 59.465	90 36 12.687	38.599851	-90.603524	9/10/1997	52		651.63			35.83	615.80
BMW-02	38 36 2.666	90 36 8.135	38.600741	-90.60226	9/10/1997	50.3		649.93			33.80	616.13
BMW-03	38 36 6.199	90 36 14.654	38.601722	-90.604071	9/10/1997	54		638.15			30.48	607.67
BMW-04	38 36 7.410	90 36 14.738	38.602058	-90.604094	1/14/2010	65.2	637.75	642.41			35.94	606.47
BMW-05	38 36 7.537	90 36 15.859	38.602094	-90.604405	1/13/2010	54.4	632.45	637.21			32.66	604.55
BMW-06	38 36 6.385	90 36 16.673	38.601774	-90.604631	1/12/2010	62	630.53	635.15			29.37	605.78
MW-01	38 35 51.582	90 36 15.480	38.597662	-90.6043	10/28/2009	122	722.07	724.87	96.95	625.12	100.24	624.63
MW-02	38 35 51.903	90 36 21.184	38.597751	-90.605885	10/22/2009	151	724.26	727.02	110.20	614.06	113.36	613.66
MW-03	38 35 56.827	90 36 14.509	38.599119	-90.60403	11/3/2009	116	708.72	711.63	91.24	617.48	94.03	617.60
MW-04	38 35 59.071	90 36 16.240	38.599742	-90.604511	11/5/2009	73	662.53	665.48	46.78	615.75	48.78	616.70
MW-05	38 36 1.701	90 36 13.742	38.600473	-90.603817	11/5/2009	62	647.60	650.34	38.99	608.61	39.22	611.12
MW-06	38 36 4.178	90 36 14.274	38.601161	-90.603965	10/20/2009	47	637.51	640.14	28.64	608.87	31.65	608.49
MW-07	38 36 4.175	90 36 19.213	38.60116	-90.605337	11/6/2009	102	701.39	704.06	82.07	619.32	84.80	619.26
MW-08	38 35 55.2	90 36 17.2	38.59866	-90.60478	9/26/2011	112		713.71				
MW-09	38 35 56.4	90 36 21.7	38.599	-90.60602	9/27/2011	119		720.91				
MW-10	38 36 00.4	90 36 18.9	38.60011	-90.60525	9/28/2011	120		705.09				
MW-C01	38 35 47.4	90 36 22.5	38.5965	-90.60625	10/3/2011	98		695.21				
MW-C02	38 35 50.5	90 36 22.4	38.597361	-90.60622	9/20/2011	168		728.12				
MW-C03	38 35 50.3	90 36 18.3	38.597305	-90.605084	9/21/2011	121		722.47				

Notes: 1. Water levels from Mundell (2010); reported as measured from ground surface on logs.  
2. Top-of-casing elevations for BMW wells based on the original three Bliss wells.

**Table 2 (cont.). Ellisville site well location and water-level information.**

Well ID	6/3/2011		7/6/2011		8/3/2011		9/2/2011		10/6/2011		10/31/2011		12/2/2011	
	SWL	ELEV	SWL	ELEV	SWL	ELEV	SWL	ELEV	SWL	ELEV	SWL	ELEV	SWL	ELEV
BMW-01	36.10	615.53	36.17	615.46	36.50	615.13	36.84	614.79					36.97	614.66
BMW-02	36.55	613.38	33.99	615.94	36.88	613.05	37.05	612.88					37.02	612.91
BMW-03	30.70	607.45	31.05	607.10	31.25	606.90	31.58	606.57					31.97	606.18
BMW-04	36.22	606.19	36.39	606.02	36.63	605.78	36.90	605.51					38.97	603.44
BMW-05	32.71	604.50	32.74	604.47	32.90	604.31	33.03	604.18					33.03	604.18
BMW-06	29.54	605.61	29.49	605.66	29.65	605.50	29.70	605.45					29.53	605.62
MW-01	99.78	625.09	99.65	625.22	99.37	625.50	99.70	625.17			99.96	624.91	100.38	624.49
MW-02	113.23	613.79	113.17	613.85	113.10	613.92	113.15	613.87			113.17	613.85	113.52	613.50
MW-03	93.90	617.73	94.04	617.59	94.11	617.52	94.41	617.22			94.67	616.96	94.91	616.72
MW-04	49.05	616.43	49.04	616.44	49.15	616.33	49.10	616.38			49.16	616.32	49.40	616.08
MW-05	39.31	611.03	39.40	610.94	39.56	610.78	39.56	610.78			39.66	610.68	39.65	610.69
MW-06	31.65	608.49	31.65	608.49	31.65	608.49	31.65	608.49			31.69	608.45	31.73	608.41
MW-07	85.01	619.05	85.20	618.86	85.42	618.64	86.35	617.71			86.65	617.41	86.80	617.26
MW-08									96.49	617.22	96.61	617.1	96.91	616.80
MW-09									102.88	618.03	102.92	617.99	103.23	617.68
MW-10									87.53	617.56	87.63	617.46	87.95	617.14
MW-C01									78.00	617.21	78.12	617.09	78.28	616.93
MW-C02									121.51	606.61	124.23	603.89	121.75	606.37
MW-C03									101.16	621.31	101.19	621.28	101.58	620.89



FIGURE 1  
 MONITORING WELL LOCATION MAP  
 ELLISVILLE SITE  
 WILDWOOD, MISSOURI  
 ST. LOUIS COUNTY

- ⊕ Monitoring Well
- ▭ Strecker Forest Property  
(Approximate Boundary)
- ▭ Callahan Property  
(Approximate Boundary)

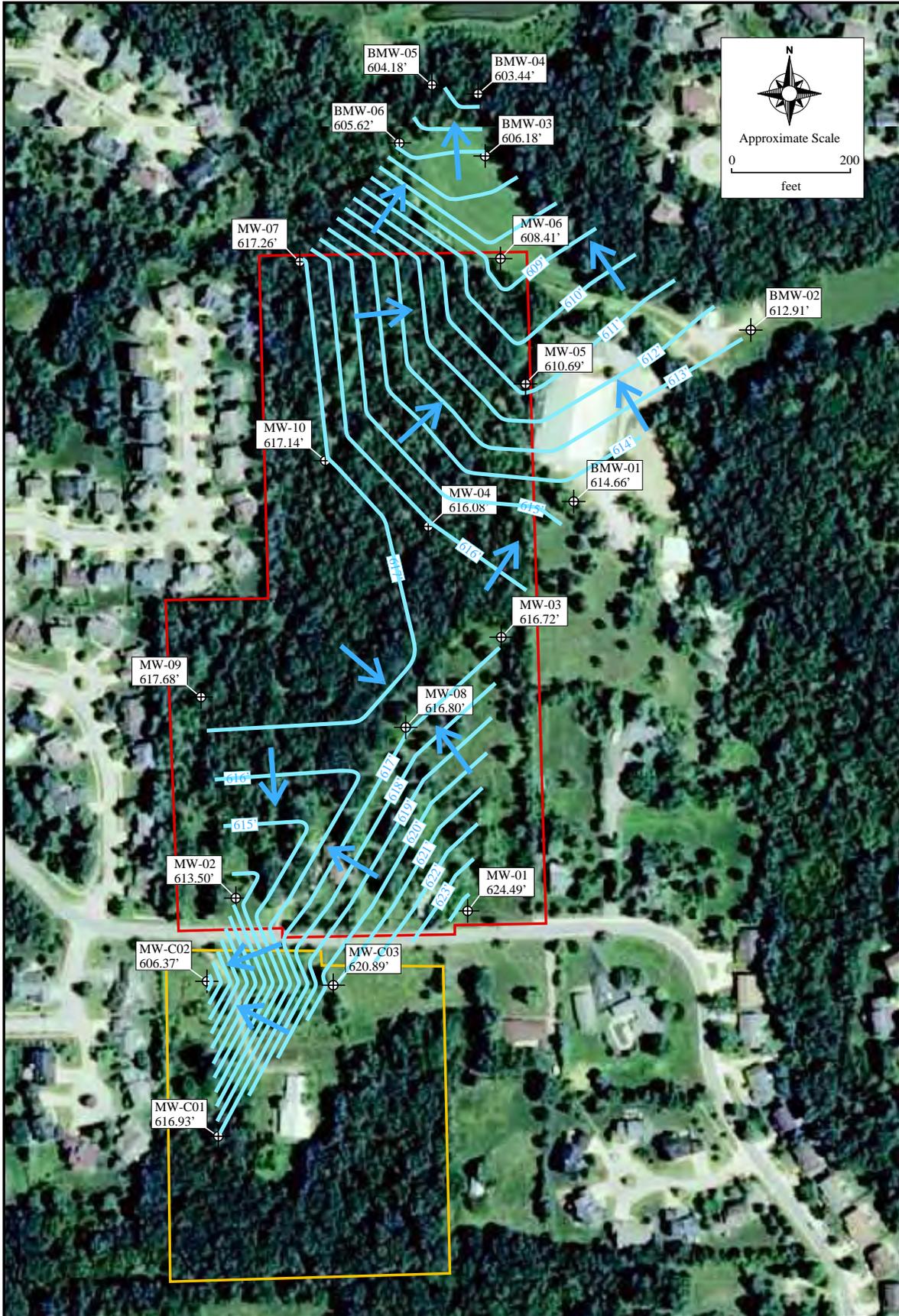


FIGURE 2  
 GROUNDWATER ELEVATION MAP  
 ELLISVILLE SITE  
 WILDWOOD, MISSOURI  
 ST. LOUIS COUNTY

-  Monitoring Well
-  Strecker Forest Property (Approximate Boundary)
-  Callahan Property (Approximate Boundary)
-  Potentiometric Surface (December 2, 2011)
-  Groundwater Flow Direction (December 2, 2011)

## FIELD NOTES – STRECKER FOREST / CALLAHAN PROPERTIES WELL INSTALLATION

09/20/11

Began drilling MW-C02 on the Callahan Property using air rotary with a 6 inch bit and a combined hammer and stabilizer length of 10 feet. The bit started bouncing and hammering at a depth of 4 feet, but was just on a residual piece of rock. At 13 to 14 feet began bouncing and hammering on cherty residuum. Drilled boring to a total depth of 168 feet (see well log).

Constructed well with 60 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 110 feet of 2-inch schedule 80 riser (2 feet above the ground surface). The sand pack was constructed with 21.5 bags of sand (50 lb) to a depth of 103 feet below ground surface (5 feet above the top of the screen). Two bags of bentonite chips (50 lb bags) were placed above the sand pack and hydrated.

09/21/11

Checked the static water level in MW-C02 (from the top of the casing prior the installation of the above ground completion).

MW-C02

Time	Static Water Level (feet)
08:23	115.26
08:34	115.19
08:40	115.12
08:50	115.06

Began drilling MW-C03 on the Callahan Property using air rotary with a 6 inch bit and a combined hammer and stabilizer length of 10 feet. The bit started bouncing and hammering at a depth of 9 feet, but appeared to be just on a residual piece of rock. At 17 feet began bouncing and hammering on cherty residuum. Drilled boring to a total depth of 121 feet (see well log).

Constructed monitoring well MW-C03 with 20 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 100 feet of 2-inch schedule 80 riser (1 foot above the ground surface). The screen and riser were suspended to a total depth of 119 feet (one foot of riser above the ground surface). The sand pack was constructed with 8.25 bags of sand (50 lb) to a depth of 94 feet below ground surface (5 feet above the top of the screen). A 3 foot bentonite seal was placed above the sand pack using medium bentonite chips (hydrated every foot or poured through standing water). The annular seal was placed above the bentonite seal using medium bentonite chips (hydrated every foot or poured through standing water). A total of 20.5 bags of medium bentonite chips were used for the bentonite seal and annular seal. A static water level of 119.07 feet was measured in monitoring well MW-C03 at 15:54.

09/22/11

A static water level of 107.00 feet was measured in monitoring well MW-C03 at 07:42.

Returned top monitoring well MW-C02 and emplaced the annular seal using medium bentonite chips (hydrated every foot or poured through standing water). A total of 21.5 bags of medium bentonite chips (50 lb bags) were used for the bentonite seal and annular seal.

Began drilling MW-C01 on the Callahan Property using air rotary with a 6 inch bit and a combined hammer and stabilizer length of 10 feet. The bit started bouncing and hammering at a depth of 12 feet and a strong toluene type odor was present. Had a hard time keeping hammer operating so added water at residuum/bedrock interface to clean out the hole after cleaning the hammer out. Had to add a little water to hole at a depth of 50 to 70 feet to keep the dust down. Drilled boring to a total depth of 100 feet. There were a few gallons of water that blew out of the hole after waiting about 20 minutes.

Constructed well with 20 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 80 feet of 2-inch schedule 80 riser (2 foot above the ground surface). The screen and riser were suspended to a total depth of 98 feet (two foot of riser above the ground surface). The sand pack was constructed with 8 bags of sand (50 lb bags) to a depth of 73 feet below ground surface (5 feet above the top of the screen). A 3 foot bentonite seal was placed above the sand pack using medium bentonite chips (hydrated every foot or poured through standing water). The annular seal was placed above the bentonite seal using medium bentonite chips (hydrated every foot or poured through standing water). A total of 16 bags of medium bentonite chips were used for the bentonite seal and annular seal. A static water level of 73.85 feet was measured in monitoring well MW-C01 at 18:23. There was still an odor to the well at this time.

09/26/11

Brenna McDonald on-site to log wells.

Began drilling MW-08 on the Primm Property using air rotary with a 6 inch bit and a combined hammer and stabilizer length of 10 feet. Drilled boring to a total depth of 112 feet (see well log).

Constructed monitoring well MW-08 with 20 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 100 feet of 2-inch schedule 80 riser (cut off 3.5 feet above the ground surface).

The sand pack was constructed with 7 bags of sand (50 lb bags) to a depth of 85.5 feet below ground surface (6.5 feet above the top of the screen). A 3 foot bentonite seal was

placed above the sand pack using medium bentonite chips (hydrated every foot or poured through standing water). The annular seal was placed above the bentonite seal using medium bentonite chips (hydrated every foot or poured through standing water). A total of 20 bags of medium bentonite chips were used for the bentonite seal and annular seal.

09/27/11

Brenna McDonald on-site to log wells.

Began drilling MW-09 on the Primm Property using air rotary with a 6 inch bit and a combined hammer and stabilizer length of 10 feet. Drilled boring to a total depth of 119 feet (see well log). Went to lunch and had water in the hole when they got back.

Constructed monitoring well MW-09 with 20 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 100 feet of 2-inch schedule 80 riser (1 foot above the ground surface).

The sand pack was constructed with 6.5 bags of sand (50 lb bags) to a depth of 95 feet below ground surface (4 feet above the top of the screen). A 3 foot bentonite seal was placed above the sand pack using medium bentonite chips (hydrated every foot or poured through standing water). The annular seal was placed above the bentonite seal using medium bentonite chips (hydrated every foot or poured through standing water). A total of 23.5 bags of medium bentonite chips were used for the bentonite seal and annular seal.

09/28/11

Measured static water level in monitoring well MW-C01 at 77.19 feet below the top of casing (uncompleted well) at 08:03. Bailed 5 gallons of water from well with 3 foot stainless steel bailer. Re-measured static water level at 85.01 feet at 08:41 and 84.44 feet at 08:51. Put Grundfos pump in well with garden hose and tried to pump water. Pumped approximately  $\frac{1}{4}$  gallon then it stopped pumping (pumped the hole dry filling the hose).

Began drilling MW-10 on the Primm Property using air rotary with a 6 inch bit and a combined hammer and stabilizer length of 10 feet. The bit started bouncing and hammering at a depth of 10 feet. Bit was getting hung up on a small ledge at approximately 25 feet (having a hard time lowering tools into hole with just the winch). Drilling dust went away at a depth of approximately 90 feet. Drilled boring to a total depth of 120 feet.

Constructed well with 20 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 100 feet of 2-inch schedule 80 riser. The screen and riser went down to a total depth of 116 feet (4 feet of riser above ground)(4 feet of sluff in the hole). The sand pack was constructed with 7.5 bags of sand (50 lb bags) to a depth of 91 feet below ground surface (5 feet above the top of the screen). A 3 foot bentonite seal was placed above the sand pack using medium bentonite chips (hydrated every foot or poured through standing water). The annular seal was

placed above the bentonite seal using medium bentonite chips (hydrated every foot or poured through standing water). A total of 22.5 bags of medium bentonite chips were used for the bentonite seal and annular seal.

09/29/11

Returned to MW-C01 location to drill replacement well using a temporary surface casing. Started drilling at 12:00 using an 8 inch bit and a combined hammer and stabilizer length of 15 feet. Green soil on stabilizer at a depth of 7 to 10 feet with strong odor. It is not know just how thick the contaminated layer was since the soil was smeared on the hammer and stabilizer. Repeatedly cleaned off the hammer and stabilizer to allow for air flow. Added a few gallons of water to help clean out the hole. Put on dust deflector and added first drill stem. Started hammering at a depth of 13 feet. Turned off water valve to insure that no more water could enter the hole, but had to turn it back on due to gumming up of the hammer. Started hammering better at a depth of 23 feet. Up and down the hole to clean it out (ribs on stabilizer getting clogged up).Hammering steady at 27 feet. Drilled to 30 feet and cleaned out the hole. Some water in hole during cleanout. At 13:35 pulled out of the hole to set the temporary casing. Added 3 bags of medium bentonite chips to the hole and hydrated (brought the hole up to 24 feet total depth). Set 30 feet of 6 inch schedule 40 PVC in the hole (6 feet above the ground) and waited 15 minutes for the bentonite to hydrate some. Used drill rig to push the casing down 5 feet into the bentonite (1 foot above ground). Added 2.5 bags of bentonite into the annular space between boring and casing and hydrated. Pushed the casing down the remaining one foot to ground level. Switched to 6 inch hammer and stabilizer and attempted to start drilling. The hammer got stuck in the casing and blew out the seal. Pulled the casing up 4 feet and added 2 more bags of medium bentonite chips to the bottom of the hole. Waited 15 minutes and pushed the casing down again. Waited addition 20 minutes and attempted to drill again, but the seal blew out again. Decided to install temporary casing with cement and allow to set.

09/30/11

Pulled out the temporary casing and went back down the hole with the 8 inch hammer and stabilizer to clean out the hole. Pulled back out of the hole and added ½ bag of bentonite chips and then 4 sacks of portland cement (94 lb bags) mixed with 6 gallons of water per bag. Put the 6 inch SCH 40 PVC temporary casing back down the hole at 09:30 and added 6 bags of medium chips to annular space between boring and casing (hydrated).

10/03/11

Returned to MW-C01 location and measured 26 feet to the bottom of the hole inside the casing. Put 6 inch hammer and stabilizer in the hole and started drilling. Drilling dust went away at a depth of approximately 69 feet. Drilled the hole to a depth of 85 feet and waited 15 minutes and then blew about ½ gallon of water out of the hole. Decided to take the hole another 10 feet deep after comparing the total depth of the well at that time

to the water level in monitoring well MW-C02 (up the hill). Drilled the hole to a total depth of 98 feet.

Constructed monitoring well with 30 feet of 2 inch schedule 80 screen (with stainless steel centralizers at the bottom and top of the screen) and 70 feet of 2-inch schedule 80 riser (2 foot above the ground surface). The sand pack was constructed with 11 bags of sand (50 lb bags) to a depth of 63 feet below ground surface (5 feet above the top of the screen). A 3 foot bentonite seal was placed above the sand pack using medium bentonite chips (hydrated every foot or poured through standing water). The annular seal was placed above the bentonite seal using medium bentonite chips (hydrated every foot or poured through standing water) up to the bottom of the temporary casing. 6 bags of bentonite chips were used.

10/04/11

Measured static water level in the replacement monitoring well MW-C01 at 92.66 feet below the top of casing (uncompleted well) at 07:45 and slowly rising.

Pulled the temporary 6 inch PVC casing and added 6 more bags of medium bentonite chips (hydrated every foot or poured through standing water). A total of 18 bags of medium bentonite chips (including the 6 bags that were used in the annular space between the boring and temporary casing) were used for the bentonite seal and annular seal.

Finished the surface completions on monitoring wells MW-C01 (except for bolsters), MW-C02, MW-C03 and MW-08.

10/05/11

Attempted to pull the 2" screen and riser from the original MW-C01, but the riser broke off at the top joint (10 feet). Went to rolla to get extractor tool, tremmie pipe and powdered bentonite.

Returned to site and pulled a total of 80 feet of 2 inch riser from the original MW-C01. The screen broke off and would not pull due to the centralizers.

Put 1 inch PVC tremmie pipe down the hole to a depth of 70 feet (top of sand pack at 73 feet). Mixed 1 sack of bentonite powder with 25 gallons of water and pressure grouted the remaining hole with a Moyno pump.

10/06/11

Finished surface completions for MW-09 and MW-10.

Surveyed the top of casing of new wells to the top of casing of the nearest existing well and surveyed the 4 metal posts in the former pond area.

Station	Rod Location	Rod Reading (feet)	Elevation	
1	Primm TOC MW-02	4.22	*727.02	
1	Callahan TOC MW-C02 (GSP)	3.12	728.12	
2	Primm TOC MW-02	0.92	*727.02	
2	Callahan TOC MW-C03 (GSP)	5.47	722.47	
3	Callahan TOC MW-C02 (GSP)	1.58	728.12	
3	Leg 1	17.79	711.91	
4	Leg 1	0.89	711.91	
4	Callahan TOC MW-C01 (GSP)	17.59	695.21	
5	Top of Stake 1	7.26	714.78	
5	Top of Stake 2	6.70	715.34	
5	Top of Stake 3	6.37	715.67	
5	Top of Stake 4	6.37	715.67	
5	Primm TOC MW-09 (GSP)	1.13	720.91	
5	Leg 1	0.25	721.79	
6	Leg 1	5.76	721.79	
6	Primm TOC MW-02	0.53	*727.02	
7	Primm TOC MW-10 (GSP)	9.28	705.09	
7	Leg 1	13.58	700.79	
8	Leg 1	6.54	700.79	
8	Primm TOC MW-07	3.27	*704.06	
9	Primm TOC MW-03	8.29	*711.63	
9	Primm TOC MW-08 (GSP)	6.21	713.71	

\*Previously reported top of casing elevation

Measured static water levels in new wells prior to attempting to develop the wells

Location	TOC elevation	SWL	GW Elevation	Time
Callahan MW-C01	695.21	78.00	617.21	14:17
Callahan MW-C02	728.12	121.51	606.61	09:48
Callahan MW-C03	722.47	101.16	621.31	13:52
Primm MW-08	713.71	96.49	617.22	14:26
Primm MW-09	720.91	102.88	618.03	14:33
Primm MW-10	705.09	87.53	617.56	11:41

Surged MW-C02 with a 3 foot stainless steel bailer and bailed 12 gallons of water from it.

Tried to surge MW-C03 but the 3 foot bailer became lodged in the bottom of the hole (fines in the well locked it up).

10/12/11

Arrived at Ellisville site 13:20 to develop monitoring wells.

Monitoring well MW-C02. Measured static water level at 124.19 feet below the top of casing at 13:30. Started pumping with Grundfos and ½ inch poly tubing. The pump controller shut off (over amps) several times. Pumped 5 gallons of water from the well by 15:22. Pumped another 5 gallons by 16:17 and another 2 gallons by 16:40. Measured the static water level at 141.72 feet below the top of the casing at 16:54 and 141.71 feet at 17:02.

Began bailing and bailed 5 gallons of water from the well by 09:43 and another 3 gallons of water by 09:55. Stopped bailing since lower bailer was only about ¼ full. Re-measured static water level at 109.76 feet below the top of casing at 09:58.

Moved to monitoring well MW-C03. Measured static water level at 100.67 feet below the top of casing at 17:09 and 112.80 feet from the top of casing down to the top of the stuck bailer.

10/13/11

Moved to monitoring well MW-C02. Measured static water level at 138.41 feet below the top of casing at 07:32.

Moved to monitoring well MW-08. Measured static water level at 96.12 feet below the top of casing at 07:46. Started pumping with Grundfos and ½ inch poly tubing at 08:00. Pumped 5 gallons of water from the well by 08:10. Pumped another 2 gallons by 08:12 and then ran out of water. Measured the static water level at 105.41 feet below the top of the casing at 08:37.

Moved to monitoring well MW-10. Measured static water level at 87.08 feet below the top of casing at 09:10. Started pumping with Grundfos and ½ inch poly tubing at 09:18. Pumped 5 gallons of water from the well by 09:26. Pumped another 5 gallons by 09:34, another 5 gallons by 09:44 and another 2 gallons by 09:50 and then ran out of water. Measured the static water level at 112.00 feet below the top of the casing.

Moved to monitoring well MW-09. Measured static water level at 102.40 feet below the top of casing. Started pumping with Grundfos and ½ inch poly tubing. Pumped a total of 10 gallons of water from the well then ran out of water. Measured the static water level at 115.45 feet below the top of the casing at 11:09 (after pumping).

Moved to monitoring well MW-C03. Measured static water level at 96.97 feet below the top of casing at 11:33. Dropped slug down the hole and surged up and down on a string. This loosened the stuck bailer for a moment (it went up and down a couple of feet), but then it locked up again. The slug started getting hung up on the bailer string, so was afraid to try again. Measured 113.5 feet to the top of the bailer from the top of casing.

Moved to monitoring well MW-C01. Measured static water level at 77.90 feet below the top of casing at 12:05. Started pumping with Grundfos and ½ inch poly tubing at 12:14. Pumped 5 gallons of water from the well by 12:24. Pumped another 5 gallons by 12:35 and then ran out of water. Measured the static water level at 93.51 feet below the top of the casing at 12:39.

Moved to monitoring well MW-C02. Measured static water level at 137.22 feet below the top of casing at 13:05.

Moved to monitoring well MW-08. Measured static water level at 97.38 feet below the top of casing at 13:12. Started pumping with Grundfos and ½ inch poly tubing at 13:45. Pumped 5 gallons of water from the well by 13:56. Pumped another ¼ gallon and then ran out of water. Measured the static water level at 104.65 feet below the top of the casing at 14:03.

Moved to monitoring well MW-10. Measured static water level at 87.18 feet below the top of casing at 14:19. Started pumping with Grundfos and ½ inch poly tubing at 14:37. Pumped 5 gallons of water from the well by 14:55. Pumped another 5 gallons by 15:16 and then another 5 gallons by 15:58. Measured the static water level at 103.15 feet below the top of the casing at 16:02.

Measured static water levels in wells

MW-09, static water level 103.09 feet at 16:29

MW-08, static water level 98.92 feet at 16:36

MW-C01, static water level 88.37 feet at 16:42

MW-C02, static water level 136.5 feet at 16:46

10/17/11

Arrived at Ellisville site 11:45

Got water from the Callahan residence (about 50 gallons) for cleaning purposes.

Monitoring well MW-C03 (3 foot stainless steel bailer stuck in the well). Measured the static water level at 101.08 feet below the top of casing. Measured 113 feet to the top of bailer from the top of casing. Put 110 feet of 1 inch tremmie pipe down the hole and pumped approximately 5 gallons of water to dislodge the bailer. The bailer wouldn't come free. Added another 10 feet of tremmie pipe and set it on top of the bailer and the bailer went down with little resistance (just the weight of the tremmie pipe). Applied

pressure to the bailer string slowly by winding it around a brush handle. The string stretched until it broke, but the bailer didn't move (recovered 68 feet of string). Measured 119.25 feet to top of bailer from the top of casing. Began developing well. Started pumping with the Grundfos with ½ inch poly tubing at 13:50. The pump controller kept shutting off (over amps), but pumped 5 gallons of water out of the well by 14:14 and another 5 gallons by 14:46.

Moved to monitoring well MW-C02. Measured the static water level at 126.21 feet below the top of casing at 15:12. Started pumping with Grundfos and ½ inch poly tubing at 16:10. The pump controller kept shutting off (over amps), so gave up on using Grundfos. Began using 2 disposable bailers (in-train on the same line) and bailed 5 gallons of water from the well by 16:48. Bailed another 5 gallon by 17:10, another 5 gallons by 17:30, another 5 gallons by 17:44 and another 3.5 gallons by 17:54. Measured the static water level at 165.80 feet below the top of the casing at 17:56.

10/18/11

Returned to monitoring well MW-C02. Measured static water level at 161.00 feet below the top of casing at 07:53. Bailed 4 gallons of water from well by 08:11. Re-measured static water level at 167.81 feet at 08:14

Moved to monitoring well MW-C03. Measured static water level at 101.43 feet below the top of casing at 08:47. Began bailing and bailed 5 gallons of water from the well by 09:02 and another 3 gallons of water by 09:13. Stopped bailing since lower bailer was only about ¼ full. Re-measured static water level at 115.79 feet below the top of casing at 09:16.

Moved to monitoring well MW-08. Measured static water level at 96.43 feet below the top of casing at 09:27. Began bailing and bailed 5 gallons of water from the well by 09:43 and another 3 gallons of water by 09:55. Stopped bailing since lower bailer was only about ¼ full. Re-measured static water level at 109.76 feet below the top of casing at 09:58.

Moved to monitoring well MW-09. Measured static water level at 102.71 feet below the top of casing at 10:09. Began bailing and bailed 5 gallons of water from the well by 10:25, another 5 gallons of water by 10:42 and another gallon of water by 10:47. Stopped bailing since lower bailer was only about ½ full.

Moved to monitoring well MW-10. Measured static water level at 87.37 feet below the top of casing at 11:02. Began bailing and bailed 5 gallons of water from the well by 11:17, another 5 gallons of water by 11:31, another 5 gallons of water by 11:51 and another 5 gallons of water by 12:11. Stopped bailing.

Moved to monitoring well MW-C01. Measured static water level at 77.97 feet below the top of casing at 12:58. Began bailing and bailed 5 gallons of water from the well by

13:12, another 5 gallons of water by 13:23 and another 4 gallons of water by 13:35. Re-measured static water level at 98.97 feet below the top of casing at 13:37.

Moved to monitoring well MW-C02. Measured static water level at 166.08 feet below the top of casing at 13:51. Began bailing and bailed 2 gallons of water from the well by 14:05.

Moved to monitoring well MW-C01. Measured static water level at 98.08 feet below the top of casing at 14:14.

Moved to monitoring well MW-C03. Measured static water level at 108.85 feet below the top of casing at 14:20. Began bailing and bailed 5 gallons of water from the well by 14:43 and another gallon of water by 14:48. GPS location coordinates: N 38° 35' 50.3", W 090° 36' 18.3"

Moved to monitoring well MW-08. Measured static water level at 98.36 feet below the top of casing at 15:00. Began bailing and bailed 5 gallons of water from the well by 15:16. Collected GPS location data N 38° 35' 55.2", W 090° 36' 17.2"

Moved to monitoring well MW-09. Measured static water level at 104.86 feet below the top of casing at 15:28. Collected GPS location data N 38° 35' 56.4", W 090° 36' 21.7"

Moved to monitoring well MW-10. Measured static water level at 87.57 feet below the top of casing at 15:37. Began bailing and bailed 4 gallons of water from the well by 15:50. Collected GPS location data N 38° 36' 00.4", W 090° 36' 18.9"

Moved to monitoring well MW-C02. Collected GPS location data N 38° 35' 50.5", W 090° 36' 22.4"

Moved to monitoring well MW-C01. Collected GPS location data N 38° 35' 47.4", W 090° 36' 22.5"

Ellisville Site – Wildwood, Missouri  
Addendum to Field Notes, October 6, 2011

The field notes produced by Glen Young on October 6, 2011 contained top of casing survey data for the new monitoring wells (MW-C01, MW-C02, MW-C03, MW-08, MW-09 and MW-10) installed at the site. The survey tied the top of casing elevations of existing wells at the site to the top of casing elevations of the new wells and to the top of four stakes in the former pond area at the site. Unfortunately, the elevation data that was utilized as the top of casing elevation for the existing wells was actually the ground elevation for those wells taken from the well boring logs. This resulted in erroneous top of casing elevations for the wells reported in the field notes.

The following table contains the revised top of casing elevations for the new monitoring wells and the top of the four stakes at the site.

Location	Elevation
MW-C01 (Top of Casing)	695.21
MW-C02 (Top of Casing)	728.12
MW-C03 (Top of Casing)	722.47
MW-08 (Top of Casing)	713.71
MW-09 (Top of Casing)	720.91
MW-10 (Top of Casing)	705.09
Stake 1 (Top of Stake)	714.78
Stake 2 (Top of Stake)	715.34
Stake 3 (Top of Stake)	715.67
Stake 4 (Top of Stake)	715.67

The following page replaces the page found in the Field Notes from October 6, 2011.

Surveyed the top of casing of new wells to the top of casing of the nearest existing well and surveyed the 4 metal posts in the former pond area.

Station	Rod Location	Rod Reading (feet)	Elevation	
1	Primm TOC MW-02	4.22	*727.02	
1	Callahan TOC MW-02 (GSP)	3.12	728.12	
2	Primm TOC MW-02	0.92	*727.02	
2	Callahan TOC MW-03 (GSP)	5.47	722.47	
3	Callahan TOC MW-02 (GSP)	1.58	728.12	
3	Leg 1	17.79	711.91	
4	Leg 1	0.89	711.91	
4	Callahan TOC MW-01 (GSP)	17.59	695.21	
5	Top of Stake 1	7.26	714.78	
5	Top of Stake 2	6.70	715.34	
5	Top of Stake 3	6.37	715.67	
5	Top of Stake 4	6.37	715.67	
5	Primm TOC MW-09 (GSP)	1.13	720.91	
5	Leg 1	0.25	721.79	
6	Leg 1	5.76	721.79	
6	Primm TOC MW-02	0.53	*727.02	
7	Primm TOC MW-10 (GSP)	9.28	705.09	
7	Leg 1	13.58	700.79	
8	Leg 1	6.54	700.79	
8	Primm TOC MW-07	3.27	*704.06	
9	Primm TOC MW-03	8.29	*711.63	
9	Primm TOC MW-08 (GSP)	6.21	713.71	

\*Previously reported top of casing elevation

Measured static water levels in new wells prior to attempting to develop the wells

Location	TOC elevation	SWL	GW Elevation	Time
Callahan MW-01	695.21	78.00	617.21	14:17
Callahan MW-02	728.12	121.51	606.61	09:48
Callahan MW-03	722.47	101.16	621.31	13:52
Primm MW-08	713.71	96.49	617.22	14:26
Primm MW-09	720.91	102.88	618.03	14:33
Primm MW-10	705.09	87.53	617.56	11:41



**Well Construction Log**

WELL NO.: **MW-08**  
 TOTAL DEPTH: **112**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald</b>
SITE LOCATION:	<b>Primm Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Brenna McDonald</b>	LATITUDE/LONGITUDE:	<b>N 38 35 55.2 W 90 36 17.2</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-26-2011</b>	MEASURING PT ELEV:	<b>713.71</b>

☒ Water level during drilling     
 ☒ Water level in completed well **96.49**     
 Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0			Clay, silty				Concrete surface seal
5							
10			Residuum: chert and clay, reddish-brown to gray, angular (from drilling)				
15							
20							
25							
30							
35							
40							
45							
50			Cherty Limestone: light gray to buff; BURLINGTON-KEOKUK LIMESTONE				
55							
60			Cherty Limestone: brown; BURLINGTON-KEOKUK				
65							



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

## Well Construction Log

WELL NO.: **MW-08**  
TOTAL DEPTH: **112**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald</b>
SITE LOCATION:	<b>Primm Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Brenna McDonald</b>	LATITUDE/LONGITUDE:	<b>N 38 35 55.2 W 90 36 17.2</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-26-2011</b>	MEASURING PT ELEV:	<b>713.71</b>

☒ Water level during drilling
▼ Water level in completed well 96.49
Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION	
65			LIMESTONE					
70			Cherty Limestone: gray to buff; BURLINGTON-KEOKUK LIMESTONE					
75								
80								
85								
90								
95								
100				Cherty Limestone: gray to bluish-gray; BURLINGTON-KEOKUK LIMESTONE				
105				Cherty Limestone: light gray; BURLINGTON-KEOKUK LIMESTONE				
110								
115								
120								
125								

Bentonite chips  
bentonite seal

Sand pack

2" PVC Sch 80  
well screen .010  
slot

2" PVC Sch 80  
Bottom cap

NOTES: Above ground completion. Measuring point at top of riser pipe.



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

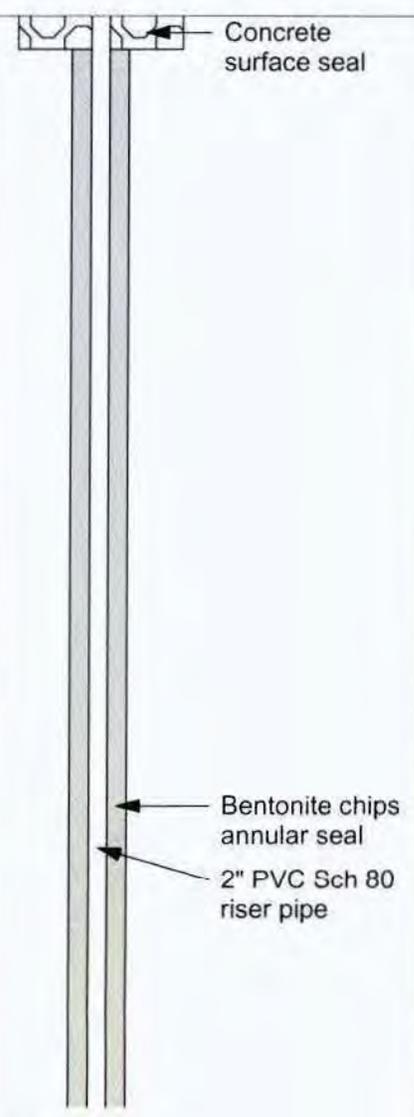
## Well Construction Log

WELL NO.: **MW-09**  
TOTAL DEPTH: **119**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald</b>
SITE LOCATION:	<b>Primm Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Brenna McDonald</b>	LATITUDE/LONGITUDE:	<b>N 38 35 56.4 W 90 36 21.7</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-27-2011</b>	MEASURING PT ELEV:	<b>720.91</b>

☒ Water level during drilling
☑ Water level in completed well
102.88
Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0			Clay, silty				Concrete surface seal
5							
10							
15			Residuum: chert and clay, reddish-brown to gray, angular (from drilling)				
20							
25							
30							
35							
40							
45							
50			Cherty Limestone: light gray to buff; BURLINGTON-KEOKUK LIMESTONE				
55							
60			Cherty Limestone: brown to tan; BURLINGTON-KEOKUK LIMESTONE				
65							



NOTES: Above ground completion. Measuring point at top of riser pipe.



**Well Construction Log**

WELL NO.: **MW-09**  
 TOTAL DEPTH: **119**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald</b>
SITE LOCATION:	<b>Primm Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Brenna McDonald</b>	LATITUDE/LONGITUDE:	<b>N 38 35 56.4 W 90 36 21.7</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-27-2011</b>	MEASURING PT ELEV:	<b>720.91</b>

☒ Water level during drilling     
 ☒ Water level in completed well     
 102.88     
 Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION		
65			Cherty Limestone: light gray to buff; BURLINGTON-KEOKUK LIMESTONE			<p>           Bentonite chips bentonite seal            Sand pack            2" PVC Sch 80 well screen .010 slot            2" PVC Sch 80 Bottom cap         </p>			
70									
75									
80									
85									
90									
95									
100									
105									
110				Cherty Limestone: gray to bluish-gray; BURLINGTON-KEOKUK LIMESTONE					
115				Cherty Limestone: light gray to buff; BURLINGTON-KEOKUK LIMESTONE					
120									



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

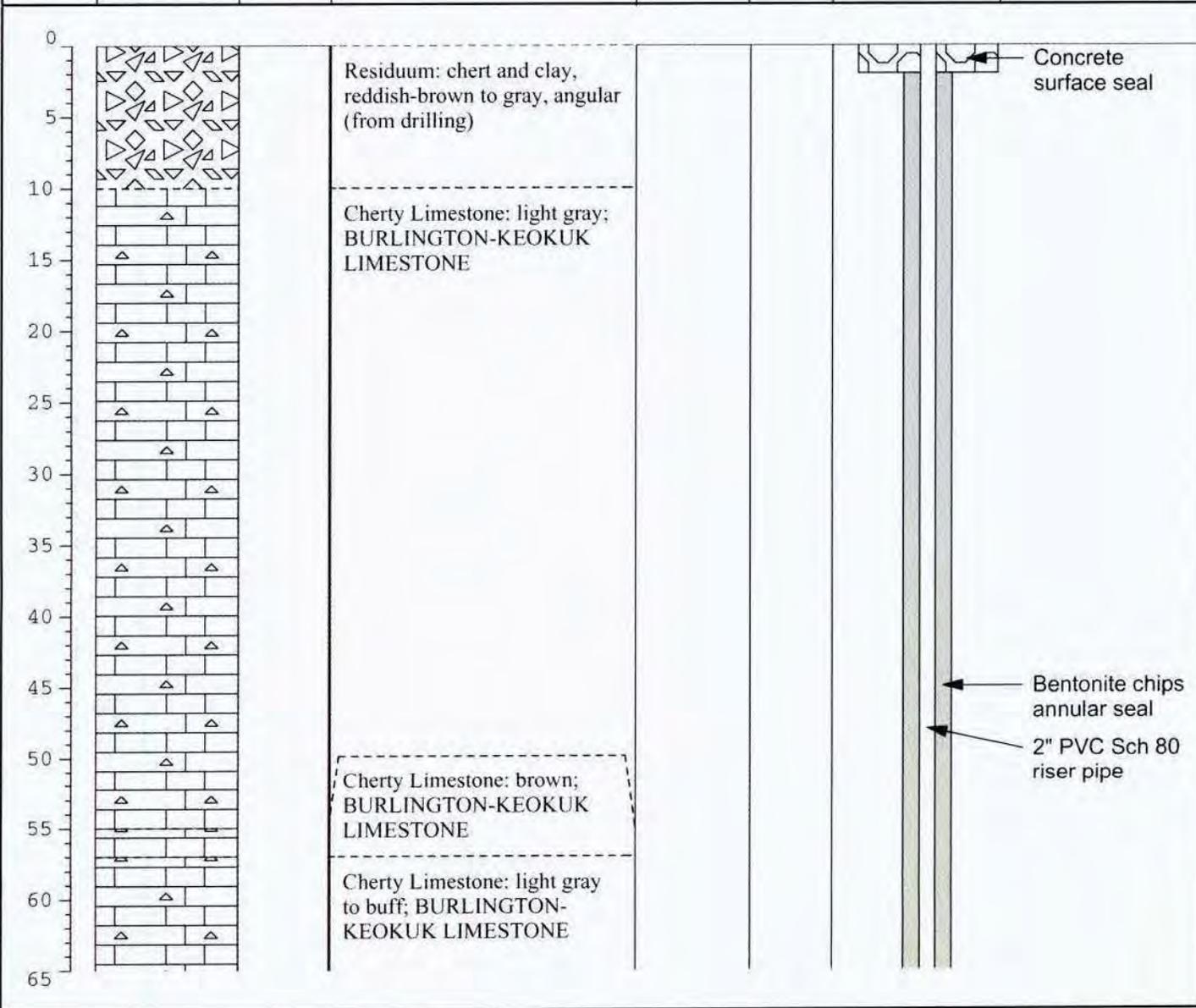
## Well Construction Log

WELL NO.: **MW-10**  
TOTAL DEPTH: **120**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Primm Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 36 00.4 W 90 36 18.9</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-28-2011</b>	MEASURING PT ELEV:	<b>705.09</b>

☒ Water level during drilling     
 ☒ Water level in completed well     
 87.53     
 Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
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NOTES: Above ground completion. Measuring point at top of riser pipe.



**Well Construction Log**

WELL NO.: **MW-10**  
 TOTAL DEPTH: **120**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Primm Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 36 00.4 W 90 36 18.9</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-28-2011</b>	MEASURING PT ELEV:	<b>705.09</b>

☼ Water level during drilling     
 ☼ Water level in completed well    87.53     
 Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION		
65			Cherty Limestone: light gray; BURLINGTON-KEOKUK LIMESTONE						
70									
75									
80									
85									
90				Cherty Limestone: light gray to buff; BURLINGTON-KEOKUK LIMESTONE					Bentonite chips bentonite seal
95									
100									
105									
110									
115				Cherty Limestone: gray to bluish-gray and buff (alternating); BURLINGTON-KEOKUK LIMESTONE					Sand pack
120					Cherty Limestone: bluish-gray; BURLINGTON-KEOKUK LIMESTONE				
									Borehole collapse



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

## Well Construction Log

WELL NO.: **MW-C01**  
TOTAL DEPTH: **98**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Callahan Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>8" and 6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 35 47.4 W 90 36 22.5</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-29-2011 to 10-03-2011</b>	MEASURING PT ELEV:	<b>695.21</b>

☞ Water level during drilling      ☛ Water level in completed well      78.00      Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0			Clay, silty: fill material				Concrete surface seal
5							
10							
15			Residuum: chert and clay, reddish-brown to gray, angular (from drilling)				Bentonite chips annular seal 6" PVC Sch 40 temporary casing
20							
25							
30			Cherty Limestone: light gray; BURLINGTON-KEOKUK LIMESTONE (minor amount of water in hole at a depth of 70 feet after adding drill rod)				Portland Cement Bentonite chips Bentonite chips annular seal
35							
40			Cherty Limestone: light brown to buff; BURLINGTON-KEOKUK LIMESTONE				2" PVC Sch 80 riser pipe
45							
50							
55			Cherty Limestone: light gray; BURLINGTON-KEOKUK LIMESTONE (dust from drilling went away)				

NOTES: Above ground completion. Measuring point at top of riser pipe.



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

## Well Construction Log

WELL NO.: **MW-C01**  
TOTAL DEPTH: **98**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Callahan Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>8" and 6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 35 47.4 W 90 36 22.5</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-29-2011 to 10-03-2011</b>	MEASURING PT ELEV:	<b>695.21</b>

☞ Water level during drilling
☛ Water level in completed well 78.00
Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
60	[Symbol]						
65	[Symbol]						
70	[Symbol]						
75	[Symbol]		Cherty Limestone: light brown to buff; BURLINGTON-KEOKUK LIMESTONE				
80	[Symbol]						
85	[Symbol]		Cherty Limestone: gray to bluish-gray; BURLINGTON-KEOKUK LIMESTONE				
90	[Symbol]						
95	[Symbol]						
100	[Symbol]						

Bentonite chips bentonite seal  
 Sand pack  
 2" PVC Sch 80 well screen .010 slot  
 2" PVC Sch 80 bottom cap

NOTES: Above ground completion. Measuring point at top of riser pipe.



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

## Well Construction Log

WELL NO.: **MW-C02**  
TOTAL DEPTH: **168**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Callahan Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 35 50.5 W 90 36 22.4</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-20-2011</b>	MEASURING PT ELEV:	<b>728.12</b>

☞ Water level during drilling      ☛ Water level in completed well      121.51      Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0			Clay, silty				Concrete surface seal
5							
10							
15			Residuum: chert and clay, reddish-brown to gray, angular (from drilling)				
20							
25							
30							
35							
40							
45							
50							Bentonite chips annular seal
55							2" PVC Sch 80 riser pipe
60							

NOTES: Above ground completion. Measuring point at top of riser pipe.



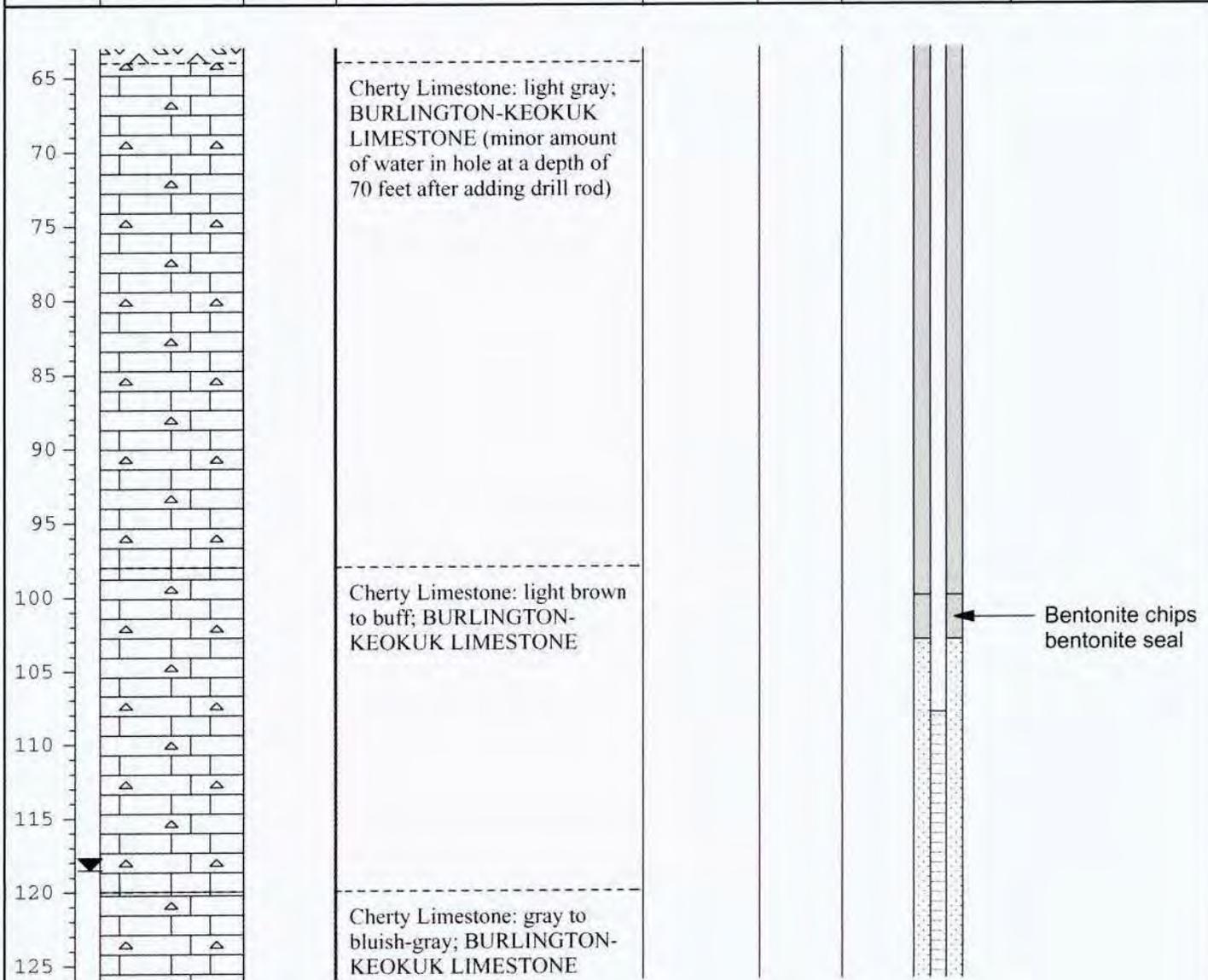
**Well Construction Log**

WELL NO.: **MW-C02**  
 TOTAL DEPTH: **168**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Callahan Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 35 50.5 W 90 36 22.4</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-20-2011</b>	MEASURING PT ELEV:	<b>728.12</b>

☒ Water level during drilling
☒ Water level in completed well 121.51
Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
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# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

## Well Construction Log

WELL NO.: **MW-C02**  
TOTAL DEPTH: **168**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Callahan Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 35 50.5 W 90 36 22.4</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-20-2011</b>	MEASURING PT ELEV:	<b>728.12</b>

☒ Water level during drilling     
 ☒ Water level in completed well     
 121.51     
 Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
130						<p>           Sand pack            2" PVC Sch 80 well screen .010 slot            2" PVC Sch 80 Bottom cap         </p>	
135							
140							
145							
150							
155							
160							
165							
170							
175							

NOTES: Above ground completion. Measuring point at top of riser pipe.



# MISSOURI

Department of Natural Resources  
Division of Geology and Land Survey

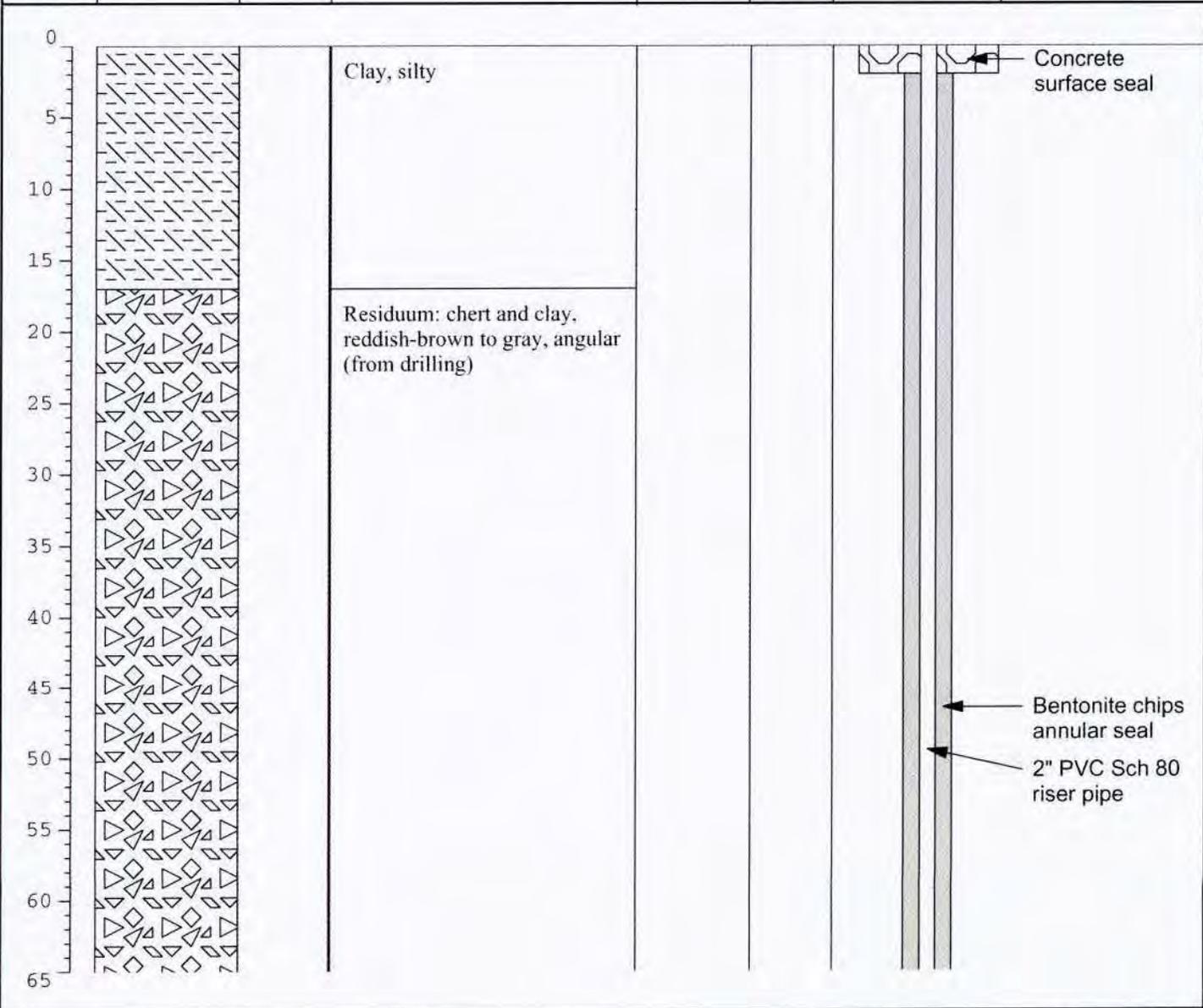
## Well Construction Log

WELL NO.: **MW-C03**  
TOTAL DEPTH: **121**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	<b>Bliss-Ellisville</b>	DRILLER:	<b>Dan Nordwald/Glen Young</b>
SITE LOCATION:	<b>Callahan Property</b>	RIG TYPE:	<b>Simco 7000</b>
CITY/COUNTY:	<b>St. Louis County</b>	METHOD OF DRILLING:	<b>6" air hammer</b>
LOGGED BY:	<b>Glen Young</b>	LATITUDE/LONGITUDE:	<b>N 38 35 50.3 W 90 36 18.3</b>
PROJECT MANAGER:	<b>Don Van Dyke</b>	SURFACE ELEVATION:	
DATES DRILLED:	<b>09-21-2011</b>	MEASURING PT ELEV:	<b>722.47</b>

☒ Water level during drilling      ☑ Water level in completed well      101.16      Oct. 6, 2011

DEPTH	LITHOLOGIC SYMBOLS	USCS	LITHOLOGIC DESCRIPTION	SAMPLE	PID ppm	BORING COMPLETION	WELL DESCRIPTION
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NOTES: Above ground completion. Measuring point at top of riser pipe.



## WILDWOOD

March 28, 2016

The Honorable City Council  
City of Wildwood, Missouri  
16860 Main Street  
Wildwood, Missouri 63040

Re: Hawks Trail Drive and Options

Council Members:

The Department of Planning is in receipt of a sales contract for a property that is located in the Hawks Rest Subdivision, and specifically on Hawks Trail Drive. The owner of this lot, the seller, had provided the contract to the Department at the request of the City Attorney, so as it could be presented to City Council for its consideration, but not relating to the transaction, rather if a zoning authorization would be issued by the City to the buyer of it in the future. The need to have this question resolved relates to the substandard roadway that serves these lots on Hawks Trail Drive and the City and others' efforts over the last twenty (20) years to correct it.

This plat of the Hawks Rest Subdivision was approved by St Louis County just weeks before Wildwood's incorporation, which meant the design of the lots and improvements were not reviewed by the City, but would now be responsible for all permitting of homes for the new lots. This situation was addressed very early, just after the incorporation, when the first of the zoning authorizations for the development of the homesites was submitted for approval. At that time, access to the newly created lots was via a gravel roadway surface. This roadway also had several sharp turns and a steep climb to the buildable area of the overall site, which made a well-defined and constructed roadway imperative.

The current status of this aforementioned plat of Hawks Rest Subdivision is as follows:

1. The plat is a ten (10) lot subdivision, with seven (7) of them served by the road at issue;
2. Lot 1 is served by a pre-existing road;
3. Lots 2-3 are served by a portion of the road constructed by the initial developer, which was built to City specifications. Only Lot 3 has a home on it.
4. Lots 4-8 are served by a portion of the road that was constructed by the successor developer at the approximate time when a home was built on Lot 7. The road was not built to City specifications. Today, only Lot 7 has a home on it; and
5. The property currently at issue is Lot 5. The seller purchased this lot in 1998 from the original developer, has held it since that time, and never constructed a dwelling there as well.

Over this twenty (20) year period of time, a number of attempts have been made to have the roadway constructed to a minimum standard, so buyers of these lots would have an appropriate and long lasting solution for access to their homes. To date, the grading and paving of the roadway have occurred, but to a substandard pavement thickness of approximately two (2) inches, leaving the roadway very susceptible to damage from heavy traffic, i.e. construction vehicles. Already, portions of the roadway have had to be

repaired by a past homebuilder, Windwood Development, who was the entity that constructed the roadway to the aforementioned, substandard thickness, in conjunction with an authorization to construct a single-family residence on one (1) of the lots (the only remaining partner of Windwood Development, Hugh Plunkett, continues to own one of the other vacant lots). The repair that occurred was completed to the required base asphalt thickness of six (6) inches, in preparation of a future two (2) inch asphalt overlay. However, other segments of the roadway remain at a substandard thickness, and have continued to deteriorate with time. Both, the original developer and subsequent homebuilder have not been responsive, despite often committing to address this matter. Given this situation, the City issued summonses, held building permits, discussed litigation and was threatened of the same, and met countless times, but little progress was made in terms of the roadway improvements. These discussions have been on-going and are still underway at this time.

One (1) of the current owners of a vacant lot in this subdivision now has a contract to sell the property, but is concerned the new owner of it will not be able to obtain a building permit for a dwelling, given the condition of the roadway and the on-going issue with it. Having this concern, the owner of the lot contacted the City Attorney to discuss this matter, which led to the submittal of the sales contract to the Department of Planning. Based upon the conversations that have occurred between the parties, the decision was made to have the City Council hear and consider the matter of issuing additional building permits for the vacant lots located on Hawks Trail Drive, without the roadway being fully addressed.

The Department's position on this matter is that, until the roadway is upgraded, the addition of more occupied residences will only create more issues and complaints, particularly if a solution is not forthcoming in a timely manner. This situation is why the Department has not supported the release of permits for these lots in the past, despite owners' acknowledgements of the roadway condition but still wanting to proceed with their construction projects. Therefore, the Department believes that, before another building permit is considered on this street, a more tangible action needs to be in place. These tangible actions could include the following:

1. The City undertakes the improvement of the roadway and places liens on the properties that would not participate in this improvement program. However, this action would require the City to first declare the road a nuisance, seek a court order directing one (1) or more of the owners to abate the nuisance and, if that does not occur, the City could abate the nuisance and place liens on the Lots. These liens would fall behind any existing liens or mortgages already filed and in place.
2. The City continues to hold building permits, until the lot owners themselves address the matter.
3. The City pursues some level of litigation against the successor developer of this subdivision and attempts to have the roadway improved through a court action.
4. The City issues the building permit and accepts the current condition of the roadway as-is.
5. The City issues the requested building permit, but collects a pro-rated share from each applicant for building permit for the roadway improvement costs to be used in its reconstruction in the future.
6. The City issues the requested building permit, but collects a cash escrow for the purpose of addressing any damage to the current roadway from construction traffic.

The situation associated with this roadway is unfortunate and certainly causes issues for individuals that had no active role regarding its condition. However, the City has been consistent throughout this discussion on its desire to have the roadway completed to an appropriate standard.

If any of the City Council Members have questions or comments regarding this information and associated request, please feel free to contact the Department of Planning and Parks at (636) 458-0440. A presentation

on this matter is planned at tonight's meeting. Thank you for your consideration of this information and direction on the same.

Respectfully submitted,  
**CITY OF WILDWOOD**

A handwritten signature in cursive script, appearing to read "Joe Vujnich".

Joe Vujnich, Director  
Department of Planning and Parks

Cc: The Honorable Timothy Woerther, Mayor  
Ryan S. Thomas, P.E., City Administrator  
Rob Golterman, City Attorney  
Rick Brown, P.E. and P.T.O.E., Director of Public Works  
Kathy Arnett, Assistant Director of Planning and Parks

This document has legal consequences.  
If you do not understand it, consult your attorney.

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Form # 2043

09/15

### SPECIAL SALE CONTRACT

DATE: 3/14/2016

Note: This form does not have many clauses protecting Buyers included in the Residential Sale Contract, Form #2090. It should normally be used only for the sale of property without provision for building, termite, environmental, gas, municipal, insurability, and other inspections. Regardless of whether Seller's Disclosure Form is to be provided, Seller is still obligated to comply with Federal and State laws which require disclosure of certain defects, hazardous conditions and adverse material facts.

#### 1. PARTIES AND PROPERTY.

Eric & Stephanie Stanton, Buyer(s), agrees to purchase from the undersigned Seller, the following real property in the municipality of Wildwood (if incorporated), County of St. Louis, Missouri (legal description on Seller's title to govern) being all the real property Seller owns at said address: 18634 Hawks Trail Drive

#### 2. INCLUSIONS AND EXCLUSIONS.

The purchase price includes all existing improvements on the property (if any) and appurtenances, fixtures and equipment (which Seller guarantees to own free and clear) including:

Note: To avoid misunderstanding, the parties are urged to list as "included" or "excluded" any items which may be subject to any questions.

In addition, the following items are included: \_\_\_\_\_

The following items are excluded: \_\_\_\_\_

#### 3. PURCHASE PRICE.

\$49,900.00 is the total purchase/sale price to be paid as follows:

\$2,500.00 earnest money received for delivery to/deposit by St. Louis Title Co.

\_\_\_\_\_, escrow agent. Selling broker to be escrow agent if none specified above.

\$ \_\_\_\_\_ additional earnest money to be delivered to escrow agent within \_\_\_\_\_ days after the "Acceptance Deadline" date or \_\_\_\_\_

The balance, including adjustments set forth in paragraphs 4 or 7, less, if applicable, any amount of Seller financing or of Seller's loan being assumed as stipulated in this contract, is to be paid at Closing, by cashier's check, wire transfer or any form acceptable to Closing agent.

#### 4. METHOD OF FINANCING.

Note: If Buyer's lender or Closing agent cannot fulfill their obligations under the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated by the Consumer Financial Protection Bureau, it may be necessary for the Buyer to request Seller to agree to an extension of the Closing Date.

Not Contingent Upon Financing. This contract is not contingent upon financing; however, Buyer reserves the right to finance any portion of the purchase price.

Contingent Upon Financing. Buyer agrees to do all things necessary, including, but not limited to the execution of a loan application and other instruments, the payment to the lender of the credit report, appraisal and any other required fees, and to otherwise cooperate fully in order to obtain the financing described below. If Buyer does not deliver written notice, provided by Buyer's lender, to Seller or listing broker, of Buyer's inability to obtain a loan approval on the terms described below on or before 30 (or 30 days after the "Acceptance Deadline" date if none stated) (the Loan Contingency Date) then this condition shall be deemed waived and Buyer's performance under this contract shall thereafter not be conditioned upon Buyer's obtaining financing. If lender will not give Buyer such written notice then Buyer may directly notify Seller or listing broker (on or before the Loan Contingency Date) by providing a notarized affidavit that Buyer has complied with all of the terms of this paragraph and that despite request, Buyer was unable

to obtain such written notice from lender. If Buyer has complied with the terms of this paragraph and has timely provided written notice to Seller or listing broker of Buyer's inability to obtain the loan approval, then this contract shall be terminated with earnest money to be returned to Buyer, subject to paragraph 12.

Note: If Loan Contingency Date passes without written notice as outlined above, Buyer remains obligated under this contract. Therefore, Buyer should be certain that he will have the funds to close. If Buyer's performance under this contract is to be independently conditioned upon the property appraising at a specified value, then Buyer should complete and attach to this contract an appropriate appraisal rider.

Loan amount: 100 % of the purchase price, or \$ \_\_\_\_\_  
Initial interest rate not to exceed: 5.5 %. Amortization term: 20 years.  
Other terms: \_\_\_\_\_  
TYPE:  Conventional  FHA  VA  
 Fixed Rate  Adjustable Rate  Other: suitable to Buyer

5. CLOSING AND POSSESSION.

The "Closing" is the exchange of the Seller's deed for the total purchase/sale price. The Closing of this sale shall take place on April 26, 2016, or any other date that both parties agree in writing. Buyer will close at St. Louis Title Co., the title company which provides title insurance. Regardless of who closes for Buyer, Seller may close at the title company of Seller's choice. Note: If the Seller does not close at the same title company as the Buyer, or the Seller's choice of title company does not have a common underwriter with the Buyer's title company, then the Seller will be required to sign a Notice of Closing or Settlement Risk acknowledging that their settlement funds are not protected by the title insurance underwriter. Title will pass when the sale is closed. Seller to deliver possession of the property and keys to Buyer no later than \_\_\_\_\_ (time) of closing (date) but in no event prior to Closing as defined above. All parties agree to sign Closing documents at a time that facilitates this possession. Note: If possession is to be delivered on a day other than Closing, as defined above, parties should complete the appropriate rider. Deed as directed by Buyer. Except for tenants lawfully in possession, Seller warrants that the property will be vacant and free of personal property (except as otherwise provided herein) and debris, at time of possession and delivered to Buyer in its same condition (together with any improvements or repairs required by this contract), ordinary wear and tear excepted, as it was on the date of this contract. Buyer and Seller authorize title company and/or Closing agent to release to broker(s) signed copies of the Closing statements.

6. TITLE AND SURVEY.

Seller shall transfer title to Buyer by general warranty deed (or fiduciary deed, where applicable), subject to the following: a) zoning regulations; b) leases and occupancy of tenants existing on the date contract is executed by Buyer and disclosed to Buyer in writing before execution of contract by Buyer; c) general taxes payable in the current year and thereafter; d) any lien or encumbrance created by or assumed by Buyer in writing or any easement accepted by Buyer in writing; e) subdivision, use and other restrictions, rights of way and utility easements, all of record, which do not adversely affect the use of the property as it exists for residential purposes at the time of the contract.

Check applicable box (whether "Seller to Order, Provide and Purchase Title" or "Buyer to Order, Provide and Purchase Title").

Seller to Order, Provide and Purchase Title.

Not later than \_\_\_\_\_ days (5 days if none stated) after the "Acceptance Deadline" date, Seller will order a commitment for title insurance to be provided to the Buyer for both an Owner's policy of title insurance and for a Lender's policy of title insurance (if required by lender) in the latest ALTA form including mechanics lien coverage from the title company selected in paragraph 5. Seller and Buyer authorize and direct the title company to furnish this commitment to the selling and listing broker. Seller shall pay for the title insurance (including title premium and title service charges), at Closing, at a cost not to exceed \_\_\_\_\_. Buyer to pay title cost exceeding this amount.

Buyer to Order, Provide and Purchase Title.

Buyer may, at Buyer's option and expense, order a title examination and a commitment to issue an Owner's and/or lender's policy of title insurance in the latest ALTA form including mechanics lien coverage from the title company specified in paragraph 5.

Note: This should be ordered promptly after contract acceptance in order to allow sufficient time to obtain and review documents, and, if necessary, object to defects that may be discovered.

Buyer may, at Buyer's option and expense, order a Boundary Survey and Improvement Location ("stake survey") or a Surveyor's Real Property Report (SRPR) of the property to determine if there are any defects, encroachments, overlaps, boundary line or acreage discrepancies, or other matters that would be disclosed on a survey.

Note: A "stake survey" is generally required in order to obtain full survey coverage in an Owner's policy of title insurance. A SRPR may or may not disclose all of the defects involving such matters as encroachments, overlaps, boundary line or acreage discrepancies.

If any defects are discovered as a result of the title examination, title commitment or the survey and if Buyer chooses to act on this contingency, Buyer shall within 20 days (25 days if none stated) after the "Acceptance Deadline" date, furnish a copy of the document evidencing the defect to Seller or listing broker stating, in writing, any title or survey defects that are 1) unacceptable to Buyer; 2) not listed above; and 3) adversely affect the use of the property as it exists for residential purposes at the time of the contract. Failure by Seller or listing broker to receive such objections to title or survey within such time will constitute a waiver by Buyer of any objections to the title so long as Buyer is able to obtain at Closing, an Owner's title insurance policy in the latest ALTA form including mechanics lien coverage. If Buyer does timely object to any title or survey defects, Seller has five (5) days from receipt of Buyer's notice of objection by Seller or listing broker, to agree in writing to correct the defects prior to Closing at Seller's expense. If Seller does not so agree, this contract is terminated unless Buyer, within two (2) additional days, agrees in writing to accept the title and survey "as is". If the contract is terminated in accordance with the provisions of this paragraph, Buyer's earnest money to be returned, subject to paragraph 12, and Seller agrees to reimburse Buyer's cost to pay for title, survey, inspection(s) and appraisal. Seller shall be responsible for clearing any defects that arise between the date of the contract acceptance and Closing.

**Note: Easements, subdivision indentures, and government regulations may affect Buyer's intended use of the property. Construction of improvements (for example: a room addition, fence or swimming pool), non-residential use of the property (for example: use of a room for a business), or the right to keep certain vehicles or animals on the property, all may be affected. Buyer is advised to review all easements, government regulations, and subdivision indentures before making an offer to purchase the property if he plans these or similar uses. If Buyer requires assistance in reviewing easements, surveys, indentures, or other matters affecting title or use of the property, he should consult an attorney.**

**7. ADJUSTMENTS AND CLOSING COSTS.**

Adjustments, charges, and Closing costs are agreed to be paid by the parties (subject to Rider #2135FHA or #2135VA and current FHA and VA regulations) as follows:

**Buyer shall pay for (where applicable):**

- hazard insurance premium(s), and flood insurance premium, if required by lender;
- survey and title company charges (including Closing, recording and escrow fees) customarily paid by Buyer, subject to paragraph 8;
- any charges imposed by lender, for example: appraisal and credit report fees, loan discount (points), loan origination fees, funding fees, and other loan expenses, unless specifically agreed to be paid by Seller;
- building, termite, and environmental inspections;
- the fair market value of any heating oil or propane gas in tank(s) on the property at Closing, based on supplier's current charges;
- real estate compensation to broker per separate written agreement; and
- municipal occupancy permit and agreed upon repairs.

**Seller shall pay for (where applicable):**

- existing loans on property (if not assumed by Buyer);
- any expenses of Buyer's loan agreed to in paragraph 4;
- title company charges (including Closing, releasing and escrow fees) customarily paid by Seller, subject to paragraph 8;
- municipal, Conservation District and fire district inspection fees;
- special taxes and special assessments levied before Closing;
- real estate compensation to broker per separate written agreement, Seller authorizes selling portion of commission to be paid directly to selling broker; and
- agreed upon repairs.

**Buyer and Seller shall have prorated and adjusted between them on the basis of thirty (30) days to the month as of the date of Closing (Seller to pay for last day):**

- current rents (Seller to receive rent for day of Closing); rents which are delinquent over thirty (30) days to be collected by Seller and not adjusted;
- general taxes (based on assessment and rate for current year, if both are available, otherwise based on previous year);
- district improvement assessments for current year; buyer to pay thereafter;
- subdivision upkeep assessments and monthly condominium fee;
- interest (when Buyer assumes existing loan); and
- flat rate utility charges (including water, sewer, and trash).

**8. LOSS.**

Risk of loss to the improvements of the property shall be borne by the Seller until title is transferred. If any improvements covered by this contract are damaged or destroyed, Seller shall immediately notify Buyer or selling broker in writing of the damage or destruction, the amount of insurance proceeds payable, if any, and whether Seller intends to restore the property prior to Closing, to its condition at the time of the contract. In the event Seller restores the property to its prior condition before scheduled Closing, and provides Buyer with proof of the repairs, Buyer and Seller shall proceed with Closing. In the event the property is not to be restored to its prior condition by the Seller before Closing, Seller shall immediately provide Buyer or selling broker with a copy of any policies of insurance, the name and number of the agent for each of said policies, and written

160 authorization (if needed) for Buyer to communicate with the insurer. Buyer may either a) proceed with Closing and be entitled  
161 to the amount of insurance proceeds relating to real property improvements, if any, payable to Seller under all policies insuring  
162 the improvements plus receive a credit from the Seller at Closing in an amount equal to the deductible not covered by  
163 insurance, or b) terminate the contract, thereby releasing all parties from liability hereunder. If all of the aforementioned  
164 insurance information is received by the Buyer or selling broker more than ten (10) days prior to the scheduled Closing date,  
165 Buyer is to give written notification to Seller or listing broker as to his election of (a) or (b) above within ten (10) days after the  
166 Buyer or selling broker's receipt of such information; and if not received by Buyer or selling broker more than ten (10) days  
167 prior to the scheduled Closing date, Buyer may, at Buyer's option and by written notice to Seller or listing broker, extend the  
168 Closing date up to ten (10) days, during which time Buyer may make his election as to (a) or (b) above. Failure by Buyer to  
169 notify Seller shall constitute an election to terminate the contract. If the contract is terminated in accordance with the provisions  
170 of this paragraph, Buyer's earnest money is to be returned to Buyer, subject to paragraph 12, and Seller agrees to reimburse  
171 Buyer's cost to pay for title, survey, inspection(s) and appraisal.

172 **9. ASSIGNABILITY OF CONTRACT.**

173 This contract is assignable by Buyer, but not without the written consent of Seller if a) Seller is taking back a note and deed of  
174 trust as part of the purchase price, or b) Buyer is assuming the existing note. Assignment does not relieve the parties from their  
175 obligations under this contract.

176 **10. TIME IS OF THE ESSENCE.**

177 Time is of the essence in the performance of the obligations of the parties. All references to a specified time shall mean Central  
178 Time.

179 **11. BINDING EFFECT.**

180 This contract shall be binding on and for the benefit of the parties and their respective heirs, personal representatives,  
181 executors, administrators or assigns.

182 **12. EARNEST MONEY.**

183 Buyer and Seller agree that the earnest money received by the escrow agent in connection with this contract shall be deposited  
184 within ten (10) banking days after the "Acceptance Deadline" date. Additional earnest money, if applicable, is to be deposited  
185 by escrow agent within ten (10) banking days after receipt. Any earnest money received within ten (10) banking days prior to  
186 the scheduled Closing date, shall be in the form of a cashier's check or any other form acceptable to the escrow agent. If sale is  
187 closed, earnest money to apply to the purchase. If any earnest money is being returned to Buyer, Buyer agrees that any  
188 expenses for services requested by Buyer may be withheld by escrow agent and paid to the applicable service provider(s). In  
189 the event of a dispute over any earnest money held by the escrow agent, the escrow agent shall continue to hold said deposit in  
190 its escrow account until: 1) escrow agent has a written release from all parties consenting to its disposition; or 2) until a civil  
191 action is filed to determine its disposition (at which time payment may be made into court, and in such event, court costs and  
192 escrow agent's attorney fees will be paid from earnest money); or 3) until a final court judgment mandates its disposition; or 4)  
193 as may be required by applicable law. The parties specifically acknowledge and agree that whenever ownership of the earnest  
194 money or any other escrowed funds, received by a Missouri licensed real estate broker, is in dispute between the parties, said  
195 broker is required by Missouri Statute, Section 339.105.4RSMo to report and deliver the monies to the State Treasurer within  
196 365 days of the initial projected Closing date. Broker shall not report and deliver any such monies to the State Treasurer until at  
197 least sixty (60) days after the initial projected Closing date.

198 **Note: An escrow agent who is not a licensed real estate broker is not bound by Missouri statutes and regulations which**  
199 **apply to earnest money deposits. If the escrow agent is not a licensed broker, the parties are urged to have the escrow**  
200 **agent agree in writing to be bound by the provisions of this contract before being named as the escrow agent.**

201 **13. REMEDIES.**

202 If either party defaults in the performance of any obligation of this contract, the party claiming a default shall notify the other  
203 party in writing of the nature of the default and his election of remedy. The notifying party may, but is not required to, provide  
204 the defaulting party with a deadline for curing the default.

205 If the default is by Buyer, Seller may either accept the earnest money as liquidated damages and release Buyer from the  
206 contract (in lieu of making any claim in court), or may pursue any remedy at law or in equity.

207 If Seller accepts the earnest money, it shall be divided as follows: expenses of broker and Seller in this transaction will be  
208 reimbursed, and balance to go one-half to Seller, and one-half divided equally between listing broker and selling broker (if  
209 working as subagent of Seller) in lieu of commission on this contract.

210 If the default is by Seller, Buyer may either release Seller from liability upon Seller's release of the earnest money and  
211 reimbursement to Buyer for all direct costs and expenses, as specified in Buyer's notice of default (in lieu of making any claim in  
212 court), or may pursue any remedy at law and in equity, including enforcement of sale. Buyer's release of Seller does not relieve  
213 Seller of his liability to brokers under the listing contract.

214 In the event of litigation between the parties, the prevailing party shall recover, in addition to damages or equitable relief,  
215 the cost of litigation including reasonable attorney's fee. This provision shall survive Closing and delivery of Seller's deed  
216 to Buyer.

217 14. GOVERNING LAW.  
218 This contract shall be considered a contract for the sale of real property and shall be construed in accordance with the laws of  
219 the State of Missouri.

220 15. ENTIRE AGREEMENT.  
221 This contract constitutes the entire agreement between the parties hereto and there are no other understandings, written or oral,  
222 relating to the subject matter hereof. The contract may not be changed, modified or amended, in whole or in part, except in  
223 writing signed by all parties.

224 16. CONSTRUCTION.  
225 Words and phrases shall be construed as in the singular or plural number, and as masculine, feminine or neuter gender,  
226 according to the context. When the term "listing broker" is used, it refers to one of the following: a) a broker working for the  
227 Seller under an agency listing contract; or b) a broker assisting the Seller as a transaction broker, whichever is appropriate.  
228 When the term "selling broker" is used, it refers to one of the following: a) a broker working for the Buyer under a buyer's  
229 agency agreement; b) a broker assisting the Buyer as a subagent of the Seller; or c) a broker assisting the Buyer as a transaction  
230 broker, whichever is appropriate. The term "broker" shall include the broker's affiliated licensees (referred to as  
231 "salespeople"). With the exception of the term "banking days" as used in paragraph 12, a day is defined as a 24 hour calendar  
232 day, seven (7) days per week.

233 17. FLOOD PLAIN.  
234 Buyer may terminate this contract if any portion of the property is located in a designated 100 year flood plain unless  
235 disclosed to Buyer in writing prior to contract. If terminated, earnest money to be returned to Buyer subject to paragraph 12.  
236 Failure by Buyer to terminate within ten (10) days of actual knowledge of 100 year flood plain, or by Closing, whichever  
237 occurs first, shall be deemed a waiver by Buyer of this contingency.

238 18. ACCESS, FINAL WALK-THROUGH AND UTILITIES.  
239 Upon reasonable advance notice to Seller or listing broker, Seller agrees to provide access for appraiser(s) and other  
240 professionals as may be provided for in the contract or required by Buyer's lender or insurer. Buyer and selling broker may be  
241 present. Seller grants Buyer and selling broker the right to enter and walk-through the property and the right to have utilities  
242 turned on or transferred, at Buyer's expense, within four (4) days prior to Closing. This right is for the Buyer to see that the  
243 property is in the same condition, ordinary wear and tear excepted, as it was on the date of this contract. The Closing does not  
244 relieve Seller of his obligation to complete improvements and repairs required by this contract.

245 19. SPECIAL AGREEMENTS.  
246 Special agreements and Riders between Buyer and Seller forming a part of this contract: BUS ACT  
247 CONTINGENT UPON WRITTEN APPROVAL FROM THE CITY OF WILDWOOD AND ALL REQUIRED ENTITIES TO  
248 BE ABLE TO OBTAIN REQUIRED PERMITS, ETC. TO BUILD A SINGLE FAMILY RESIDENCE AT 18634 HAWKS TRAIL DR.  
249 AT NO ADDITIONAL COST TO BUYER/PURCHASER FOR ROADWAY IMPROVEMENTS TO HAWKS TRAIL DR.. THE  
250 ABOVE TO OCCUR WITHIN 30 (THIRTY) DAYS WITH AN AUTOMATIC 30 DAY EXTENSION IF REQUIRED. IF THE  
251 ABOVE DOES NOT OCCUR IN THIS TIMEFRAME ALL EARNEST MONEY TO BE RETURNED TO BUYER IMMEDIATELY  
252  Inspection Rider (Form #2184)  Short Sale Rider (Form #2176)  
 Other # \_\_\_\_\_  Other # \_\_\_\_\_

253 20. SELLER'S DISCLOSURE STATEMENT. (Check one)  
254  Buyer confirms that before signing this offer to purchase, Buyer has read a copy of the Seller's Disclosure Statement for  
255 this property. The Seller's Disclosure Statement is not a substitute for any inspection that Buyer may wish to obtain. Buyer  
256 is advised to address any concerns Buyer may have about information in the statement by use of contingencies in the  
257 contract.  
258  Seller agrees to provide Buyer with a Seller's Disclosure Statement within one (1) day after the "Acceptance Deadline"  
259 date. Buyer shall have three (3) days after the "Acceptance Deadline" date to review said statements and to declare in  
260 writing that the contract is terminated and the earnest money is to be returned to Buyer, subject to paragraph 12.  
261 Otherwise, this contingency shall be deemed as waived by Buyer.  
262  No Seller's Disclosure Statement will be provided by Seller.

263 By his signature, Seller confirms that the information in the Seller's Disclosure Statement is accurate as of the date of this  
264 contract. Seller will fully and promptly disclose in writing any new material information pertaining to the property that is  
265 discovered at any time prior to Closing. Seller states that if Seller knows or should have known that the property was a lab,  
266 production or storage site for methamphetamine, or was the residence of a person convicted of crimes related to  
267 methamphetamine, Seller will attach a written explanation.  
268 Note: The Seller's Disclosure Statement is not in any way incorporated into the terms of this contract.

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21. RELATIONSHIPS AND COMMUNICATION DISCLOSURES.

Buyer and Seller confirm that disclosure of the licensee's relationship was made no later than the first showing of the property, upon first contact, or immediately upon the occurrence of a change to the relationship.

Note: Under MREC Rules and Regulations, one box must be checked in each of the following two sections by the Selling Licensee.

Licensee assisting Seller is a: (Check appropriate box)

- Seller's Agent: Licensee is acting on behalf of the Seller.
- Buyer's Agent: Licensee is acting on behalf of the Buyer.
- Dual Agent: Licensee is acting on behalf of both Seller and Buyer.
- Designated Agent: Licensee has been designated to act on behalf of the Seller.
- Transaction Broker Assisting Seller: Licensee is not acting on behalf of either Seller or Buyer.

Licensee assisting Buyer is a: (Check appropriate box)

- Buyer's Agent: Licensee is acting on behalf of the Buyer.
- Seller's Agent: Licensee is acting on behalf of the Seller.
- Dual Agent: Licensee is acting on behalf of both Buyer and Seller.
- Designated Agent: Licensee has been designated to act on behalf of the Buyer.
- Transaction Broker Assisting Buyer: Licensee is not acting on behalf of either Buyer or Seller.
- Subagent of Seller: Licensee is acting on behalf of the Seller.

Seller  Buyer is a real estate licensee and is acting as a principal party in this contract.

Sources of compensation to Broker(s), including commissions and/or other fees:  Seller  Buyer

Buyer and Seller acknowledge that they have received and read the Missouri Real Estate Commission Broker Disclosure Form. By signing below, the licensees confirm making disclosure of the brokerage relationship to the appropriate parties.

All Parties agree that this transaction can be conducted by electronic/digital signatures, according to the Uniform Electronic Transaction Act as adopted by Missouri.

Re/Max Suburban  
Selling Broker's Firm

Broker's Firm State License ID#: 000005783

By (Signature): *[Signature]*

Licensee State License ID#: 1999084109

Date: 3/14/2016 MLS ID: SERROSEN

OFFER to be accepted by Seller by: \_\_\_\_\_

*[Signature]* 3/14/16  
BUYER SIGNATURE DATE

Eric Stanton  
Buyer Printed Name

SELLER ACCEPTS THE TERMS SET FORTH IN THIS CONTRACT.

*Albert C. Thompson* 11:18 3-14-2016  
SELLER SIGNATURE TIME and DATE

ALBERT C. THOMPSON  
Seller Printed Name

OR

\_\_\_\_\_  
(initials) WE REJECT THIS OFFER AND MAKE A COUNTEROFFER.  
(use #2164 Sale Contract Counteroffer Form).

OR

\_\_\_\_\_  
(initials) WE REJECT THIS OFFER.

Note: Unless otherwise agreed in writing, "Acceptance Deadline" is defined as the date for acceptance which was provided to the last party whose signature resulted in a contract (even if that signature was obtained before the deadline).

Re/Max Suburban  
Listing Broker's Firm

Broker's Firm State License ID#: 000005783

By (Signature): *[Signature]*

Licensee State License ID#: 1999084109

Date: 3/14/2016 MLS ID: SERROSEN

9:00pm m of 3/16/2016

*Stephanie Stanton* 3/14/16  
BUYER SIGNATURE DATE

Stephanie Stanton  
Buyer Printed Name

SELLER SIGNATURE TIME and DATE

Seller Printed Name



BOOK 337 PAGE 88  
FILED FOR RECORD  
AUG 11 1995  
AT 4:41 o'clock P.M.  
RECORDER OF DEEDS  
ST. LOUIS COUNTY, MO.  
772

# RECORD PLAT OF 'HAWKS REST PLAT SIX'

A SUBDIVISION OF A TRACT OF LAND IN SECTIONS 7 & 18,  
TOWNSHIP 44 NORTH, RANGE 3 EAST,  
ST. LOUIS COUNTY, MISSOURI

STATE OF MISSOURI )  
COUNTY OF ST. LOUIS ) SS  
I, THE UNDERSIGNED RECORDER OF DEEDS FOR SAID COUNTY AND STATE,  
DO HEREBY CERTIFY THAT THE FOREGOING AND ANNEXED INSTRUMENT OF  
WRITING WAS FILED FOR RECORD IN MY OFFICE ON THE 11th DAY OF  
AUGUST, A.D. 1995 AT 4:41 O'CLOCK P.M. AND IS  
TRULY RECORDED IN PLAT BOOK 337, PAGE 88.

WITNESS MY HAND AND OFFICIAL SEAL  
ON THE DAY AND YEAR AFORESAID.

*Daniel E. O'Leary*  
RECORDER OF DEEDS  
BY *Daniel E. O'Leary*  
DEPUTY RECORDER

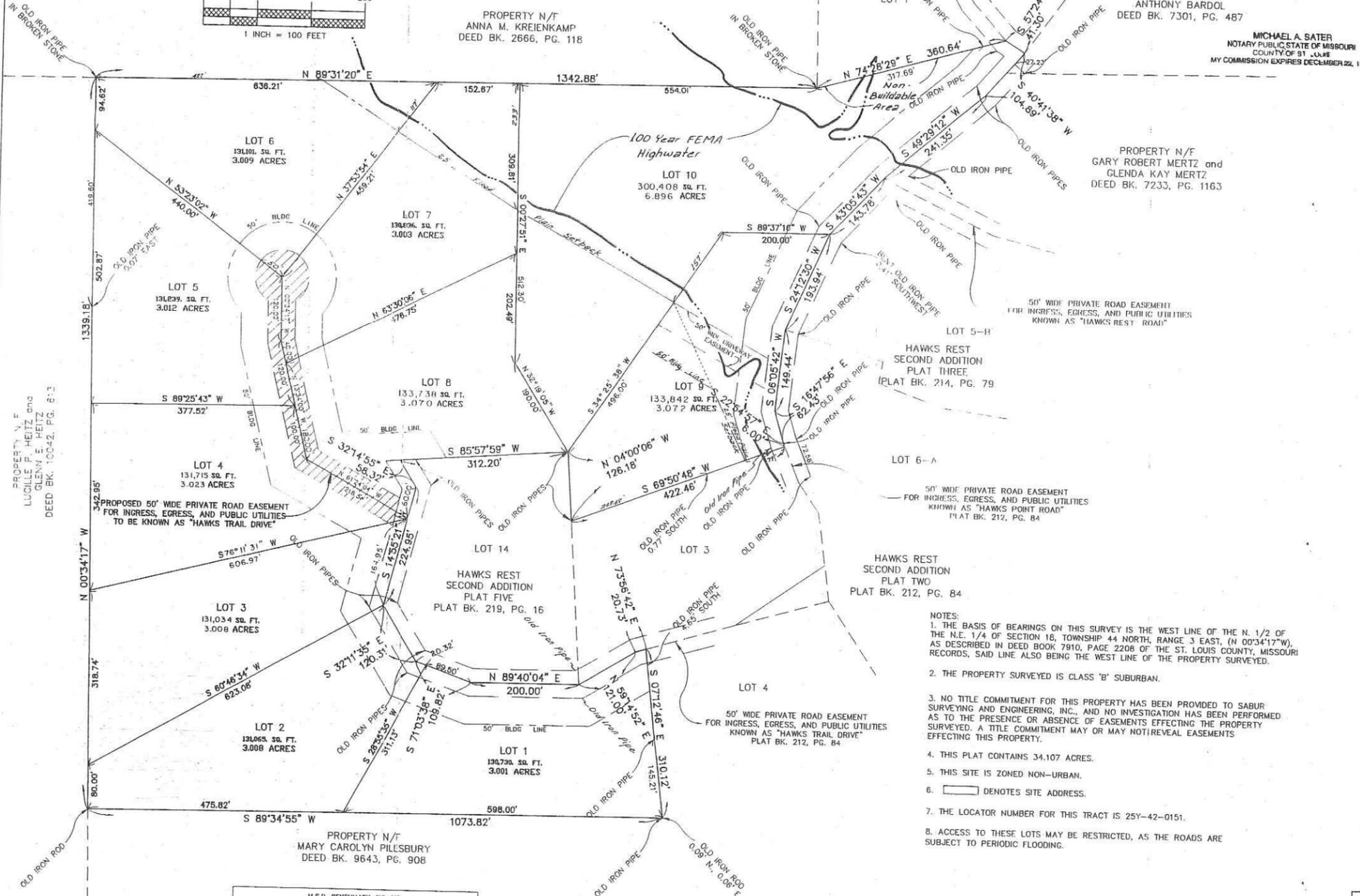
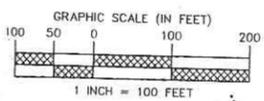
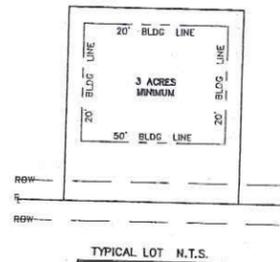
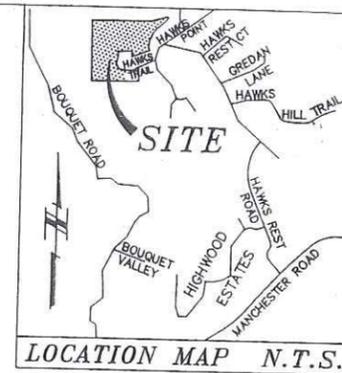
STATE OF MISSOURI )  
COUNTY OF ST. LOUIS ) SS

On this 7th day of August, 1995, before me  
personally appeared *Pierce Libermann*  
to his known to be the person described in and who  
executed the foregoing instrument and acknowledged that  
he executed the same as his free act and deed.

IN WITNESS WHEREOF, I have signed and sealed the  
foregoing the day and year first above written.

My Commission Expires:

*Dec. 22, 1998*  
Notary Public  
*Michael A. Sater*



THE UNDERSIGNED OWNER OF THE PROPERTY HEREON PLATTED AND DESCRIBED IN THE FOREGOING SURVEYOR'S  
CERTIFICATE HAS CAUSED THE SAME TO BE SURVEYED AND SUBDIVIDED IN THE MANNER SHOWN, WHICH SUBDIVISION  
SHALL HEREAFTER BE KNOWN AS "HAWKS REST PLAT SIX". THE BUILDING LINES AS SHOWN ARE HEREBY ESTABLISHED.  
PRIVATE ROADS FOR ROAD AND UTILITY PURPOSES AS SHOWN IN DEED BOOK 2287 PAGE 1460 AND PLAT BOOK 212  
PAGE 84 OF THE ST. LOUIS COUNTY, MISSOURI RECORDS. THE ADDITIONAL ROAD EASEMENT SHOWN  
ON THIS PLAT IS HEREBY ESTABLISHED ON THIS PLAT FOR INGRESS, EGRESS, AND PUBLIC UTILITIES.  
ALL EASEMENTS SHOWN ON THIS PLAT, UNLESS DESIGNATED FOR OTHER SPECIFIC PURPOSES, ARE HEREBY  
DEDICATED TO ST. LOUIS COUNTY WATER COMPANY, SOUTHWESTERN GAS COMPANY, UNION ELECTRIC COMPANY, SOUTHWESTERN  
BELL TELEPHONE COMPANY, METROPOLITAN ST. LOUIS SEWER DISTRICT, THEIR SUCCESSORS AND ASSIGNS AS THEIR  
INTEREST MAY APPEAR FOR THE PURPOSE OF CONSTRUCTING, MAINTAINING, AND REPAIRING OF PUBLIC UTILITIES, SEWER  
AND DRAINAGE FACILITIES, WITH THE RIGHT OF TEMPORARY USE OF ADJACENT GROUND NOT OCCUPIED BY IMPROVEMENTS  
FOR THE EXCAVATION AND STORAGE OF MATERIALS DURING INSTALLATION, REPAIR, OR REPLACEMENT OF SAID UTILITIES,  
SEWERS, AND DRAINAGE FACILITIES.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND THIS 7th DAY OF August, 1995.  
*Pierce Libermann*  
PIERCE LIBERMANN

THE UNDERSIGNED HOLDER OR LEGAL OWNER OF NOTES SECURED BY DEED IN  
BOOK 8077, PAGE 359 OF THE ST. LOUIS COUNTY RECORDS, JOINS IN AND  
APPROVES IN EVERY DETAIL OF THIS SUBDIVISION PLAT OF HAWKS REST PLAT SIX.

IN WITNESS WHEREOF, IT HAS SIGNED AND SEALED THE FOREGOING  
THIS 4th DAY OF August, 1995.

*John A. Novak*  
John A. Novak  
STATE OF MISSOURI )  
COUNTY OF ST. LOUIS ) SS

ON THIS 4th DAY OF August, 1995, BEFORE ME PERSONALLY APPEARED  
*John A. Novak* WHO BEING BY ME DULY SWORN DID SAY THAT  
HE IS THE VICE PRESIDENT OF THE BOARD OF DIRECTORS OF  
A CORPORATION OF THE STATE OF MISSOURI, AND THAT THE SEAL AFFIXED TO THE  
FOREGOING INSTRUMENT IS THE CORPORATE SEAL OF SAID CORPORATION, AND THAT  
SAID INSTRUMENT WAS SIGNED AND SEALED ON BEHALF OF SAID CORPORATION BY  
ACKNOWLEDGED SAID INSTRUMENT TO BE THE FREE ACT AND DEED OF SAID  
CORPORATION.

IN WITNESS WHEREOF, I HAVE SIGNED AND SEALED THE FOREGOING THE DAY  
AND YEAR FIRST ABOVE WRITTEN.

MY COMMISSION EXPIRES:  
4-11-98  
VIRGINIA T. ROBERTS  
NOTARY PUBLIC, STATE OF MISSOURI  
MY COMMISSION EXPIRES APR. 11, 1998

THIS IS TO CERTIFY THAT THIS SUBDIVISION PLAT OF HAWKS REST PLAT SIX  
HAS BEEN APPROVED BY THE ST. LOUIS COUNTY COUNCIL ON THIS 31st  
DAY OF August, 1995.

ST. LOUIS COUNTY DEPARTMENT OF PLANNING  
*June McAllister Fowler*  
JUNE McALLISTER FOWLER  
DIRECTOR OF PLANNING  
8-7-95  
DATE

- NOTES:
1. THE BASIS OF BEARINGS ON THIS SURVEY IS THE WEST LINE OF THE N. 1/2 OF THE N.E. 1/4 OF SECTION 18, TOWNSHIP 44 NORTH, RANGE 3 EAST, (N 00°34'17"W), AS DESCRIBED IN DEED BOOK 7910, PAGE 2208 OF THE ST. LOUIS COUNTY, MISSOURI RECORDS, SAID LINE ALSO BEING THE WEST LINE OF THE PROPERTY SURVEYED.
  2. THE PROPERTY SURVEYED IS CLASS "B" SUBURBAN.
  3. NO TITLE COMMITMENT FOR THIS PROPERTY HAS BEEN PROVIDED TO SABUR SURVEYING AND ENGINEERING, INC., AND NO INVESTIGATION HAS BEEN PERFORMED AS TO THE PRESENCE OR ABSENCE OF EASEMENTS AFFECTING THE PROPERTY SURVEYED. A TITLE COMMITMENT MAY OR MAY NOT REVEAL EASEMENTS AFFECTING THIS PROPERTY.
  4. THIS PLAT CONTAINS 34,107 ACRES.
  5. THIS SITE IS ZONED NON-URBAN.
  6. □ DENOTES SITE ADDRESS.
  7. THE LOCATOR NUMBER FOR THIS TRACT IS 251-42-0151.
  8. ACCESS TO THESE LOTS MAY BE RESTRICTED, AS THE ROADS ARE SUBJECT TO PERIODIC FLOODING.

THIS IS TO CERTIFY THAT WE HAVE, DURING JULY, 1995, AT THE REQUEST  
OF MR. PIERCE LIBERMANN, EXECUTED A SURVEY AND SUBDIVISION OF A TRACT  
OF LAND IN SECTIONS 7 & 18, T. 44 N., R. 3 E., AS DESCRIBED IN DEED BOOK  
7910, PAGE 2208, ST. LOUIS COUNTY, MISSOURI, AND THAT SAID SURVEY HAS  
BEEN EXECUTED IN ACCORDANCE WITH THE MISSOURI STANDARDS FOR PROPERTY  
BOUNDARY SURVEYS AS SET FORTH BY THE MISSOURI BOARD FOR ARCHITECTS,  
PROFESSIONAL ENGINEERS, AND LAND SURVEYORS, AND THE RESULTS OF SAID  
SURVEY ARE CORRECTLY SHOWN HEREON.

*Duane R. Burrell*  
DUANE R. BURRELL MO R.L.S. 2459

M.S.D. BENCHMARK #16-118  
"SQUARE" ON TOP OF THE FLARED END SECTION OF CULVERT  
65' SOUTH OF MANCHESTER RD. AND 220' WEST OF THE CENTERLINE  
OF HENCKEN RD. ELEVATION = 609.12

PREPARED FOR:	DRAWN BY:	CHECKED BY:	SHEET 1 OF 1
PIERCE LIBERMANN WOODCREST EXECUTIVE DR. SUITE 225 ST. LOUIS, MO 63141	TAJ	<i>o.e.b.</i>	ORDER NO. 95-025
PHONE: (314) 576-7323	<b>SABUR SURVEYING AND ENGINEERING, INC.</b> SURVEYORS, ENGINEERS, AND DEVELOPMENT CONSULTANTS 10425 OLD OLIVE ST. RD. SUITE 203 ST. LOUIS, MISSOURI 63141 PHONE: (314) 991-2777		



March 28, 2016

The Honorable City Council  
City of Wildwood, Missouri  
16860 Main Street  
Wildwood, Missouri 63040

Re: Update on the City's Rural Internet Access Project

Council Members:

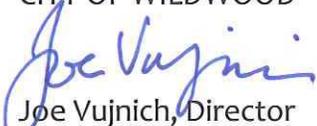
Council Member McGowen contacted Wisper ISP about the next steps in restarting efforts in the north half of the City, including the option of fiber-optic service to the Wild Horse Creek Road Area, shortly after the February 22, 2016 City Council meeting update on this topic, and requested direction in this regard. Thereafter, Wisper ISP responded and noted the following in regard to the company's future efforts in Wildwood:

1. The owner of Wisper ISP has almost completed the design for fiber optic service to an area of rural Wildwood and expects to provide it to impacted parties this week (week of March 28, 2016). A schematic of this design is attached to the Department's letter. Therefore, the Department is expecting to receive a substantial amount of information in this regard over the next month.
2. The negotiations regarding the use of the St. Louis County E-911 Emergency Tower are ongoing, but Nathan Stooke, the owner of Wisper ISP, notes communication issues, seeks the City's assistance, and is not as optimistic as Malinda Heuring of Wisper ISP seemed to be in the Department's last update to City Council on February 22, 2016.

Given the efforts of Bays ET in the south half of the City, the Department continues to attempt to regain momentum within the north half of the City, since there are a number of residences not served at this time. This area now appears to be generating the greatest amount of contacts to the City regarding service.

As this update notes, the companies, residents, and the City continue to work very hard to find as many connection solutions for unserved households in Wildwood as possible. If any of the Council members should have questions or comments in this regard, please feel free to contact the Department of Planning at (636) 458-0440. A brief summary of this information is planned for tonight's Work Session. Thank you for your continued support of this project and the overall effort to bring high-speed internet to the rural areas of this community.

Respectfully submitted,  
CITY OF WILDWOOD



Joe Vujnich, Director

Department of Planning

Cc: The Honorable Timothy Woerther, Mayor  
Ryan S. Thomas, P.E., City Administrator  
Rob Golterman, City Attorney  
Kathy Arnett, Assistant Director of Planning and Parks  
Chris Bay, Malinda Heuring, and Nathan Stooke, Service Providers - Bays ET and Wisper ISP

**From:** Larry McGowen mcgwildwood@att.net  
**Subject:** Wisper service to Wildwood  
**Date:** March 11, 2016 at 12:34 PM  
**To:** mheuring@wisperisp.com, Nathan Stooke nstooke@wisperisp.com  
**Cc:** Joe Vujnich jvujnich@cityofwildwood.com, Larry W. McGowen mcgwildwood@att.net

LM

Malinda and Nathan:

As I see it we need information regarding two separate yet related issues as follows:

1. The first relates to our need for concrete information concerning the proposed costs and timelines for extending high speed internet service by running fiber west from a point near the intersection of Hwy 109 & Wild Horse Creek Rd where you could tap into other providers to the entrance of Wild Horse Springs Farm subdivision (at the intersection of WHC and Larimore Dr.) The city may be able to assist financially or in other ways with this but we need your information for consideration. I understood Nathan or Wisper expected to provide us proposed details for this effort sometime ago.

As a separate matter we need to know what it will take to provide service to the homes in Wildhorse Springs Farm and in Wildhorse Springs Bluffs.

2. The second major issue is what can be done to provide service to residents in Babler Woods which is accessed off of Hwy BA also known as Babler Park Drive. That's a location where we have been hoping something can be worked out with St Louis County for your access to their tower in Babler Park. I believe some properties in Babler Woods adjoin properties in Wild Horse Springs Farm. Is there any possibility Babler Woods could be served from extension of fiber mentioned in point one above?

I'm asking that Wisper provide concrete ideas, costs, timelines, etc regarding both of the service areas mentioned above. The city and affected residents have been extremely patient, but some folks are beginning to question Wisper's commitment to serve Wildwood. We have our next council meeting on Monday 3/14/16. We need concrete information by that date or at the very latest prior to our meeting on 3/28/16.

Larry W. McGowen  
Council Member, Ward One  
Cell 314-495-1847

**From:** Nathan Stooke nstooke@wisperisp.com   
**Subject:** Re: Wisper service to Wildwood  
**Date:** March 24, 2016 at 9:43 AM  
**To:** Larry McGowen mcgwildwood@att.net, mheuring@wisperisp.com  
**Cc:** Joe Vujnich jvujnich@cityofwildwood.com

NS

Hello,

We have not been able to get much movement on the County tower. Things seem to stall a lot with them and one hand does not always seem to know what the other hand is doing. We can continue to follow up with them. Having the City ask nicely where we are in the process would be nice. That would give us a good idea of where they think we are so we can compare.

We do have some new equipment that has come out. The last batch of new equipment did not work out that well after testing it. We started testing this gear last week and so far it has been working well.

I am almost done with the fiber plan. We completed our first fiber installation this week and learned a lot about what we need to do to install fiber. We used a contractor to do the work, but we worked closely with them. This contractor is very eager to do more work for us and willing to cut his prices for us to do the work. I am working through the plan now with him. It is a lot of feet of fiber so it takes a long time to plan it out. We have driven the area and made plans for where the fiber could run. All I need to add hand holes and splice points to the plan. I have attached a screen shot of the layout. I have also been working with Charter and they have become much more aggressive with their pricing so that is good news too.

I will be competing the fiber deployment plan early next week. I will have a best case and worst case range for the price. The amount of rock we hit will determine which one we are closer too.

Thanks

On 3/11/16, 12:34 PM, "Larry McGowen" <mcgwildwood@att.net> wrote:

Malinda and Nathan:

As I see it we need information regarding two separate yet related issues as follows:

1. The first relates to our need for concrete information concerning the proposed costs and timelines for extending high speed internet service by running fiber west from a point near the intersection of Hwy 109 & Wild Horse Creek Rd where you could tap into other providers to the entrance of Wild Horse Springs Farm subdivision (at the intersection of WHC and Larimore Dr.) The city may be able to assist financially or in other ways with this but we need your information for consideration. I understood Nathan or Wisper expected to provide us proposed details for this effort sometime ago.

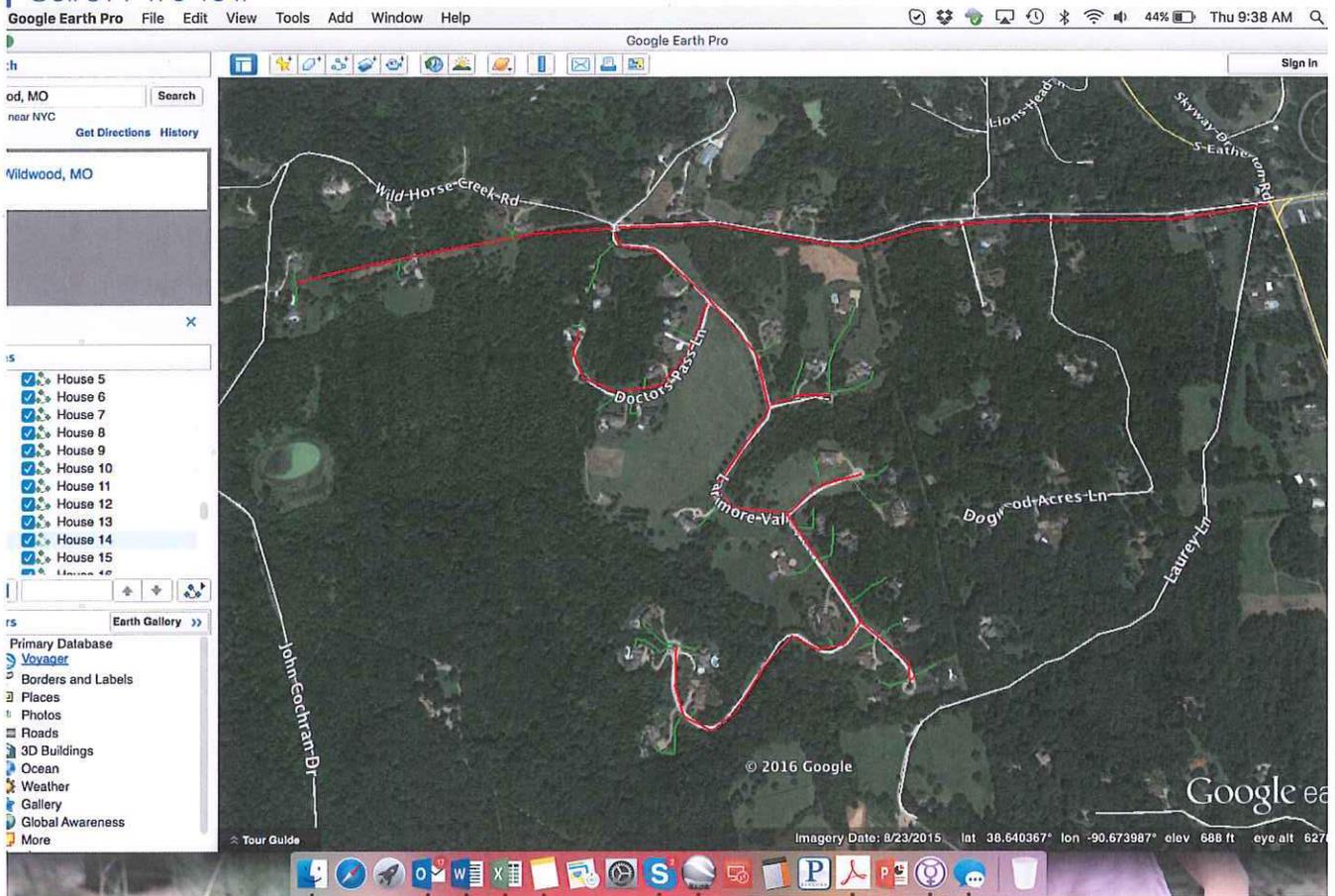
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Larry W. McGowen  
Council Member, Ward One  
Cell 314-495-1847





## MEMORANDUM

To: Mayor Timothy Woerther and City Council Members

From: Ryan S. Thomas, City Administrator

Date: March 25, 2016

Re: Employee Retirement Plan Management

---

### Background

Since 1996, the ICMA Retirement Corporation has managed the Employee Retirement Plan for the City of Wildwood, for which the following concerns have been raised by employees:

1. Limited fund choices
2. High plan fees and fund expenses
3. Limited financial advisory services

Other the course of the past several months, Finance Officer Dawn Kaiser and I have interviewed multiple firms that would potentially take on the role of financial advisor and fiduciary for the administration of the City's Employee Retirement Plan, and each firm has sought competitive quotes from multiple plan platforms in an effort to provide the best possible options for the City's consideration. The following three (3) firms were interviewed for the role of financial advisor/fiduciary:

1. Cutter & Company
2. Mass Mutual Financial Group
3. Retirement Plan Advisors

### Recommendations

1. Cutter & Company is recommended to serve as financial advisor and co-fiduciary for the City's Employee Retirement Plan.
2. OneAmerica (d/b/a American United Life Insurance Company) is recommended for the retirement plan platform (record keeper), including a managed plan option through Artesys (d/b/a R. T. Jones Capital Equities Management, Inc.), and a co-fiduciary arrangement with Mesirow Financial Investment Management, Inc.

*Planning Tomorrow Today™*

**Reasons of Recommendation**

1. Cutter & Company has an excellent track record as a financial advisor and fiduciary, with a very reasonable fee of 0.25%, which is structured into the plan fees (paid by the employee).
2. Cutter & Company's role as fiduciary reduces liability to the City in this capacity.
3. OneAmerica was one (1) of eight (8) plan platforms considered, but offered the lowest overall fees without limiting fund choices: 0.45% average fund expense ratio + 0.09% record keeping/administration fee. Others considered by Cutter & Company were Nationwide, Lincoln, Voya, Daily Access, John Hancock, Alerus and Mutual of Omaha.
4. The overall average plan costs (including fees from both Cutter & Company and OneAmerica) total 0.88%, compared to 1.37% for the current plan (certain fund choices under the City's current plan are in excess of 2.00%).
5. Once the total managed assets exceed \$3,000,000 (it is very close now), the overall average plan costs would be further reduced to 0.79%.
6. Both Cutter & Company and OneAmerica have a local presence, and regular meetings with employees would be offered (including up to three (3) educational meetings each year, and one-on-one consultation with employees at any time).
7. For employees desiring a hands-off approach, an optional managed plan option will be made available through the firm Artesys.
8. There are no charges from the current provider, ICMA-RC, to terminate the current plan. A notice period of 60 days is required.
9. On February 25, 2016, City employees had an opportunity to meet the proposed team of new providers and are supportive of making this change.

Bill #2167 has been placed on the March 28, 2016 City Council Agenda, which would authorize the City Administrator to proceed with the execution of all necessary agreements and other documents for the migration of the plan. Once, authorized, the required 60-day termination notice to ICMA Retirement Corporation will be initiated, which would likely result in completion of the migration by June 2016.

I will be available for any questions or comments at the March 28, 2016 City Council Work Session.

RST



## MEMORANDUM

To: Mayor Woerther and City Council Members

From: Ryan S. Thomas, City Administrator

Date: March 25, 2016

Re: 2016 Salary Plan Update

---

### Background

At the end of 2015, an Employee Compensation & Benefits Study was completed by CBIZ Human Capital Services, which was provided to you at that time. Based upon this study, the attached 2016 Salary Plan was prepared for inclusion in the 2016 Municipal Budget document. Of note, two (2) recently-hired positions did not exist at the time of the study: Planning Technician and Recreation Specialist. These two (2) positions have been placed at Pay Grade 4 as a placeholder, and will be reviewed in further detail later this summer as part of the update for 2017 (under CBIZ's contract, they are to provide annual updates for a total of five (5) years).

### Recommendation

At its March 8, 2015 Meeting, the Administration/Public Works Committee recommended adopting the attached 2016 Salary Plan, and to complete another update at the beginning of the 2017 Budget Review process.

### Reasons for Recommendation

1. The 2016 Salary Plan was developed based on an analysis by a professional compensation consultant.
2. The City's Salary Plan should be reviewed and updated on an annual basis (in the future, this will occur at the beginning of each budget review process).

I will be available for any questions or comments at the March 28, 2016 City Council Work Session.

RST

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**WILDWOOD**

**CITY OF WILDWOOD, MISSOURI  
2016 SALARY PLAN**

<b>Position</b>	<b>Grade</b>	<b>Salary Minimum</b>	<b>Salary Midpoint</b>	<b>Salary Maximum</b>
City Administrator	12	\$126,233	\$160,947	\$195,662
Director of Planning and Parks	11	\$105,194	\$134,123	\$163,051
Director of Public Works/Engineer	10	\$89,148	\$113,663	\$138,179
Dep. City Admin. / City Clerk	10	\$89,148	\$113,663	\$138,179
Finance Officer	9	\$77,060	\$96,325	\$115,590
Assistant City Engineer	8	\$65,305	\$81,631	\$97,958
Asst. Director of Planning & Parks	8	\$65,305	\$81,631	\$97,958
Superintendent of Streets	8	\$65,305	\$81,631	\$97,958
Senior Planner	7	\$57,946	\$70,984	\$84,022
Superintendent of Parks & Rec.	7	\$57,946	\$70,984	\$84,022
Planner	6	\$50,388	\$61,725	\$73,062
Court Administrator	6	\$50,388	\$61,725	\$73,062
Code Enforcement Officer	5	\$43,815	\$53,674	\$63,532
Accounting Clerk/HR Assistant	5	\$43,815	\$53,674	\$63,532
Dep. City Clerk/Assist Court Clerk	4	\$40,662	\$48,794	\$56,927
Code Inspector	4	\$40,662	\$48,794	\$56,927
Planning Technician	4	\$40,662	\$48,794	\$56,927
Recreation Specialist	4	\$40,662	\$48,794	\$56,927
Office Assistant / Receptionist	1	\$31,200	\$36,660	\$42,120
				revised 1-1-2016



## MEMORANDUM

To: Mayor Woerther and City Council Members

From: Ryan S. Thomas, City Administrator

Date: March 25, 2016

Re: Reconciliation of Hunting and Firearms Regulations

---

### Background

Last year, there was some discussion regarding a need to segregate the City's Hunting and Firearms Regulations, to provide for a single code section specific to hunting for ease of understanding the City's hunting requirements. City Attorney Golterman was then requested to review not only whether the code could be segregated, but also whether the current regulations require any updates to comply with State statutes.

At the February and March Board of Public Safety Meetings, the prepared segregated code was reviewed, which provided for a single code section specific to hunting and a separate section specific to firearms. Additionally, the new firearms section was updated to comply with current State Statutes. Attached are both the clean version of the proposed Amended Code and a red-lined version identifying the revisions.

During the February 4, 2016 Board of Public Safety Meeting, some questions were also raised regarding Section 6g of the Hunting Regulations, which states, "It shall be unlawful to hunt by firing or discharging a firearm other than a shotgun, muzzleloader, air gun (including in excess of twenty-two (.22) caliber) or crossbow on any property in the City east of Missouri State Route 109."

### Recommendation

It is recommended that legislation be prepared to adopt the proposed Amended Code, as written, except that "(including in excess of twenty-two (.22) caliber)" be removed from Section 6g of the Hunting Regulations, as it is not necessary due to all air guns being permitted east of Missouri Route 109. Its inclusion may have also caused some confusion with the commonly-known twenty-two (.22) caliber rifle, which is not permitted east of Missouri Route 109 (this revision is not yet reflected in the attachment).

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**Reasons for Recommendation**

1. Having separate code sections for hunting and firearms regulations will provide for an easier understanding of the regulations that are specific to hunting.
2. The firearms regulations of the City need to comply with current State statutes.

I will be available for any questions or comments at the March 28, 2016 City Council Work Session.

RST

## Chapter 210. Offenses

### Article VI. Hunting and Firearms Regulations

#### Section 210.220. Specific Prohibited Actions Related to Hunting.

[Ord. No. 109 §§1—3, 9-1-1995; Ord. No. 1511 §1, 5-12-2008; Ord. No. 1576 §1, 11-24-2008; Ord. No. 2057 §1, 11-10-2014]

A.

*Definitions.* As used in this Article, the following terms shall have these prescribed meanings:

#### **AIR GUN**

Any device designed to fire or discharge a projectile using compressed air or gas, including pneumatic guns, pellet guns, paintball guns or BB guns. Air guns in excess of twenty-two (.22) caliber shall be considered firearms for the purpose of this Article.

#### **ARCHERY DEVICE**

Any long bow or compound bow.

#### **CROSSBOW**

Any device designed to discharge a bolt, formed as a bow set crosswise on a stock, usually drawn by means of a mechanism and discharged by release of a trigger. A crossbow shall be considered a firearm for the purpose of this Article.

#### **FIREARM**

Any rifle, shotgun, pistol, muzzleloader or any similar device or mechanism by whatever name known which is designed to expel a projectile or projectiles by the action of an explosive. The term "firearm" shall not apply to air guns or devices designed and used exclusively for commercial, industrial or vocational purposes. The regulations contained within this Article shall not be applicable to Police Officers, military or other licensed security agents as regards the performance of their duties.

#### **MUZZLELOADER**

A firearm that is loaded from the muzzle capable of firing a single discharge each time it is loaded.

#### **SHOTGUN**

Any firearm designed to fire a number of shot or a single projectile through a barrel by a single function of the trigger.

B.

(Reserved)

[Ord. No. \_\_\_\_\_]

C.

*Hunting Regulations.*

1.

All current laws of the State of Missouri as regards to the regulation of hunting shall be obeyed within the corporate limits of Wildwood.

2.

All provisions of Section 210.225 shall apply to hunting within the corporate limits of Wildwood.

3.

*Hunting of smaller game.* It shall be unlawful to use any firearm other than a shotgun to take small game such as rabbits or squirrels or to take game such as water fowl or upland game birds.

4.

*Hunter safety course required.* All persons required to have taken a hunter safety course as prescribed by Missouri State law shall also be required to have such certificate of completion from the Missouri Department of Conservation in order to hunt within the corporate limits of Wildwood.

5.

*License may be inspected.* It is the duty of every person holding a hunting license and permit to submit the same for inspection by any agent of the Missouri Department of Conservation, Department of Natural Resources, St. Louis County Parks Department or any Police Officer or Marshal thereof.

6.

*Regulations as to location of hunting.*

- a. It shall be unlawful for any person to hunt by firing or discharging any firearm, air gun, archery device or crossbow from or across any street, sidewalk, road, highway, park, playground or recreation area.
- b. It shall be unlawful for any person to hunt by firing or discharging any firearm or air gun expelling a single solid projectile from any boat or other water vessel or across or into the Missouri or Meramec Rivers or any lake or reservoir.

- c. It shall be unlawful for any person to knowingly hunt upon the premises or property of another without first having obtained the written permission from the owner, lessee or person in charge of such premises or property. The duly obtained written permission shall be carried in the personal possession of the person requesting and receiving such permission. This Subsection shall not apply to a person carrying, firing or discharging any firearm, air gun, archery device or crossbow while in the immediate presence of the owner, lessee or person in charge of the property or premises, or to the entry upon the premises for the sole purpose of obtaining written permission of the owner, lessee or person in charge of the property. This Subsection shall also not apply to a person with the sole purpose of carrying a concealed firearm and who is otherwise in compliance with Chapter 571, RSMo., regarding concealed carry endorsements.
- d. It shall be at the discretion of the owner, lessee or person in charge of any premises or property to set the specific boundaries where a person may hunt using a firearm, air gun, archery device or crossbow. The specific boundaries must be otherwise in compliance with the provisions of this Section.
- e. It shall be unlawful to hunt by firing or discharging any firearm within four hundred fifty (450) feet of any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging the firearm, unless the person has written permission of the owner, lessee or person in charge of such premises or property; it shall be unlawful to hunt by firing or discharging an archery device within two hundred (200) feet of any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging the archery device, unless the person has written permission of the owner, lessee or person in charge of such premises or property.
- f. It shall be unlawful to hunt by firing or discharging any firearm or archery device on any parcel of land containing less than three (3) acres.
- g. It shall be unlawful to hunt by firing or discharging a firearm other than a shotgun, muzzleloader, air gun (including in excess of twenty-two (.22) caliber) or crossbow on any property in the City east of Missouri State Route 109.

7.

*Special hunts.* Any special hunts permitted by the Missouri Department of Conservation or Department of Natural Resources or the St. Louis County Parks Department shall be permitted under this Section after obtaining approval of the City Council of the City of Wildwood.

D.

*Penalties.* Any person violating any provision of this Section shall, upon conviction, be punished by a fine of not less than one hundred dollars (\$100.00) nor more than one thousand dollars (\$1,000.00) or by imprisonment for not more than ninety (90) days, or both, for each offense.

Section 210.225. Specific Prohibited Actions Related to Firearms.

[Ord. No. \_\_\_\_\_]

A. Specific Acts – Prohibited.

It shall be unlawful for any person to:

1. Carry concealed upon or about his or her person a knife, a firearm, a blackjack or any other weapon readily capable of lethal use except as may otherwise be provided by Missouri law; or
2. Set a spring gun; or
3. Discharge or shoot a firearm, air gun, archery device or crossbow into a dwelling house, a railroad train, boat, aircraft, or motor vehicle as defined in Section 302.010, RSMo., or any building or structure used for the assembling of people; or
4. Exhibit, in the presence of one or more persons, any weapon readily capable of lethal use in an angry or threatening manner; or
5. Possess or discharge a firearm, air gun, archery device, crossbow or other projective weapon while intoxicated; or
6. Discharge a firearm, air gun, archery device or crossbow within one hundred (100) yards of any occupied schoolhouse, courthouse, or church building; or
7. Discharge or shoot a firearm, air gun, archery device or crossbow at a mark, at any object, or at random, on, along or across a public highway or discharge or shoot a firearm into any outbuilding; or
8. Carry a firearm, air gun, archery device, crossbow or any other weapon readily capable of lethal use into any church or place where people have assembled for worship, or into any election precinct on any election day, or into any building owned or occupied by any agency of the federal government, state government, or political subdivision thereof; or
9. Discharge or shoot a firearm, air gun, archery device or crossbow at or from a motor vehicle, as defined in Section 301.010, RSMo., discharge or shoot a firearm at any person, or at any other motor vehicle, or at any building or habitable structure, unless the person was lawfully acting in self-defense; or
10. Carry a firearm, whether loaded or unloaded, air gun, archery device, crossbow or any other weapon readily capable of lethal use into any school, onto any school bus, or onto the premises of any function or activity sponsored or sanctioned by school officials or the district school board.
11. Commit any act violating any provision set forth in Sections 571.010 through 571.150, RSMo., inclusive.

B. Exceptions.

1. Subdivisions (1), (3), (4), (6), (7), (8) (9) and (10) of Subsection A shall not apply to or affect any of the following:
  - a. All state, county and municipal peace officers possessing the duty and power of arrest for violation of the general criminal laws of the state or for violation of ordinances of counties or municipalities of the state whether such officers are within or outside their jurisdictions or on or off duty, or any person summoned by such officers to assist in making arrests or preserving the peace while actually engaged in assisting such officer;
  - b. The discharge of firearms, air guns, archery devices or crossbows where necessary to protect life, livestock, crops or other property, the discharge of blank cartridges in theater performances or sporting events, and the firing of salutes by firing squads at military ceremonies;
  - c. Wardens, superintendents and keepers of prisons, penitentiaries, jails and other institutions for the detention of persons accused or convicted of crime;
  - d. Members of the armed forces or national guard while performing their official duty;
  - e. Those persons vested by Article V, Section 1 of the Constitution of Missouri with the judicial power of the state and those persons vested by Article III of the Constitution of the United States with the judicial power of the United States, the members of the federal judiciary;
  - f. Any person whose bona fide duty is to execute process, civil or criminal;
  - g. Any federal probation officer;
  - h. Any state probation or parole officers, including supervisors and members of the board of probation and parole;
  - i. Any corporate security advisor meeting the definition and fulfilling the requirements of the regulations established by the board of police commissioners under Section 84.340, RSMo.;
  - j. Any coroner, deputy coroner, medical examiner or assistant medical examiner;
  - k. Any prosecuting attorney or assistant prosecuting attorney, circuit attorney or assistant circuit attorney, or person appointed by a court to be a special prosecutor who has completed the firearms safety training course required under Subsection 2 of Section 571.111, RSMo.; and
  - l. Any member of a fire department or fire protection district who is employed on a full time basis as a fire investigator and who has a valid concealed carry endorsement prior to August 28, 2013, or a valid concealed carry permit under

Section 571.111, RSMo., when such uses are reasonably associated with or are necessary to the fulfillment of such person's official duties.

2. Subdivisions (1), (5), (8) and (10) of Subsection A do not apply when the actor is transporting such weapons in a nonfunctioning state or in an unloaded state when ammunition is not readily accessible or when such weapons are not readily accessible. Subdivision (1) of Subsection A does not apply to any person twenty-one (21) years of age or older transporting a concealable firearm in the passenger compartment of a motor vehicle, so long as such concealable firearm is otherwise lawfully possessed, nor when the actor is also in possession of an exposed firearm or projectile weapon for the lawful pursuit of game, or is in his or her dwelling unit or upon premises over which the actor has possession, authority or control, or is traveling in a continuous journey peaceably through this state. Subdivision (10) of Subsection A does not apply if the firearm is otherwise lawfully possessed by a person while traversing school premises for the purposes of transporting a student to or from school, or possessed by an adult for the purposes of facilitation of a school-sanctioned firearm-related event.
3. Subdivisions (1), (8), and (10) of Subsection A shall not apply to any person who has a valid concealed carry endorsement issued pursuant to Sections 571.101 to 571.121, RSMo., or a valid permit or endorsement to carry concealed firearms issued by another state or political subdivision of another state.
4. Subdivisions (3), (4), (5), (6) (7), (8), (9), and (10) of Subsection A shall not apply to persons who are engaged in a lawful act of defense pursuant to Section 563.031, RSMo.
5. Nothing in this Section shall make it unlawful for a student to actually participate in school-sanctioned gun safety courses, student military or ROTC courses, or other school-sponsored firearm related events, provided the student does not carry a firearm or other weapon readily capable of lethal use into any school, onto any school bus, or onto the premises of any other function or activity sponsored or sanctioned by school officials or the district school board.

#### C. Penalties.

1. Any person violating any provision of this Section shall, upon conviction, be punished by a fine of not less than one hundred dollars (\$100.00) nor more than one thousand dollars (\$1,000.00) or by imprisonment for not more than ninety (90) days, or both, for each offense.
2. Any person knowingly aiding or abetting any other person in the violation of Subdivision (9) of Subsection A of this Section shall be subject to the same penalty as that prescribed by this Section for violations by other persons.

#### D. Further Limitation.

1. The carrying of firearms in City buildings shall be further limited as follows:

- a. No person who has been issued a concealed carry endorsement by the State of Missouri or who has been issued a valid permit or endorsement to carry concealed firearms issued by another state or political subdivision of another state, shall, by authority of that endorsement or permit, be allowed to carry a concealed firearm or to openly carry a firearm in any building or portion of a building owned, leased or controlled by the City.
- b. Signs shall be posted at each entrance of a building entirely owned, leased or controlled by the City stating that carrying of firearms is prohibited. Where the City owns, leases or controls only a portion of a building, signs shall be posted at each entrance to that portion of the building stating that carrying of firearms is prohibited.
- c. This Subsection shall not apply to buildings used for public housing by private persons, highways or rest areas, firing ranges, or private dwellings owned, leased or controlled by the City.
- d. Any person violating this Subsection may be denied entrance to the building or ordered to leave the building. Any City employee violating this Section may be disciplined. No other penalty shall be imposed for a violation of this Subdivision (d) only. Violations of all other Subdivisions shall be subject to the penalties set forth in Subsection C.
- e. To the extent that the restrictions in this Section are in direct conflict with SB656 regarding the open carrying of firearms, then the provisions of SB656 shall govern; however, the restrictions of this Section shall be enforced to the fullest extent permitted by Missouri law. Furthermore, any person who is open carrying a firearm, shall also comply with the following provisions of SB656:

Any person with a valid concealed carry endorsement or permit who is open carrying a firearm shall be required to have a valid concealed carry endorsement or permit from this state, or a permit from another state that is recognized by this state, in his or her possession at all times;

Any person open carrying a firearm in such jurisdiction shall display his or her concealed carry endorsement or permit upon demand of a law enforcement officer;

In the absence of any reasonable and articulable suspicion of criminal activity, no person carrying a concealed or unconcealed firearm shall be disarmed or physically restrained by a law enforcement officer unless under arrest;

Any person who violates this Subdivision shall be subject to the penalty provided in Section 571.121, RSMo.

Section 210.230. (Reserved)

(Reserved)

[Ord. No. \_\_\_\_\_]

## Chapter 210. Offenses

### Article VI. Hunting and Firearms Regulations

#### Section 210.220. Specific Prohibited Actions [Related to Hunting](#).

[Ord. No. 109 §§1—3, 9-1-1995; Ord. No. 1511 §1, 5-12-2008; Ord. No. 1576 §1, 11-24-2008; Ord. No. 2057 §1, 11-10-2014]

A.

*Definitions.* As used in this ~~Section~~[Article](#), the following terms shall have these prescribed meanings:

#### **AIR GUN**

Any device designed to fire or discharge a projectile using compressed air or gas, including pneumatic guns, pellet guns, paintball guns or BB guns. Air guns in excess of twenty-two (.22) caliber shall be considered firearms for the purpose of this Article.

#### **ARCHERY DEVICE**

Any long bow or compound bow.

#### **CROSSBOW**

Any device designed to discharge a bolt, formed as a bow set crosswise on a stock, usually drawn by means of a mechanism and discharged by release of a trigger. A crossbow shall be considered a firearm for the purpose of this Article.

#### **FIREARM**

Any rifle, shotgun, pistol, muzzleloader or any similar device or mechanism by whatever name known which is designed to expel a projectile or projectiles by the action of an explosive. The term "firearm" shall not apply to air guns or devices designed and used exclusively for commercial, industrial or vocational purposes. The regulations contained within this ~~Section~~[Article](#) shall not be applicable to Police Officers, military or other licensed security agents as regards the performance of their duties.

#### **MUZZLELOADER**

A firearm that is loaded from the muzzle capable of firing a single discharge each time it is loaded.

#### **SHOTGUN**

Any firearm designed to fire a number of shot or a single projectile through a barrel by a single function of the trigger.

B.

*Specific Actions—Prohibited.*

~~1.~~

~~It shall be unlawful for any person to sell, give, lend or otherwise transfer any firearm to any person sixteen (16) years of age or younger, except where the relationship of parent and child, guardian and ward or adult instructor and pupil exists between such person and the person sixteen (16) years of age or younger or, in the case of a gift or loan, where such gift or loan is made with the consent of the parent or guardian of such person sixteen (16) years of age or younger.~~

~~2.~~

~~It shall be unlawful for any person sixteen (16) years of age or younger to carry any firearm on or in any public street, road, highway or park unless accompanied by a person twenty one (21) years of age or older.~~

~~3.~~

~~It shall be unlawful for any person sixteen (16) years of age or younger to fire or discharge any firearm except while under the immediate personal supervision of his/her parent, guardian or any person twenty one (21) years of age or older designated by the parent or guardian and who is supervising the firing or discharge of such firearm.~~

~~4.~~

~~It shall be unlawful for the parent or guardian or any person sixteen (16) years or younger in his/her charge or custody to knowingly permit any such person sixteen (16) years of age or younger to fire or discharge any firearm except if it be so done under the immediate personal supervision of said parent, guardian or a person twenty one (21) years of age or older designated by the parent or guardian.~~

~~5.~~

~~It shall be unlawful for any person to fire or discharge a firearm, air gun, archery device or crossbow in such a manner so as to injure, wound or damage the person or property, real or personal, of another, or in such direction that any projectile expelled therefrom strikes, hits, enters or goes through any vehicle, dwelling, house, apartment, church, school or other building.~~

~~6.~~

~~It shall be unlawful for any person to fire or discharge any firearm, air gun, archery device or crossbow from or across any street, sidewalk, road, highway, park, playground or recreation area.~~

~~7.~~

~~It shall be unlawful for any person to knowingly fire or discharge any firearm, air gun, archery device or crossbow at or in the direction of any person, vehicle, dwelling, house, apartment, building, church, school or other building which is within range of the same.~~

~~8.~~

~~It shall be unlawful for any person to fire or discharge any firearm or air gun expelling a single solid projectile from any boat or other water vessel or across or into the Missouri or Meramec Rivers or any lake or reservoir.~~

~~9.~~

~~It shall be unlawful for any person carrying a firearm, air gun, archery device or crossbow to knowingly enter or go upon the premises or property of another, or to fire or discharge any firearm, air gun or archery device while on the premises or property of another without first having obtained the written permission from the owner, lessee or person in charge of such premises or property. The duly obtained written permission shall be carried in the personal possession of the person requesting and receiving such permission. This Subsection shall not apply to a person carrying, firing or discharging any firearm, air gun, archery device or crossbow while in the immediate presence of the owner, lessee or person in charge of the property or premises, or to the entry upon the premises for the sole purpose of obtaining written permission of the owner, lessee or person in charge of the property. This Subsection shall also not apply to a person with the sole purpose of carrying a concealed firearm and who is otherwise in compliance with Chapter 571, RSMo., regarding concealed carry endorsements.~~

~~10.~~

~~It shall be the discretion of the owner, lessee or person in charge of any premises or property to limit the type of firearm, air gun, archery device or crossbow which may be fired or discharged for any reason. The type of firearm, air gun, archery device or crossbow permitted by the owner, lessee or person in charge shall be stated in writing along with the permission to enter any such premises or property. Failure to comply with the written request of the property owner, lessee or person in charge as regards the firearm, air gun, archery device or crossbow shall be considered a violation of this Section.~~

~~11.~~

~~It shall be at the discretion of the owner, lessee or person in charge of any premises or property to set the parameters under which any person may fire or discharge a firearm, air gun, archery device or crossbow upon any such premises or property under the control of the owner, lessee, or person in charge. The parameters to fire or discharge a firearm, air gun, archery device or crossbow must be otherwise in compliance with the provisions of this Section.~~

~~12.~~

~~It shall be unlawful to fire or discharge any firearm within four hundred fifty (450) feet of any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging the firearm, unless the person has written~~

~~permission of the owner, lessee or person in charge of such premises or property; it shall be unlawful to fire or discharge an archery device within two hundred (200) feet of any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging the archery device, unless the person has written permission of the owner, lessee or person in charge of such premises or property.~~

~~13.~~

~~It shall be unlawful to fire or discharge at any time any firearm or archery device on any parcel of land containing less than three (3) acres, except to fire or discharge an archery device at a fixed target (for target practice purposes) located at least two hundred (200) feet from any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging the archery device.~~

~~14.~~

~~It shall be unlawful to fire or discharge at any time a firearm other than a shotgun, muzzleloader, air gun (including in excess of twenty-two (.22) caliber) or crossbow on any property in the City east of Missouri State Route 109.~~

~~15.~~

~~It shall be unlawful to commit any act violating any provision set forth in Sections 571.010 through 571.150, RSMo., inclusive.~~

(Reserved)

[Ord. No. \_\_\_\_\_]

C.

*Hunting Regulations.*

1.

All current laws of the State of Missouri as regards to the regulation of hunting shall be obeyed within the corporate limits of Wildwood.

2.

All provisions of ~~Subsection (B) of this~~ Section 210.225 shall apply to hunting within the corporate limits of Wildwood.

3.

*Hunting of smaller game.* It shall be unlawful to use any firearm other than a shotgun to take small game such as rabbits or squirrels or to take game such as water fowl or upland game birds.

4.

*Hunter safety course required.* All persons required to have taken a hunter safety course as prescribed by Missouri State law shall also be required to have such certificate of completion from the Missouri Department of Conservation in order to hunt within the corporate limits of Wildwood.

5.

*License may be inspected.* It is the duty of every person holding a hunting license and permit to submit the same for inspection by any agent of the Missouri Department of Conservation, Department of Natural Resources, St. Louis County Parks Department or any Police Officer or Marshal thereof.

6.

*Regulations as to location of hunting.*

- a. It shall be unlawful for any person to hunt by firing or discharging any firearm, air gun, archery device or crossbow from or across any street, sidewalk, road, highway, park, playground or recreation area.
- b. It shall be unlawful for any person to hunt by firing or discharging any firearm or air gun expelling a single solid projectile from any boat or other water vessel or across or into the Missouri or Meramec Rivers or any lake or reservoir.
- c. It shall be unlawful for any person to knowingly hunt upon the premises or property of another without first having obtained the written permission from the owner, lessee or person in charge of such premises or property. The duly obtained written permission shall be carried in the personal possession of the person requesting and receiving such permission. This Subsection shall not apply to a person carrying, firing or discharging any firearm, air gun, archery device or crossbow while in the immediate presence of the owner, lessee or person in charge of the property or premises, or to the entry upon the premises for the sole purpose of obtaining written permission of the owner, lessee or person in charge of the property. This Subsection shall also not apply to a person with the sole purpose of carrying a concealed firearm and who is otherwise in compliance with Chapter 571, RSMo., regarding concealed carry endorsements.
- d. It shall be at the discretion of the owner, lessee or person in charge of any premises or property to set the specific boundaries where a person may hunt using a firearm, air gun, archery device or crossbow. The specific boundaries must be otherwise in compliance with the provisions of this Section.
- e. It shall be unlawful to hunt by firing or discharging any firearm within four hundred fifty (450) feet of any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging the firearm, unless the person has written permission of the owner, lessee or person in charge of such premises or property; it shall be unlawful to hunt by firing or discharging an archery device within two hundred (200) feet of any dwelling, house, apartment building, church, school, playground, recreational area or any building not owned by the person discharging

the archery device, unless the person has written permission of the owner, lessee or person in charge of such premises or property.

- f. It shall be unlawful to hunt by firing or discharging any firearm or archery device on any parcel of land containing less than three (3) acres.
- g. It shall be unlawful to hunt by firing or discharging a firearm other than a shotgun, muzzleloader, air gun (including in excess of twenty-two (.22) caliber) or crossbow on any property in the City east of Missouri State Route 109.

7.

*Special hunts.* Any special hunts permitted by the Missouri Department of Conservation or Department of Natural Resources or the St. Louis County Parks Department shall be permitted under this Section after obtaining approval of the City Council of the City of Wildwood.

D.

~~*Exceptions.* The provisions of Subsection (B) of this Section shall not apply to the discharge of firearms, air guns, archery devices or crossbows where necessary to protect life, livestock, crops or other property, nor to any Peace Officer acting in the discharge of his/her official duties, nor to the discharge of blank cartridges in theater performances or sporting events, nor to the firing of salutes by firing squads at military ceremonies.~~

~~E.~~

*Penalties.* Any person violating any provision of this Section shall, upon conviction, be punished by a fine of not less than one hundred dollars (\$100.00) nor more than one thousand dollars (\$1,000.00) or by imprisonment for not more than ninety (90) days, or both, for each offense.

Section 210.225. Specific Prohibited Actions Related to Firearms.

[Ord. No. \_\_\_\_\_]

A. Specific Acts – Prohibited.

It shall be unlawful for any person to:

1. Carry concealed upon or about his or her person a knife, a firearm, a blackjack or any other weapon readily capable of lethal use except as may otherwise be provided by Missouri law; or
2. Set a spring gun; or
3. Discharge or shoot a firearm, air gun, archery device or crossbow into a dwelling house, a railroad train, boat, aircraft, or motor vehicle as defined in Section 302.010, RSMo., or any building or structure used for the assembling of people; or

4. Exhibit, in the presence of one or more persons, any weapon readily capable of lethal use in an angry or threatening manner; or
5. Possess or discharge a firearm, air gun, archery device, crossbow or other projective weapon while intoxicated; or
6. Discharge a firearm, air gun, archery device or crossbow within one hundred (100) yards of any occupied schoolhouse, courthouse, or church building; or
7. Discharge or shoot a firearm, air gun, archery device or crossbow at a mark, at any object, or at random, on, along or across a public highway or discharge or shoot a firearm into any outbuilding; or
8. Carry a firearm, air gun, archery device, crossbow or any other weapon readily capable of lethal use into any church or place where people have assembled for worship, or into any election precinct on any election day, or into any building owned or occupied by any agency of the federal government, state government, or political subdivision thereof; or
9. Discharge or shoot a firearm, air gun, archery device or crossbow at or from a motor vehicle, as defined in Section 301.010, RSMo., discharge or shoot a firearm at any person, or at any other motor vehicle, or at any building or habitable structure, unless the person was lawfully acting in self-defense; or
10. Carry a firearm, whether loaded or unloaded, air gun, archery device, crossbow or any other weapon readily capable of lethal use into any school, onto any school bus, or onto the premises of any function or activity sponsored or sanctioned by school officials or the district school board.
11. Commit any act violating any provision set forth in Sections 571.010 through 571.150, RSMo., inclusive.

#### B. Exceptions.

1. Subdivisions (1), (3), (4), (6), (7), (8) (9) and (10) of Subsection A shall not apply to or affect any of the following:
  - a. All state, county and municipal peace officers possessing the duty and power of arrest for violation of the general criminal laws of the state or for violation of ordinances of counties or municipalities of the state whether such officers are within or outside their jurisdictions or on or off duty, or any person summoned by such officers to assist in making arrests or preserving the peace while actually engaged in assisting such officer;
  - b. The discharge of firearms, air guns, archery devices or crossbows where necessary to protect life, livestock, crops or other property, the discharge of blank cartridges in theater performances or sporting events, and the firing of salutes by firing squads at military ceremonies;

- c. Wardens, superintendents and keepers of prisons, penitentiaries, jails and other institutions for the detention of persons accused or convicted of crime;
  - d. Members of the armed forces or national guard while performing their official duty;
  - e. Those persons vested by Article V, Section 1 of the Constitution of Missouri with the judicial power of the state and those persons vested by Article III of the Constitution of the United States with the judicial power of the United States, the members of the federal judiciary;
  - f. Any person whose bona fide duty is to execute process, civil or criminal;
  - g. Any federal probation officer;
  - h. Any state probation or parole officers, including supervisors and members of the board of probation and parole;
  - i. Any corporate security advisor meeting the definition and fulfilling the requirements of the regulations established by the board of police commissioners under Section 84.340, RSMo.;
  - j. Any coroner, deputy coroner, medical examiner or assistant medical examiner;
  - k. Any prosecuting attorney or assistant prosecuting attorney, circuit attorney or assistant circuit attorney, or person appointed by a court to be a special prosecutor who has completed the firearms safety training course required under Subsection 2 of Section 571.111, RSMo.; and
  - l. Any member of a fire department or fire protection district who is employed on a full time basis as a fire investigator and who has a valid concealed carry endorsement prior to August 28, 2013, or a valid concealed carry permit under Section 571.111, RSMo., when such uses are reasonably associated with or are necessary to the fulfillment of such person's official duties.
2. Subdivisions (1), (5), (8) and (10) of Subsection A do not apply when the actor is transporting such weapons in a nonfunctioning state or in an unloaded state when ammunition is not readily accessible or when such weapons are not readily accessible. Subdivision (1) of Subsection A does not apply to any person twenty-one (21) years of age or older transporting a concealable firearm in the passenger compartment of a motor vehicle, so long as such concealable firearm is otherwise lawfully possessed, nor when the actor is also in possession of an exposed firearm or projectile weapon for the lawful pursuit of game, or is in his or her dwelling unit or upon premises over which the actor has possession, authority or control, or is traveling in a continuous journey peaceably through this state. Subdivision (10) of Subsection A does not apply if the firearm is otherwise lawfully possessed by a person while traversing school premises for the purposes of transporting a student to or from school, or possessed by an adult for the purposes of facilitation of a school-sanctioned firearm-related event.

3. Subdivisions (1), (8), and (10) of Subsection A shall not apply to any person who has a valid concealed carry endorsement issued pursuant to Sections 571.101 to 571.121, RSMo., or a valid permit or endorsement to carry concealed firearms issued by another state or political subdivision of another state.
4. Subdivisions (3), (4), (5), (6) (7), (8), (9), and (10) of Subsection A shall not apply to persons who are engaged in a lawful act of defense pursuant to Section 563.031, RSMo.
5. Nothing in this Section shall make it unlawful for a student to actually participate in school-sanctioned gun safety courses, student military or ROTC courses, or other school-sponsored firearm related events, provided the student does not carry a firearm or other weapon readily capable of lethal use into any school, onto any school bus, or onto the premises of any other function or activity sponsored or sanctioned by school officials or the district school board.

#### C. Penalties.

1. Any person violating any provision of this Section shall, upon conviction, be punished by a fine of not less than one hundred dollars (\$100.00) nor more than one thousand dollars (\$1,000.00) or by imprisonment for not more than ninety (90) days, or both, for each offense.
2. Any person knowingly aiding or abetting any other person in the violation of Subdivision (9) of Subsection A of this Section shall be subject to the same penalty as that prescribed by this Section for violations by other persons.

#### D. Further Limitation.

1. The carrying of firearms in City buildings shall be further limited as follows:
  - a. No person who has been issued a concealed carry endorsement by the State of Missouri or who has been issued a valid permit or endorsement to carry concealed firearms issued by another state or political subdivision of another state, shall, by authority of that endorsement or permit, be allowed to carry a concealed firearm or to openly carry a firearm in any building or portion of a building owned, leased or controlled by the City.
  - b. Signs shall be posted at each entrance of a building entirely owned, leased or controlled by the City stating that carrying of firearms is prohibited. Where the City owns, leases or controls only a portion of a building, signs shall be posted at each entrance to that portion of the building stating that carrying of firearms is prohibited.
  - c. This Subsection shall not apply to buildings used for public housing by private persons, highways or rest areas, firing ranges, or private dwellings owned, leased or controlled by the City.

d. Any person violating this Subsection may be denied entrance to the building or ordered to leave the building. Any City employee violating this Section may be disciplined. No other penalty shall be imposed for a violation of this Subdivision (d) only. Violations of all other Subdivisions shall be subject to the penalties set forth in Subsection C.

e. To the extent that the restrictions in this Section are in direct conflict with SB656 regarding the open carrying of firearms, then the provisions of SB656 shall govern; however, the restrictions of this Section shall be enforced to the fullest extent permitted by Missouri law. Furthermore, any person who is open carrying a firearm, shall also comply with the following provisions of SB656:

Any person with a valid concealed carry endorsement or permit who is open carrying a firearm shall be required to have a valid concealed carry endorsement or permit from this state, or a permit from another state that is recognized by this state, in his or her possession at all times;

Any person open carrying a firearm in such jurisdiction shall display his or her concealed carry endorsement or permit upon demand of a law enforcement officer;

In the absence of any reasonable and articulable suspicion of criminal activity, no person carrying a concealed or unconcealed firearm shall be disarmed or physically restrained by a law enforcement officer unless under arrest;

Any person who violates this Subdivision shall be subject to the penalty provided in Section 571.121, RSMo.

Section 210.230. (Reserved)

(Reserved)

[Ord. No. \_\_\_\_\_]



March 15, 2016

The Honorable City Council  
City of Wildwood, Missouri  
16860 Main Street  
Wildwood, Missouri 63040

Re: Special Event Liquor License for Farmers Market - 2016

Council Members:

The Planning/Economic Development/Parks Committee has been forwarded by the Department of Planning a request from the managers of the farmers market about a change they would like to propose to the City regarding this weekly event. The farmers market will be entering its sixth year, with last year being its best ever, much to the credit of the managers – George and Rene’ Sackett. This success of the market in 2015 relates to the ability of the managers to continue to develop new vendors and events to keep visitors to it interested and engaged for the long season. Therefore, the request that was presented to the Committee is consistent with the managers always seeking new ideas to keep the market fresh.

In the attached email from George and Rene’ Sackett, they are requesting the authorization to begin offering and hosting cooking demonstrations, samplings, and special events that would benefit from the limited sale of alcohol at them (beer and wine). This request is not intended to allow sales of beer and wine at the market from a vendor or vendors, but for a list of special events that are offered over the course of the six (6) month season. The Rotary Club would be the sponsor of the license for the benefit of the Sacketts. This arrangement between the market managers and the Rotary Club is identical to the circumstance in the City of Ellisville, when the Sacketts were also managers of its farmers market. This arrangement appeared to work well for the special events at that market.

Given the request, the Committee was asked to review it by the Department of Planning and provide its direction in this regard to the City Council. The Committee is supportive of the managers’ request for the limited sale of beer and wine at special events hosted by the market over the course of the regular season. The Committee’s support is premised on the following conditions:

1. The sale of beer and wine only, in conjunction with these scheduled special events.
2. The managers of the market shall oversee any individuals charged with the storage, preparation, and service of the beer and wine.

3. The Rotary Club will apply for the license and provide the insurance coverage and liability protection to the City of Wildwood, as directed by the City Attorney.
4. The market managers shall be responsible for the oversight of all aspects of this offering, including the storage, distribution, and sale of the beer and wine, and shall ensure that all State, County, and local codes are met as well.
5. The market managers shall advise the Department of Planning about those special events where beer and wine is to be sold, so it can advise the St. Louis County Police Department - Wildwood Precinct.

With these conditions in place, the Committee believes the request of the managers can be authorized for the 2016 Season, thereby allowing the market and its customers another option for enjoying this venue over its season, and the City of Wildwood. Acting at its March 15, 2016 meeting, and by a vote of 6 to 0, the Committee is recommending the City Council approve this additional allowance for beer and wine sales at certain special events held in conjunction with the weekly farmers market. The action of the Committee included the conditions referenced above (Conditions #1 through #5).

If any of the City Council Members should have questions or comments in this regard or need additional information on this matter, please feel free to contact the Department of Planning at (636) 458-0440. A presentation is planned on this matter at tonight's meeting. Thank you for your input and direction on the same.

Respectfully submitted,  
**CITY OF WILDWOOD**

Jim Baugus, Chair\*  
Planning/Economic Development/Parks Committee

Cc: The Honorable Timothy Woerther, Mayor  
Ryan S. Thomas, P.E., City Administrator  
Rob Golterman, City Attorney  
Kathy Arnett, Assistant Director of Planning and Parks  
Gary Crews, Superintendent of Parks and Recreation  
George and Rene' Sackett, Wildwood Farmers Market Managers

\* The Department of Planning and Parks developed this report, in conjunction with the Planning/Economic Development/Parks Committee. Content reflects the Committee's consideration of this subject, and not necessarily an individual's position or opinion.

## Kathy Arnett

---

**From:** René Waterhouse-Sackett <renewhatsup@yahoo.com>  
**Sent:** Tuesday, March 01, 2016 11:00 AM  
**To:** Joe Vujnich  
**Cc:** Gary Crews; Kathy Arnett  
**Subject:** Follow Up to request for beer and wine license

Good Morning,

I wanted to follow up on the previous request for the "Retail By The Glass" Beer and Wine license. If you would present this to the Council at the next meeting, it would be much appreciated. See number 3 in the original email.

Here's a little more information.

1) The Rotary Club of West St Louis County has been sponsoring the license at the Ellisville Farmer's Market for a number of years. It is an annual license and the cost is \$50/year with the license month beginning July 1. The Rotary takes care of all the paperwork, insurance and licensing. I am listed as the primary holder of the license. The Rotary becomes a "sponsor" of the market and would be listed as such anytime that the beer and/or wine is at the market or a market sponsored event. This license can be renewed in March and the location can be transferred to the location of the Wildwood Farmers Market. The renewal and changes take a while, so starting as soon as possible would be optimal.

2) I would like to express my reasons for wanting the license.

A) The Missouri Wine and Grape Board has been reaching out to Farmers Markets in the State for sampling, sales and marketing of Missouri wine. George and I have visited many wineries over the last few years and have found out that many cannot afford all of the licenses and/or do not have the staff to visit, sample, serve, talk about their wines. We have been able to "host" some wineries and wine makers at the Ellisville Farmers Market over the last few years. Our license enables us to buy their wine (as many don't have big commercial distributors or sell outside of the winery) to sample and/or sell a glass. The community gets to meet these folks and the wineries get to market to a community outside of their immediate area.

B) It is the same scenario for the local microbreweries.

C) We have some flexibility on how we can utilize this license.

1) We can sample and/or sell local beer and wine anytime

2) We can set up a market tent and sell at Friday concerts

3) We can plan special events during market hours with seasonal food and beer/wine pairings. As well as use local beers and wines to cook with and offer recipes and demos (smaller scale)

4) We can plan some market/community meals ( larger scale, during market, after market or on another day)

5) We do not have to utilize it much at all. It takes a lot of work and time to get these inexpensive, annual licenses and it seems better to keep the one that we have had, renew it and change location, than to let it expire.

I hope this helps and please let me know if you have any questions, concerns or comments.

Kindest Regards,  
René



March 15, 2016

The Honorable City Council  
City of Wildwood, Missouri  
16860 Main Street  
Wildwood, Missouri 63040

Re: **Al Foster Memorial Trailhead Project – Bidding Results**

Council Members:

## INTRODUCTION

The City Council has been a part of the development of the design and engineering drawings for the planned improvement of the Al Foster Memorial Trailhead for many years. The Council's role in this process began with the agreement to create a public engagement process and development review program for the trailhead's improvement that would engage the Glencoe Community and all of the City's partners in the Meramec River Valley, including its current users. This process and program that was followed is described below:

1. The planning process began with direct mailings to all residents, property owners, partners, and organizations with interest in the area asking for input about the current facility and their likes, dislikes, needs, concerns, and opportunities regarding it.
2. The input was formulated into a report used to determine the level of improvements considered on the site.
3. The report was presented at a community meeting to receive feedback upon the identified items and agreement on a list of priority improvements sought.
4. The list of prioritized improvements was presented to the Planning and Zoning Commission and City Council for their respective reviews and recommendations.
5. The agreed upon improvements was determined and the park designer was asked to formulate a plan reflecting these items upon it.
6. The plan, once completed, was circulated to all interested parties for review and comments (same groups noted in Item #1 above).
7. The received comments from this first review were presented to the community at a meeting for input, suggestions, and changes.
8. The revised plan from these comments was then be presented to the Planning and Zoning Commission and City Council for review and direction.
9. The agreed upon plan was revised for the purposes of construction documents and specifications and this information was used for bidding purposes.
10. The bidding was completed and awarding of contracts followed, with City Council approving all required contracts.
11. The construction of improvements to the trailhead can now proceed, once the City Council authorizes contracts and all required documentation is addressed.

## CONSIDERATIONS

This process began in February 2011 and, for the most part, including reviews by all of the City's boards and commissions, along with City Council, took approximately five (5) years to complete the first nine (9) steps and begin Step #10, which is the project's current status. Through this process, from public input to the comments and additions by the City's boards and commissions, the project changed, but still respected its location in the Meramec River floodplain. Accordingly, the amount of funding set aside for this project has fluctuated over the course of time due to additions made through the lengthy review process.

Now with Step #10 underway, the final step is ready to proceed. The bids were opened for this project on March 1, 2016 and six (6) firms responded to the advertisement. A summary of the bidding is provided below:

Bidder	Base (\$)	Alt. #1 (\$)	Alt. #2 (\$)	Alt. #3 (\$)	Alt. #4 (\$)	Alt. #5 (\$)	Alt. #6 (\$)	Total (\$)
		Overflow Parking	Overflow Parking - Landscaping	Info. Board	Site Furnishings	Disc Golf	Grated Trough	
<b>Ideal Landscaping</b>	514,868	67,900	9,000	14,500	16,300	16,415	9,900	<b>648,883</b>
<b>Demien Construction</b>	570,000	102,344	9,328	13,135	18,591	8,432	6,000	<b>727,830</b>
<b>Gershenson Construction</b>	601,500	91,000	15,000	14,500	16,000	13,800	16,500	<b>768,300</b>
<b>Raiveri Construction</b>	560,572	152,735	11,374	2,992	25,130	51,416	11,355	<b>815,574</b>
<b>Tramar Contracting</b>	642,000	207,000	17,200	20,000	34,000	29,500	8,000	<b>957,700</b>
<b>RV Wagner</b>	759,000	197,000	16,000	22,000	24,600	31,000	8,600	<b>1,058,200</b>

It is important to note that approximately \$450,000.00 was anticipated for this project in the 2016 Capital Improvements Budget, as part of the overall construction line item contained in it. In considering the results of this bidding process, the Committee is recommending for the City Council's consideration of the following bid:

Bidder	Base Bid (\$)
<b>Ideal Landscaping</b>	514,868.00

Obviously, the bid amount is much greater than the amount set aside in the 2016 Capital Improvements Program Budget of four hundred fifty thousand dollars (\$450,000.00). Given this circumstance, the Department of Planning and Parks requested the park designer meet with Ideal Landscaping, the low bidder, and attempt to find cost savings in its submitted bid. The outcome of this discussion was as follows:

Item	Cost (\$)
Base Bid	514,868
Alternate #4	16,000
<b>Original Total</b>	<b>530,868</b>
Eliminate thermo plastic logos from crosswalks and stripe only	-9,000
Remove one (1) of the non-ADA mini shelters	-11,500
Remove one (1) set of site furnishings from Alternate #4, i.e. picnic table, barbecue pit, and trash receptacle	-1,900
Remove bio-basin; seed and straw only	-8,900
<b>Revised Total</b>	<b>499,568</b>

The changes that are noted above will eliminate some items that had been recommended by the City's Historic Preservation Commission, such as the overflow, special event parking area, but that cost alone, under the low bidder's submittal, is \$67,900.00. Additionally, the number of mini-shelters will be reduced to two (2) instead of three (3) in total, but the larger shelter remains as it was bid.

To offset this additional cost of almost fifty thousand dollars (\$50,000.00), the Committee is requesting the Council's support to reallocate this amount from the Capital Improvement Program's 2016 Budget in association with the line item identified as 'Future Trail Development – Construction,' which has one million dollars (\$1,000,000.00) currently allocated to it, thereby still leaving nine hundred fifty thousand dollars (\$950,000.00) in that account, while allowing this project to proceed with the recommended bidder – ***Ideal Landscaping***.

### **SUGGESTED ACTION/RECOMMENDATION**

The Committee, acting at its March 15, 2016 meeting, and by a vote of 6 to 0, is recommending this contractor and payment scenario for this construction project. In making this recommendation, the Committee members would again note the adherence of this project's design components is an outcome of the original process outlined by the City Council; the community involvement in this design; and the numerous benefits this improvement will bring to the nearby residents, and park and trail users in this area. This matter is being presented at tonight's Work Session to the City Council for its review of the bids and, if acceptable, to recommend legislation be drafted in this regard. With City Council's endorsement, the contract for this project could be established by the end of April, with construction starting in late spring/early summer.

### **INFORMATION**

If any of the City Council Members should have questions or comments before tonight's meeting about this information, please feel free to contact the Department of Planning and Parks at (636) 458-0440. A presentation is planned on this matter at tonight's meeting. Thank you for your review of this information and participation in tonight's discussion.

Respectfully submitted,  
**CITY OF WILDWOOD**

Jim Baugus, Chair\*  
Planning/Economic Development/Parks Committee

Cc: The Honorable Timothy Woerther, Mayor  
Ryan S. Thomas, P.E., City Administrator  
Rob Golterman, City Attorney  
Kathy Arnett, Assistant Director of Planning and Parks  
Gary Crews, Superintendent of Parks and Recreation  
Ken Keitel, terraspec, Park Designer

\* The Department of Planning and Parks developed this report, in conjunction with the Planning/Economic Development/Parks Committee. Content reflects the Committee's consideration of this subject, and not necessarily an individual's position or opinion.

**ARTICLE 10**

**BID FORM PROPOSAL**

PROJECT: AL FOSTER TRAILHEAD PARK SITE IMPROVEMENTS  
WILDWOOD, MISSOURI  
terraspec Project No. 10-015

OWNER: CITY OF WILDWOOD  
16860 MAIN STREET  
WILDWOOD, MISSOURI 63040

BIDDER: Ideal Landscape Construction, Inc.  
6264 Lemay Ferry Road  
St. Louis, MO 63129

TO: CITY OF WILDWOOD, MISSOURI

1. The undersigned (herein called the "Bidder") in compliance with your Invitation for Bids for the construction of the above-referenced project, having examined the drawings and specifications with related documents as prepared by *terraspec*, and having examined the site of the proposed work, being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and supplies to construct within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

2. **BASE PROPOSAL:** Bidder agrees to furnish all labor, materials, equipment and service required to construct and install all work shown on the drawings and called for in the specifications, except those items designated as add alternates. The bidder will complete this work as shown on the drawings and called for in the specifications, in accordance with said documents therewith for the sum indicated below.

**BASE PROPOSAL TOTAL**

Five hundred fourteen thousand eight hundred sixty eight \_\_\_\_\_ DOLLARS (\$ 514,868.00 \_\_\_\_\_)

3. **ALTERNATES:** The bidder will add the following work items as called for in the drawings and specifications in accordance with said documents therewith for the following itemized sums. The CITY reserves the right to select or reject any or all, or any combination of alternates.

**ALTERNATE No. 1** - This alternate is for the addition of the Overflow Parking Area Pavement as indicated on the Drawings. **Note: Alternate includes, but not necessarily limited to, all elements necessary to construct Overflow Parking Area including grading, compaction testing, flush concrete curbs, grass pave aggregate base, grass pave surfacing, seeding/mulching and plastic insert striping .**

ADD Sixty seven thousand nine hundred \_\_\_\_\_ DOLLARS (\$ 67,900.00 \_\_\_\_\_)

CITY OF WILDWOOD, MISSOURI

ALTERNATE No. 2 - This alternate is for the addition of the Overflow Parking Area Landscape as indicated on the Drawings. **Note: Alternate includes, but not necessarily limited to, all elements necessary to install landscaping including spaded edge, shrub bed soil preparation, shrub bed mulch, and plant materials. Topsoil, lawn seeding, mulch to replace existing aggregate parking lot to be removed shall be included in the Base Bid Proposal.**

ADD Nine thousand DOLLARS (\$ 9,000.00 )

ALTERNATE No. 3 - This alternate is for the addition of (1) Information Board as indicated on the Drawings.

ADD Fourteen thousand five hundred DOLLARS (\$ 14,500.00 )

ALTERNATE No. 4 - This alternate is for the addition of (7) Picnic Tables, (4) Barbeque Pits, (7) Trash Receptacles, including associated concrete pads where applicable, as indicated on the Drawings. **Note: Alternate includes all elements necessary to install the aforementioned site furnishings. Barbeque Pit at Main Shelter, Benches and Bike Rack at Restroom Building and Concrete Pads at Mini Shelters shall be included in the Base Bid Proposal.**

ADD Sixteen thousand three hundred DOLLARS (\$ 16,300.00 )

ALTERNATE No. 5 - This alternate is for the addition of 3 Disc Golf Holes as indicated on the Drawings. **Note: Alternate includes all elements necessary to install the aforementioned Disc Golf Holes including, necessary Selective Tree and Brush Removal from Fairways, (9) Concrete Tee Pads, and (3) Heavy Duty Baskets**

ADD Sixteen thousand four hundred fifteen DOLLARS (\$ 16,415.00 )

ALTERNATE No. 6 - This alternate is for the addition of a Grated Drainage Trough across Grand Avenue, in lieu of the Reinforced Concrete Pipe, Flared End Sections and Drainage Swale Construction as indicated on the Drawings. **Note: Alternate includes all elements necessary to install the aforementioned Grated Drainage Trough.**

ADD Nine thousand nine hundred DOLLARS (\$ 9,900.00 )

There will be no time extensions granted to the construction contract with the owner's acceptance of any alternate.

4. **UNIT PRICES:** Should the undersigned be required to perform work other than that shown on the submitted proposal, he will be paid an additional sum or shall credit the Owner, as the case may be, on the basis of the unit Prices quoted below. Such prices shall be the sum total installed compensation payable for all required work, including materials, installation, overhead and profit, and be valid for the duration of the contract. Any direction for changes will be given to the contractor in writing by the Owner.

ITEM DESCRIPTION

PRICE PER UNIT

**NOTE: THIS SECTION (UNIT PRICES) NOT USED**

CITY OF WILDWOOD, MISSOURI

5. Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this proposal or any other proposal or the submitting of proposals for the contract for which this proposal is submitted.

6. The undersigned agrees that he will complete said work by November 30, 2016 or allow the Owner as liquidated damages, the sum of Five Hundred Dollars (\$500.00) for each calendar day thereafter, that the Contract remains uncompleted. Computation of Contract time shall commence on the seventh (7th) day following the date of mailing by regular mail of the Notice to Proceed, and every calendar day following thereafter, except as provided herein, shall be counted as a working day.

7. The undersigned hereby represents that he has carefully examined the Bid Documents, and will execute the Contract and its items, covenants, and conditions all in strict conformance to these requirements.

8. All materials and equipment furnished by this Contract, and all construction involved in this Contract shall be, and the same is guaranteed by the Contractor, free from defects owing to faulty materials or workmanship for a period of one (1) year after the date of completion of the above work covered by this Contract, and any part, equipment, material, or work which proves defective by reason of faulty material or workmanship, within said period of one year shall be replaced by the Contractor free of cost to the Owner.

9. It is understood that the City reserves the right to reject any or all bids, to waive informalities in bidding, and to accept the bid most advantageous to the City.

10. All materials and equipment furnished by the undersigned shall be fully warranted as provided by the manufacturer(s). Any equipment which proves to be defective by reason of faulty parts, materials, or workmanship within the specified time period shall be replaced by the undersigned firm free of cost to the City.

11. The Bidder agrees that this bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving bids.

12. Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract attached within five (5) days and deliver the required Surety Bond or Bonds.

13. The bid security attached in the sum of <sup>Twenty five thousand seven</sup> ~~hundred forty three and four tenths~~ (\$ 25,743.40 ) is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the owner caused thereby.

14. The undersigned hereby agrees to commence work under Contract a maximum of fourteen (14) days of receiving written "Notice to Proceed" from the Owner and to fully complete the total project in accordance with the time schedule set forth in the CITY - Contractor Agreement. The undersigned

CITY OF WILDWOOD, MISSOURI

further agrees to pay liquidated damages in accordance with the requirements of the Contract.

15. Bidder acknowledges receipt of the following Addenda:

Addendum No. <u>1</u>	Dated <u>02/25/16</u>
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____

Respectfully submitted,

David Buckel-President

Name and Signature of Bidder

If an **INDIVIDUAL**

\_\_\_\_\_  
Name of Individual

\_\_\_\_\_  
Firm Name, if any

\_\_\_\_\_  
Residence Address

\_\_\_\_\_  
Address for Communications

If a **CORPORATION**

Ideal Landscape Construction, Inc.

\_\_\_\_\_  
Name of Corporation

David Buckel

President

\_\_\_\_\_  
Name and Title of Officer

6264 Lemay Ferry Road

St. Louis, MO 63129

\_\_\_\_\_  
Address for Communications

If a **PARTNERSHIP**

\_\_\_\_\_  
Name of Partnership

\_\_\_\_\_  
Partner

\_\_\_\_\_  
Address for Communications

1. Incorporated under the laws of the State of Name of Corporation?

2. Licensed to do business in Missouri?

Yes  No \_\_\_\_\_  
(Check One)

State names and residence addresses of all partners

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**NON-COLLUSION AFFIDAVIT**

STATE OF Missouri

COUNTY OF Jefferson

David Buckel, being first duly sworn, deposes and says that he is President \*(sole owner, partner, president, secretary, etc.) of Ideal Landscape Construction, Inc., the party making the foregoing bid; that such bid is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that such bid is genuine and not collusive or sham; that said bidder had not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or any one else to put in a sham bid, or that any one shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with any one to fix the bid price of said bidder or of any other bidder, or to fix any overhead, profit or cost element of such bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or any one interested in the proposed contract; that all statements contained in such bid are true; and, further, that said bidder had not, directly or indirectly, submitted his bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said bidder in his general business.

SIGNED:



Subscribed and sworn to before me this 9th day of February, 2010.  
Seal of Notary

Rebecca Dawn Lhee  
Notary Public



		Source Funds	FY 2016
<b>Planned Project Expenditures</b>			
<b>Park and Trail Development</b>			
40-480-07	Property Acquisitions	Local	900,000
40-480-11	Al Foster Trailhead Improvements - Construction	Local	450,000
40-480-21	Homestead Trail Design/Engineering and Improvements	Local	50,000
40-480-32	Wildwood Greenway - Phase VI - Construction	Local/Grant	350,000
40-480-33	Pedestrian Bridge Over Route 100, at Eatherton Road - Construction	Local/Grant	1,200,000
40-480-34	Kohn Park Repairs	Local	50,000
40-480-35	Old Pond School Repairs	Local	10,000
40-480-38	Capital Equipment/Facilities Purchase/Replacement	Local	50,000
40-480-39	Monarch Levee Trailhead	Local/Grant	200,000
40-480-41	Community Park - Phase II - Construction	Local/Grant	700,000
40-480-42	Community Park - Phase III - Design and Engineering	Local	150,000
40-480-44	Boardwalk Trail Between Mobil-On-The-Run and Pedestrian Bridge	Local	330,000
40-480-45	Future Trail Development - Design	Local	150,000
40-480-	Future Trail Development - Construction	Local	1,000,000
40-480-	Trail Resurfacing	Local	100,000
40-480-	Restroom Facilities - Old Pond School	Local	120,000
40-480-	Athletic Field Planning and Development	Local	50,000
40-480-	Bellevue Farms	Local/Grant	25,000
	<b>Sub Total - Park Development</b>		<u>5,885,000</u>
<b>Other Capital Investment</b>			
40-490-05	Great Streets Project(s)	Local	50,000
70-480-20	Vehicle Replacement / Purchase	Local	25,000
70-480-34	Rural Internet Access Project	Local	50,000
	<b>Sub Total - Other Capital Investment</b>		<u>125,000</u>
<b>Total Expenditures</b>			<b>6,010,000</b>

From: **Ken Keitel** [kjkeitel@terraspecstl.com](mailto:kjkeitel@terraspecstl.com)  
Subject: FW: Ford Asphalt References  
Date: March 23, 2016 at 9:59 AM  
To: [JVujnich@cityofwildwood.com](mailto:JVujnich@cityofwildwood.com)



Hi Joe,

Below is the response from Ideal Landscape regarding the references that you had requested for their asphalt contractor, Ford Asphalt. Rebecca, with Ideal, said that they have used Ford on a number of other projects and, to her knowledge, have had no issues with Fords work.

Thanks,

Kenneth J. Keitel, PLA, ASLA

**WE'VE MOVED!!!!**

*Please update your files with our new address and phone numbers*



5030 Griffin Road  
St. Louis, MO 63128  
Ph 314-984-8211  
Fax 314-843-1718  
[kjkeitel@terraspecstl.com](mailto:kjkeitel@terraspecstl.com)

---

**From:** Rebecca White [<mailto:white.rebecca@idealandscape.com>]  
**Sent:** Tuesday, March 22, 2016 12:45 PM  
**To:** 'Ken Keitel'  
**Subject:** Ford Asphalt References

St. Louis County Animal Shelter - 10521 Baur Boulevard.  
Asphalt Excavate & Replace (smaller area but tight grades for drainage, swale) - Fall 2015

First Church of Christ Scientist - 2989 Clarkson Road  
Parking Lot Addition & Overlay - Summer 2015

Pattonville School District Learning Center - 11097 St. Charles Rock Road  
Mill Existing Asphalt & Overlay - Summer 2015

Thank you,

*Rebecca White*



*Assistant Estimator*

6264 Lemay Ferry Road - St. Louis, MO 63129

*Tel* (314) 892-9500 . *Mobile* (636)-638-7360 . *Fax* (314) 892-6459

# Al Foster Trail Head Park

## Site Development

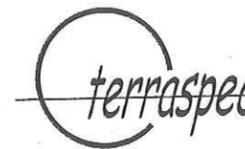
### City of Wildwood, Missouri



WILDWOOD

PREPARED FOR:  
 Department of Planning + Parks  
 16860 Main Street Wildwood,  
 Missouri 63040 (636) 458-0440  
 CONTACT: Joe Vujnich jvujnich@cityofwildwood.com

PREPARED BY:



LAND PLANNING  
 RECREATION PLANNING AND DESIGN  
 LANDSCAPE ARCHITECTURE

5030 GRIFFIN ROAD  
 ST. LOUIS, MO 63128  
 (314)984-8211 FAX(314)843-1718

CONTACT: Ken Keitel kkeitel@terraspecstl.com

CONSULTING ENGINEERS

ELECTRICAL:



HEIDEMAN | ASSOCIATES, INC.

Consulting  
 Civil, Surveying  
 Electrical  
 Mechanical  
 Engineers

13545 Barrett Parkway Dr.  
 Suite 200  
 St. Louis, Missouri 63021  
 Phone: 314-822-2217  
 Fax: 314-822-7858

CIVIL:



STRUCTURAL:



Hawkinson Associates, LLC  
 323 Fox Briar Lane Ballwin, MO 63021  
 314.807.4386 Office/Cell 636.227.3776 Fax  
 todd@hawkinsonassociates.com

### LEGEND

EXISTING CONDITIONS	NEW IMPROVEMENTS
CONTOUR - 500 - -	CONTOUR - 500 - -
SPOT ELEVATION +500.00	SPOT ELEVATION +500.00
STORM SEWER	STORM SEWER
SANITARY SEWER	MANHOLE
MANHOLE	AREA INLET
CURB INLET	GRATE INLET
GRATE INLET	TO BE REMOVED T.B.R.
WATER LINE	USE IN PLACE U.P.
FIRE HYDRANT	ADJUST TO GRADE A.T.G.
GAS SERVICE	
ELECTRIC SERVICE	
TELEPHONE SERVICE	
UTILITY POLE	
GUY WIRE	
LIGHT STANDARD	
SIGN	
TREE	
BUSH	

### GENERAL NOTES:

- UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF IMPROVEMENTS.
- TOPOGRAPHIC INFORMATION PROVIDED BY HEIDEMAN & ASSOC., INC AND DOERING ENGINEERS, INC.
- PROPOSED CONTOURS ARE SHOWN TO FINISHED GRADES. CONTRACTOR SHALL GRADE PAVEMENT AND BUILDING PAD AREAS TO FINISH GRADES INDICATED, UNLESS OTHERWISE INDICATED.
- PROPOSED GRADES SHALL BE WITHIN 0.1 FEET, MORE OR LESS, OF THOSE SHOWN ON THE GRADING PLAN.
- CONTRACTOR TO CALCULATE CUT/FILL QUANTITIES AND NOTIFY ENGINEER PRIOR TO CONSTRUCTION IF BALANCE CONDITION CAN NOT BE MET.
- NO GRADING SHALL OCCUR ON THE SITE UNTIL A GRADING PERMIT IS SECURED WITH THE CITY OF WILDWOOD DEPARTMENT OF PUBLIC WORKS. SILTATION CONTROL DEVICES SHALL BE INSTALLED AND FUNCTIONING BEFORE A GRADING PERMIT WILL BE ISSUED.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED AND STRAWED WITHIN 30 DAYS FROM THE COMPLETION OF GRADING OPERATIONS.
- STORM SEWER CONSTRUCTION AND MATERIALS USED SHALL CONFORM TO LATEST METROPOLITAN ST. LOUIS SEWER DISTRICT "STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWER AND DRAINAGE FACILITIES", AND THE CITY OF WILDWOOD STANDARDS UNLESS OTHERWISE NOTED HEREIN.
- EXISTING ABOVE & BELOW GROUND UTILITIES TO BE PROTECTED AND USED IN PLACE, UNLESS OTHERWISE SPECIFIED (SEE DEMOLITION PLAN).
- MANHOLES AND INLET TOPS BUILT WITHOUT FURNISHED ELEVATIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- LOCATION AND ELEVATION OF EXISTING INLETS, MANHOLES AND PIPES TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
- ALL CONSTRUCTION ACTIVITY SHALL BE RESTRICTED TO AREA WITHIN THE LIMITS OF DISTURBANCE INDICATED ON THE PLAN UNLESS OTHERWISE INDICATED OR DIRECTED.

### SITE GRADING NOTES:

- NOTIFY THE CITY OF WILDWOOD DEPARTMENT OF PUBLIC WORKS 48 HOURS PRIOR TO THE COMMENCEMENT OF GRADING AND/OR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- PARKING ON NON-SURFACED AREAS IS PROHIBITED IN ORDER TO ELIMINATE THE CONDITION WHEREBY MUD FROM CONSTRUCTION AND EMPLOYEE VEHICLES IS TRACKED ONTO THE PAVEMENT CAUSING HAZARDOUS ROADWAY AND DRIVING CONDITIONS. CONTRACTOR SHALL KEEP ROAD CLEAR OF MUD AND DEBRIS.
- THE STREETS SURROUNDING THIS DEVELOPMENT AND ANY STREET USED FOR CONSTRUCTION ACCESS THERETO SHALL BE CLEANED THROUGHOUT THE DAY.
- EROSION AND SILTATION CONTROL SHALL BE INSTALLED PRIOR TO ANY GRADING AND BE MAINTAINED THROUGHOUT THE PROJECT UNTIL ACCEPTANCE OF THE WORK BY THE OWNER AND/OR CONTROLLING REGULATORY AGENCY AND ADEQUATE VEGETATIVE GROWTH INSURES NO FURTHER EROSION OF THE SOIL.
- ADDITIONAL SILTATION CONTROL MAY BE REQUIRED AS DEEMED NECESSARY BY THE CITY OF WILDWOOD.
- TEMPORARY SILTATION CONTROL MEASURES (STRUCTURAL) SHALL BE MAINTAINED UNTIL VEGETATIVE COVER IS ESTABLISHED AT A SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE.
- WHERE NATURAL VEGETATION IS REMOVED DURING GRADINGS, VEGETATION SHALL BE REESTABLISHED TO SUCH A DENSITY AS TO PREVENT EROSION.
- WHEN CLEARING AND/OR GRADING OPERATIONS ARE COMPLETED OR SUSPENDED FOR MORE THAN 30 DAYS, ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO RETAIN SOIL MATERIALS ON SITE. PROTECTIVE MEASURES MAY BE REQUIRED BY THE DIRECTOR OF PUBLIC WORKS / CITY ENGINEER SUCH AS PERMANENT SEEDING, PERIODIC WETTING, MULCHING, OR OTHER SUITABLE MEANS.
- IF CUT AND FILL OPERATIONS OCCUR DURING A SEASON NOT FAVORABLE FOR IMMEDIATE ESTABLISHMENT OF PERMANENT GROUND COVER, A FAST GERMINATING ANNUAL SUCH AS RYE GRASSES OR BUDAN GRASSES SHALL BE UTILIZED TO RETARD EROSION.
- NO EXCAVATION SHALL BE MADE SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PROPERTY OR ANY PUBLIC OR PRIVATE STREET WITHOUT SUPPORTING AND PROTECTING SUCH PUBLIC OR PRIVATE STREET OR PROPERTY FROM SETTLING, CRACKING OR OTHER DAMAGE.
- STORM WATER PIPES, OUTLETS AND CHANNELS SHALL BE PROTECTED BY SILT BARRIERS AND KEPT FREE OF WASTE AND SILT AT ALL TIMES PRIOR TO FINAL SURFACE STABILIZATION AND/OR PAVING.
- SILTATION FENCES SHALL BE INSPECTED PERIODICALLY FOR DAMAGE AND FOR THE AMOUNT OF SEDIMENT WHICH HAS ACCUMULATED. REMOVAL OF SEDIMENT WILL BE REQUIRED WHEN IT REACHES 1/2 THE HEIGHT OF THE SILTATION FENCE.
- ALL FILL PLACED UNDER PROPOSED STORM AND SANITARY SEWER LINES AREAS SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY THE "MODIFIED AASHTO T-100 COMPACTION TEST" (ASTM D-1557) FOR THE ENTIRE DEPTH OF THE FILL. COMPACTED GRANULAR BACKFILL IS REQUIRED IN ALL TRENCH EXCAVATION UNDER ALL PAVED AREAS. COMPACTION TESTING TO BE PERFORMED BY GEOTECHNICAL ENGINEER HIRED BY THE CONTRACTOR.
- SOFT SOILS IN THE BOTTOM OF BANKS OF ANY EXISTING OR FORMER POND SITES OR TRIBUTARIES OR ANY SEDIMENT BASINS OR TRAPS SHOULD BE REMOVED, SPREAD OUT AND PERMITTED TO DRY SUFFICIENTLY TO BE USED AS FILL. THIS MATERIAL SHALL BE PLACED PER RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER HIRED BY THE CONTRACTOR.
- ALL TRASH AND DEBRIS ON-SITE, EITHER EXISTING OR FROM CONSTRUCTION, MUST BE REMOVED AND PROPERLY DISPOSED OF OFF-SITE.
- EXISTING TREES INDICATED TO BE REMOVED MAY BE BURNED ON-SITE PROVIDED THE APPROPRIATE PERMITS ARE OBTAINED PRIOR TO BURN OPERATIONS.
- ROOTS OF EXISTING TREES INDICATED TO BE REMOVED SHALL BE GRUBBED TO A MIN. DEPTH OF 18" BELOW FINISH GRADE.
- ANY WELLS, CISTERNS AND/OR SPRINGS, WHICH MAY EXIST ON THIS PROPERTY, SHOULD BE LOCATED AND SEALED IN A MANNER ACCEPTABLE TO THE CITY OF WILDWOOD AND THE MISSOURI DEPARTMENT OF NATURAL RESOURCES.
- ALL EXCAVATIONS, GRADINGS OR FILLING SHALL HAVE A FINISHED GRADE NOT TO EXCEED A 3:1 SLOPE (33%), UNLESS SPECIFICALLY APPROVED OTHERWISE.

BENCHMARK INFORMATION:  
 St. Louis County Highway and Transportation Benchmark Book  
 10-24 Elevation 453.75  
 "Standard Tablet" stamped 53-75 S.L.C. at northwest entrance to La Salle  
 Institute: on northwest end of east headwall along Highway 104 about 0.8 miles  
 northwest of the intersection of Highway 104 and Old State Road.

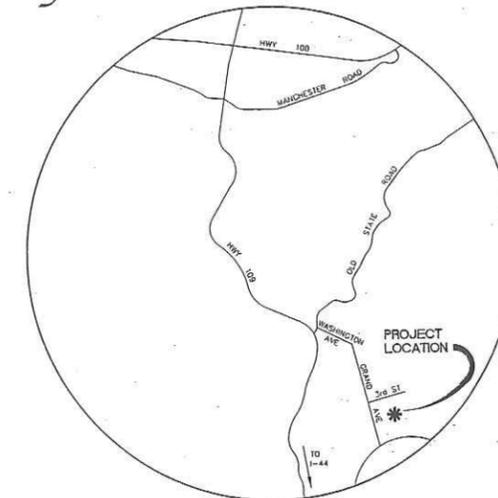


STOP! Call Before you DIG  
 1-800-344-7483  
 TOLL FREE

State Law requires 2 days advance notice. The law in the State of Missouri defines emergency excavation as one threatening danger to life, health, or property.  
 MISSOURI ONE-CALL SYSTEM INC.  
 10223 NORTHWEST DR.  
 JEFFERSON CITY, MO 65109

### UTILITY SERVICES

WATER MISSOURI AMERICAN WATER  
 SEWER SEPTIC  
 FIRE METRO WEST FIRE DISTRICT  
 ELECTRIC AMEREN U.E.  
 GAS LACLEDE GAS CO.  
 PHONE AT T



LOCATION MAP  
 February 2016

### SHEET LIST

- C1 DEMOLITION PLAN
- C2 SITE LAYOUT PLAN
- C3 SITE GRADING PLAN
- C4 ENLARGED PLANS
- SWPP ENLARGED PLANS
- E1 SITE ELECTRICAL PLAN
- D1-D4 DETAILS
- L1 LANDSCAPE PLAN
- L2 DETAILS + SPECS
- S1 SPECIFICATIONS
- S2 SPECIFICATIONS

### ALTERNATES

- ALT. #1 - Overflow Parking Area Pavement  
 Flush Concrete Curbs, Grass Pave Agg. Base,  
 Grass Pave Surfacing, Compaction Test, Seeding, Striping
- ALT. #2 - Overflow Parking Area Landscape  
 Shrub Bed Soil Prep, Shrub Bed Mulch, Shrubs,  
 (Topsoil/Seed/Mulch to replace aggregate parking  
 removed shall be included in the Base Bid)
- ALT. #3 - Information Board  
 Installation, Owner Supplied Roof Install
- ALT. #4 - Picnic Tables, BBQ Pits, Trash Receptacles
- ALT. #5 - 3 Station Disc Golf Course  
 Heavy Duty Baskets, Conc. Tee Pads, Tee Signs,  
 Selective Clearing
- ALT. #6 - Grated Drainage Trough  
 In lieu of RCP and Swale Construction.

**DEMOLITION KEYED NOTES:**

**REMOVE**

- 1 REMOVE ASPHALT PAVEMENT AND BASE  
REPLACE WITH TOPSOIL WHEN NO IMPROVEMENTS ARE INDICATED.
- 2 REMOVE TREES, STUMPS & BRUSH AS INDICATED (N.I.C.)
- 3 REMOVE 6' HT WOOD PRIVACY FENCE
- 4 REMOVE GRAVEL PARKING AREA  
REPLACE WITH TOPSOIL WHEN NO IMPROVEMENTS ARE INDICATED.
- 5 REMOVE CONCRETE PAD  
REPLACE WITH TOPSOIL WHEN NO IMPROVEMENTS ARE INDICATED.
- 6 REMOVE GRAVEL PATH  
REPLACE WITH TOPSOIL WHEN NO IMPROVEMENTS ARE INDICATED.
- 7 ELECTRIC, TELEPHONE, CABLE LINES & POWER POLES REMOVED BY OTHERS
- 8 REMOVE SIGNS, STORE & REUSE AS DIRECTED.
- 9 REMOVE CONCRETE PLANTER CURBS
- 10 REMOVE CMP
- 11 EXISTING TREES TO BE RELOCATED AS DIRECTED BY OWNER/LANDSCAPE ARCHITECT
- 12 REMOVE LIMESTONE BOULDERS, STORE AND REUSE TO BUILD NEW BOULDER RETAINING WALL (APPROX. 30 BOULDERS)
- 13 SAWCUT, REMOVE & REPLACE EXIST. ASPHALT AS NEEDED TO REMOVE EXIST. CMP CULVERT AND REPLACE WITH NEW DRAINAGE STRUCTURE.
- 14 REMOVE EXISTING SURFACE APPLIED, DECORATIVE CROSSWALK.
- 15 REMOVE EXISTING WHEEL STOPS (14 QTY), STORE AND REUSE IN PROPOSED PARKING LOT.
- 16 6x6 POST TO BE REMOVED
- 17 REMOVE POST AND FENCE
- 18 REMOVE TREES & BRUSH AS NEEDED FOR DISC GOLF (ALT.#5)  
SELECTIVE PRUNING AND/OR REMOVAL OF TREES AND BRUSH AS INDICATED FOR DISC GOLF (NO TREES LARGER THAN 8" TO BE REMOVED) (ALT.#5)

**REMAIN**

- 1 CONCRETE PADS TO REMAIN (PROTECT)
- 2 POWER POLES TO REMAIN (PROTECT)
- 3 PARK SIGN TO REMAIN (PROTECT)
- 4 TREE TO REMAIN

**LEGEND**

- (TBR) TO BE REMOVED
- EXISTING TREE TO BE REMOVED
- EXISTING TREES TO REMAIN, TREES TO BE PROTECT DURING CONSTRUCTION OPERATIONS
- EXISTING TREES TO BE RELOCATED AS DIRECTED BY L.A.

**LEGEND**

- FOUND MONUMENTATION
- SET MONUMENTATION
- CLEAN OUT
- SIGN
- OUT WIRE
- UTILITY POLE
- TELEPHONE BOX/PEDESTAL
- OVERHEAD ELECTRIC TELEPHONE CABLE
- BUSH
- TREE
- TREE / BRUSH LINE

BENCHMARK INFORMATION:  
ST LOUIS COUNTY HIGHWAY AND TRANSPORTATION BENCHMARK BOOK:  
16-24 ELEVATION 453.75  
"STANDARD TABLET" STAMPED 53-75 S.L.C. AT NORTHWEST ENTRANCE TO LA SALLE INSTITUTE; ON NORTHWEST END OF EAST HEADWALL ALONG HIGHWAY 109 ABOUT 0.8 MILES NORTHWEST OF THE INTERSECTION OF HIGHWAY 109 AND OLD STATE ROAD.

NOTE: UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM BEST AVAILABLE RECORDS. THEREFORE THE RELATIONSHIP BETWEEN PROPOSED WORK AND EXISTING FACILITIES, STRUCTURES, AND UTILITIES MUST BE CONSIDERED APPROXIMATE, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXACT LOCATION AND THE EXISTENCE OF ANY NOT SHOWN.



**DEMOLITION NOTES:**

PROVIDE TREE PROTECTION TO MAINTAIN A HEALTHY GROWING CONDITION IN AREA ADJOINING DEMOLITION AND GRADING.  
ALL DEMOLITION NOT SPECIFICALLY INDICATED BUT NECESSARY TO COMPLETE THE PROJECT AS SHOWN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.  
CUTTING AND REMOVAL INDICATED ON THE DRAWINGS ARE GENERAL INDICATORS ONLY AND DO NOT NECESSARILY REPRESENT THE FULL EXTENT OF CUTTING AND REMOVAL WHICH MAY BE REQUIRED BY THE JOB CONDITIONS.  
EXISTING TREES TO REMAIN UNLESS OTHERWISE INDICATED. (PROTECT)

LAND PLANNING  
RECREATION PLANNING AND DESIGN  
LANDSCAPE ARCHITECTURE  
5080 GRIFFIN ROAD  
ST. LOUIS, MO 63128  
(314)984-8211 FAX(314)843-1718



**Al Foster  
Trailhead Park**  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO  
63040  
Ph: 636-458-0440  
Fax: (636) 458-6969

SHEET TITLE  
Existing  
Condition/  
Demo Plan

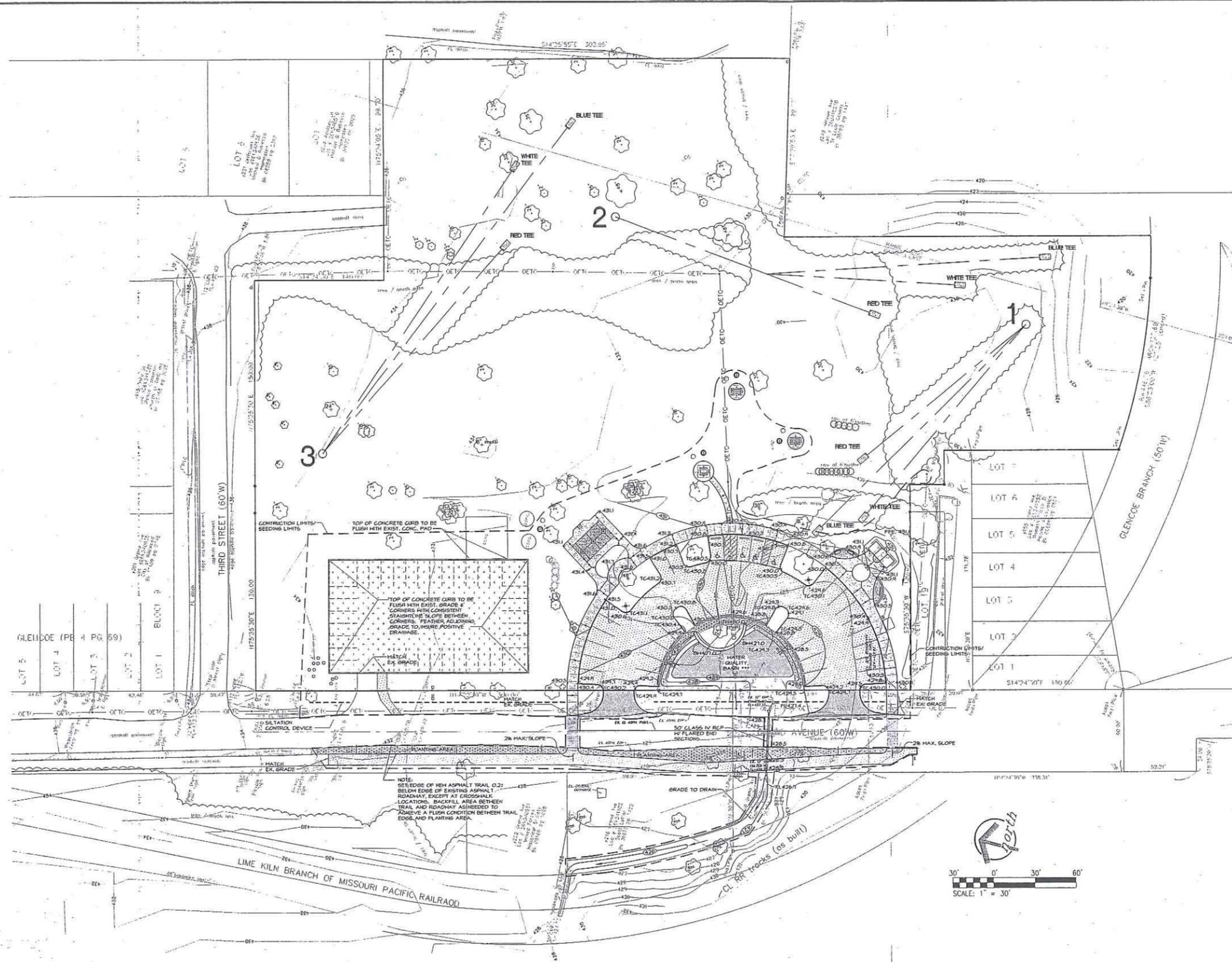
JOB NUMBER  
10015  
DATE 02/08/16 DRAWN BY DWD  
REVISION

SHEET NUMBER  
C1



**LEGEND**

- AREA INLET/CURB INLET
- MANHOLE
- ▭ FLARED END SECTION (FES)
- CLEAN OUT
- LIGHT STANDARD
- BOLLARD LIGHT
- GUY WIRE
- UP UTILITY POLE
- GAS VALVE
- WATER VALVE
- WATER METER
- BENCHMARK
- SOD
- MAILBOX
- HANDICAP
- YARD FAUCET
- FLAGPOLE
- WATER LINE
- GAS LINE
- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- OVERHEAD ELECTRIC TELEPHONE CABLE
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- EGP EDGE OF PAVEMENT
- FOC FACE OF CURB
- BOC BACK OF CURB
- GRADING LIMITS
- EXIST. TREE TO REMAIN
- EXIST. TREE TO PROTECT
- NEW EXPANSION JOINT  
SEE DETAIL 1/02



NOTE:  
SET EDGE OF NEW ASPHALT TRAIL 0.22'  
BELOW EDGE OF EXISTING ASPHALT  
ROADWAY, EXCEPT AT CROSSWALK  
LOCATIONS. BACKFILL AREA BETWEEN  
TRAIL AND ROADWAY ADHERED TO  
TO MAINTAIN A FLUSH LOCATION BETWEEN TRAIL  
EDGE AND PLANTING AREA.

NOTE:  
\*\*\* REMOVE ADDITIONAL 30" OF  
EXISTING SOIL BELOW PROPOSED FINISH  
GRADE WITHIN SHADED AREA AND  
REPLACE WITH BIO RETENTION SOIL.  
SEE SHT L1 FOR SPECS.

NOTE: Underground facilities, structures, and utilities have been plotted from best available records, therefore the relationship between proposed work and existing facilities, structures, and utilities must be considered approximate, and it is the contractor's responsibility to determine their exact location and the existence of any not shown.

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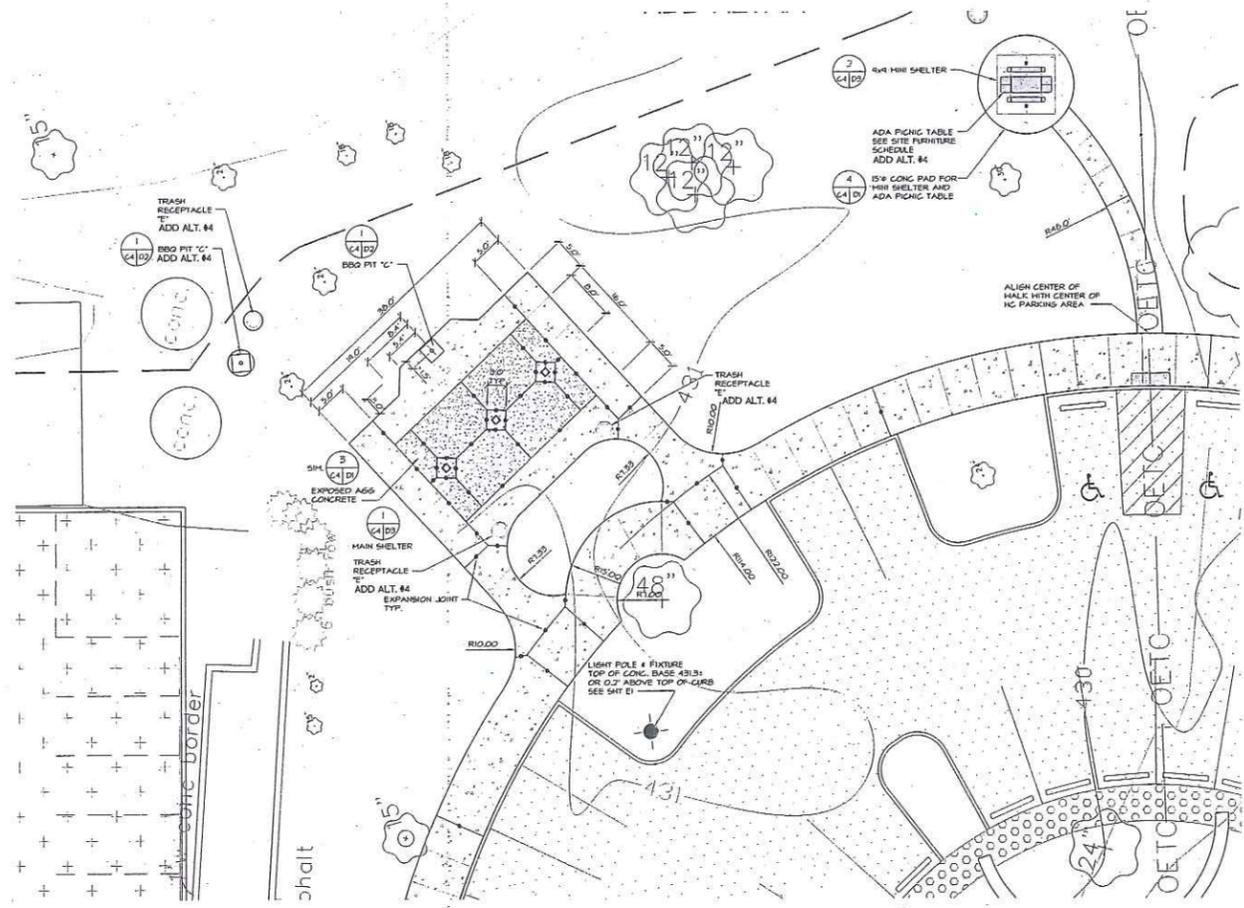
**Al Foster  
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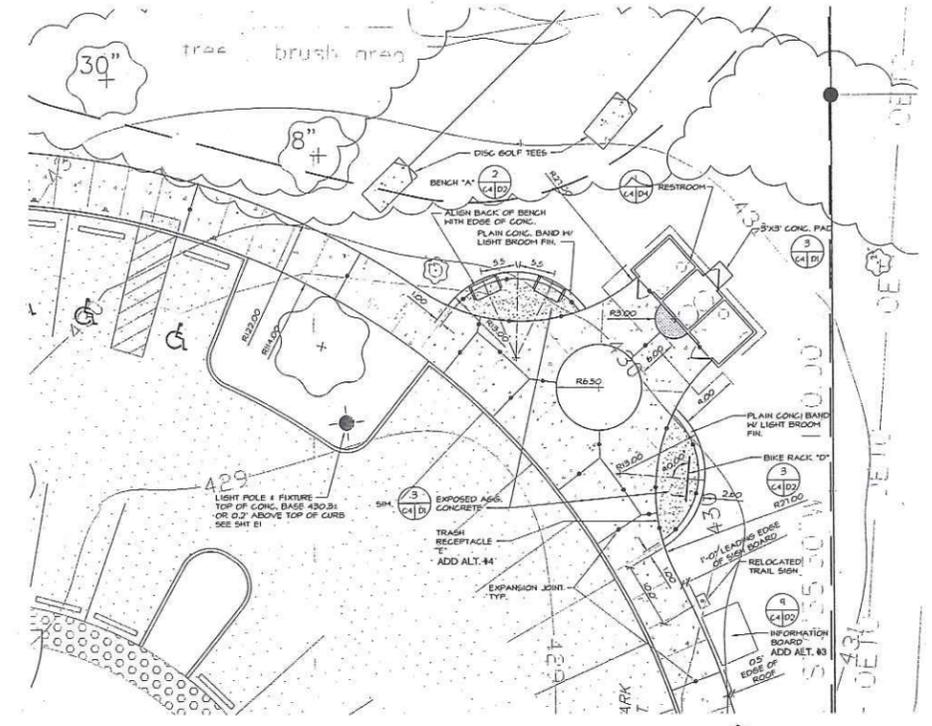
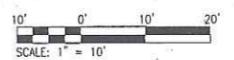
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**Site Grading  
Plan**

JOB NUMBER  
**10015**  
DATE DRAWN BY  
02/08/16 DWD  
REVISION

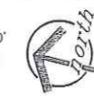
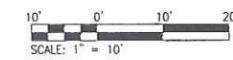
SHEET NUMBER  
**C3**



**Main and ADA Mini Shelter Areas**  
SCALE: 1" = 10'-0"

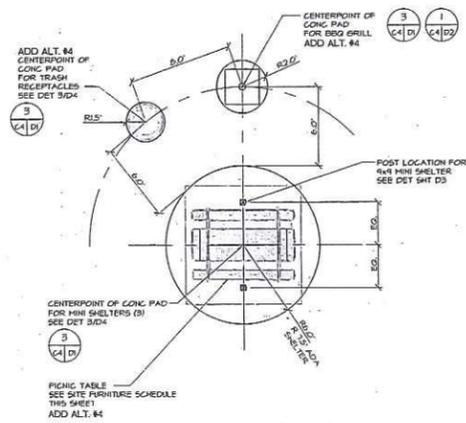


**Restroom Area**  
SCALE: 1" = 10'-0"

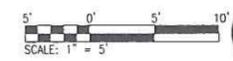


**LEGEND**

- AREA W/LET/CURB INLET
- MANHOLE
- ▭ FLARED END SECTION (FES)
- CLEAN OUT
- LIGHT STANDARD
- BOLLARD LIGHT
- CITY WIRE
- UTILITY POLE
- GAS VALVE
- WATER VALVE
- WATER METER
- BENCHMARK
- SIGN
- MAILBOX
- HANDBICAP
- YARD FAUCET
- FLAGPOLE
- WATER LINE
- GAS LINE
- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- OVERHEAD ELECTRIC TELEPHONE CABLE
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- EDGE OF PAVEMENT
- FACE OF CURB
- BACK OF CURB



**Picnic Table/Mini Shelter Area Detail**  
SCALE: 1" = 5'-0"



**Site Furniture Schedule**

KEY	ITEM	QUANTITY	MODEL	MANUFACTURER	LOCAL DISTRIBUTOR	REMARKS
A	4' BENCH	2	CH410(D)	WABASH VALLEY 1-800-253-8619	FRY & ASSOCIATES 816-221-4825	COLORS: TO BE SELECTED
B	ADA PICNIC TABLE ADD ALT.#4	2	SG115 (D)	WABASH VALLEY 1-800-253-8619	FRY & ASSOCIATES 816-221-4825	COLORS: TO BE SELECTED
	REG. PICNIC TABLE ADD ALT.#4	5	SG111 (D)	WABASH VALLEY 1-800-253-8619	FRY & ASSOCIATES 816-221-4825	COLORS: TO BE SELECTED
C	BBO PIT BASE BID	1	D2-48-82 W/ UTL. SHELF S1	PILOT ROCK R.J. THOMAS MFG. 1-800-782-5002	FRY & ASSOCIATES 816-221-4825	COLOR - BLACK
	BBO PIT ADD ALT.#4	4	D2-48-82 W/ UTL. SHELF S1	PILOT ROCK R.J. THOMAS MFG. 1-800-782-5002	FRY & ASSOCIATES 816-221-4825	COLOR - BLACK
D	7' BIKE RACK	1	125-40	OLWOR, INC. 1-800-598-4018	FRY & ASSOCIATES 816-221-4825	COLOR: TO BE SELECTED POWDER COAT FINISH
E	32 GAL. TRASH RECEPTACLES ADD ALT.#4	7	FR600 (D) W/ 30100 LID	WABASH 1-800-253-8619	FRY & ASSOCIATES 816-221-4825	COLOR: TO BE SELECTED POWDER COAT FINISH

\* NOTE:  
CONTRACTOR MAY SUBMIT "EQUAL" SUBSTITUTIONS FOR ALL FURNITURE  
AND EQUIPMENT TO OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL.  
PROVIDED THEY ARE RECEIVED NO LATER THAN 5 DAYS PRIOR TO BID  
OPENING.

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SHEET TITLE  
**Enlarged  
Site Layout  
Plan**

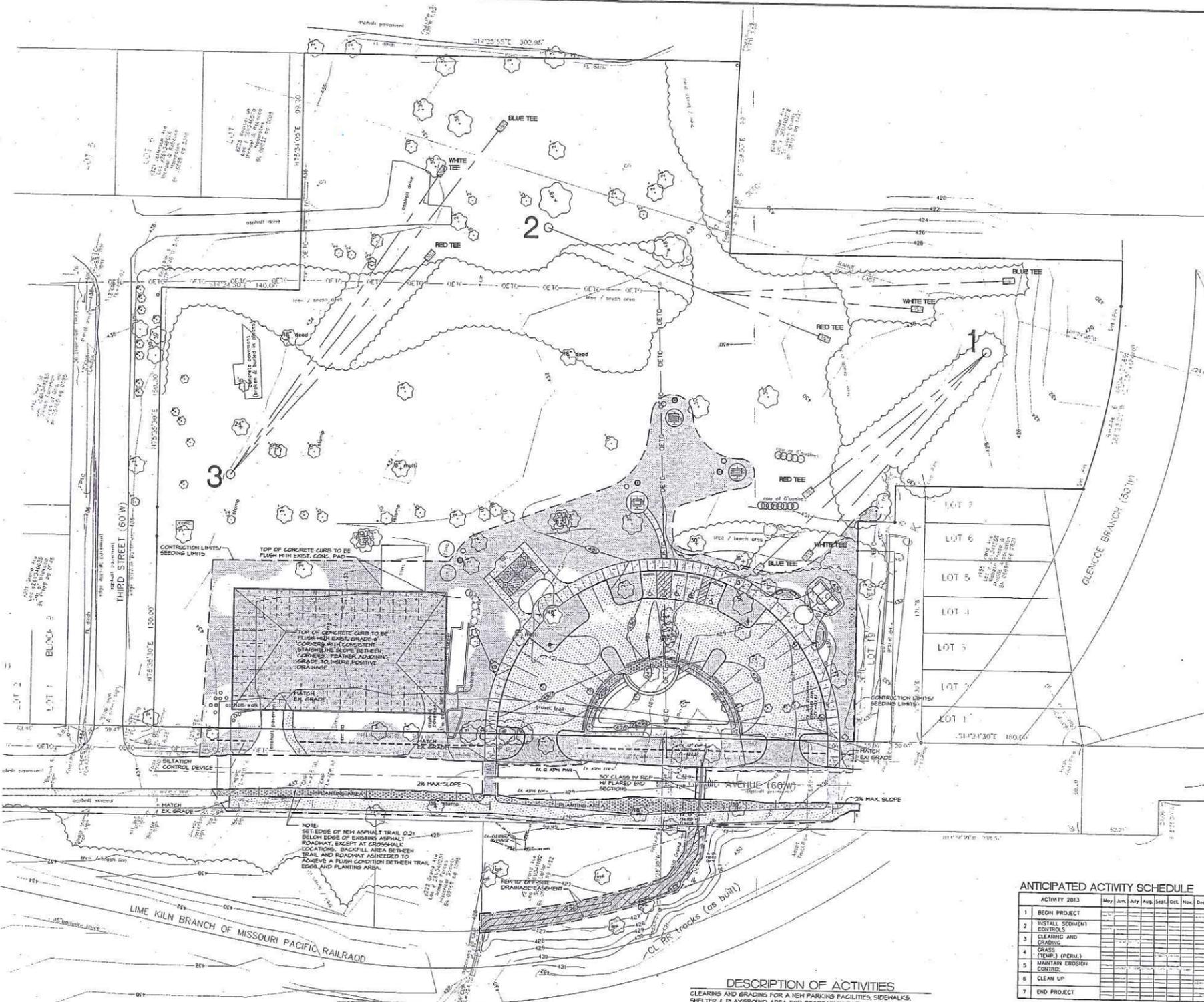
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DATE  
**02/08/16** DRAWN BY  
**DWD**  
REVISION

SHEET NUMBER  
**C4**

NOTE: Underground facilities, structures, and utilities have been plotted from best available records, therefore the relationship between proposed work and existing facilities, structures, and utilities must be considered approximate, and it is the contractor's responsibility to determine their exact location and the existence of any not shown.

**SEDIMENT / EROSION CONTROL NOTES**

1. NOTIFY THE CITY OF WILDWOOD DEPARTMENT OF PUBLIC WORKS 48 HOURS PRIOR TO THE COMMENCEMENT OF GRADING AND/OR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
2. STORM WATER RUNOFF FROM THIS SITE DOES NOT FLOW TO A VALUABLE RESOURCE WATER AS DEFINED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES.
3. PROVIDE ADEQUATE OFF-STREET PARKING FOR CONSTRUCTION EMPLOYEES. PARKING ON NON-SURFACED AREAS IS PROHIBITED IN ORDER TO ELIMINATE THE CONDITION WHEREBY MUD FROM CONSTRUCTION AND EMPLOYEE VEHICLES IS TRACKED ONTO THE PAVEMENT CAUSING HAZARDOUS ROADWAY AND DRIVING CONDITIONS.
4. THE STREETS SURROUNDING THIS DEVELOPMENT AND ANY STREET USED FOR CONSTRUCTION ACCESS THERETO SHALL BE CLEANED AS NEEDED THROUGHOUT THE DAY.
5. INTERIM STORM WATER DRAINAGE CONTROL IN THE FORM OF SILTATION CONTROL MEASURES ARE REQUIRED.
6. ADDITIONAL SILTATION CONTROL SHALL BE INSTALLED AS REQUIRED BY THE CITY OF WILDWOOD DEPARTMENT OF PUBLIC WORKS.
7. EROSION AND SILTATION CONTROL SHALL BE INSTALLED PRIOR TO ANY GRADING AND BE MAINTAINED THROUGHOUT THE PROJECT UNTIL ACCEPTANCE OF THE WORK BY THE OWNER AND/OR CONTROLLING REGULATORY AGENCY AND ADEQUATE VEGETATIVE GROWTH INSURES NO FURTHER EROSION OF THE SOIL.
8. TEMPORARY SILTATION CONTROL MEASURES (STRUCTURAL) SHALL BE MAINTAINED UNTIL VEGETATIVE COVER IS ESTABLISHED AT A SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE.
9. WHERE NATURAL VEGETATION IS REMOVED DURING GRADING, VEGETATION SHALL BE REESTABLISHED IN SUCH A DENSITY AS TO PREVENT EROSION.
10. WHEN CLEARINGS AND/OR GRADING OPERATIONS ARE COMPLETED OR SUSPENDED FOR MORE THAN 5 DAYS, ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO RETAIN SOIL MATERIALS ON SITE. PROTECTIVE MEASURES MAY BE REQUIRED BY THE DIRECTOR OF PUBLIC WORKS SUCH AS PERMANENT SEEDING, PERIODIC MOWING, MULCHING, OR OTHER SUITABLE MEANS.
11. IF CUT AND FILL OPERATIONS OCCUR DURING A SEASON NOT FAVORABLE FOR IMMEDIATE ESTABLISHMENT OF PERMANENT GROUND COVER, A FAST GERMINATING ANNUAL SUCH AS RYE GRASSES OR SIMILAR GRASSES SHALL BE UTILIZED TO RETARD EROSION, IF ADEQUATE STORMWATER DETENTION AND EROSION CONTROL DEVICES HAVE NOT BEEN ESTABLISHED.
12. ALL FINISHED GRADES (AREAS NOT TO BE DISTURBED BY FUTURE IMPROVEMENT) IN EXCESS OF 20% SLOPES (5:1) SHALL BE MULCHED AND TACKED AT THE RATE OF 100 POUNDS PER 1000 SQUARE FEET WHEN SEEDING.
13. NO EXCAVATION SHALL BE MADE SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PROPERTY OF ANY PUBLIC OR PRIVATE STREET WITHOUT SUPPORTS AND PROTECTING SUCH PUBLIC OR PRIVATE STREET OR PROPERTY FROM SETTLING, CRACKING OR OTHER DAMAGE.
14. STORM WATER PIPES, OUTLETS AND CHANNELS SHALL BE PROTECTED BY SILT BARRIERS AND KEPT FREE OF WASTE AND SILT AT ALL TIMES PRIOR TO FINAL SURFACE STABILIZATION AND/OR PAVING.
15. SILTATION FENCES SHALL BE INSPECTED PERIODICALLY FOR DAMAGE AND FOR THE AMOUNT OF SEDIMENT WHICH HAS ACCUMULATED. REMOVAL OF SEDIMENT WILL BE REQUIRED WHEN IT REACHES 1/2 THE HEIGHT OF THE SILTATION FENCE.
16. EROSION CONTROL MEASURES OUTLINED ON THIS EROSION & SEDIMENT CONTROL PLAN ARE TO BE USED AS A GUIDE FOR THE CONTRACTOR IN THE MANAGEMENT OF SEDIMENT AND EROSION CONTROL. A STORM WATER POLLUTION PREVENTION MANUAL HAS ALSO BEEN PREPARED FOR THIS PROJECT AND SHALL ALSO BE USED IN THE MANAGEMENT OF SEDIMENT AND EROSION CONTROL FOR THE CONSTRUCTION SITE.
17. ANY LAND CLEARING, CONSTRUCTION OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN, AND THE PERSON ISSUED A LAND DISTURBANCE PERMIT ASSUMES AND ACKNOWLEDGES RESPONSIBILITY FOR COMPLIANCE WITH THE APPROVED STORM WATER POLLUTION PLAN AT THE SITE OF THE PERMITTED ACTIVITY.
18. AREAS SHALL BE IMMEDIATELY SEEDING (OR OTHERWISE STABILIZED) WHEN NO ACTIVITY IS EXPECTED TO OCCUR WITHIN FIVE (5) CALENDAR DAYS.
19. PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES WILL BE REQUIRED.
20. SEDIMENT SHALL BE WASHED FROM ALL VEHICLES AT WASH DOWN STATION PRIOR TO LEAVING THE SITE. NO TRACKING OF MUD ONTO CITY OF WILDWOOD ROADS SHALL BE ALLOWED.
21. THE PERMITEE SHALL AMEND THE STORM WATER POLLUTION PREVENTION PLAN WHENEVER:
  - DESIGN OPERATION OR MAINTENANCE OF BMP IS CHANGED
  - DESIGN OF THE CONSTRUCTION PROJECT IS CHANGED THAT COULD SIGNIFICANTLY AFFECT THE QUALITY OF THE STORM WATER DISCHARGES.
  - SITE OPERATORS INSPECTIONS INDICATE DEFICIENCIES IN THE SWPPP OR ANY BMP
  - INSPECTIONS BY THE CITY OR BY MOHNR INDICATE DEFICIENCIES IN THE SWPPP OR ANY BMP
  - THE SWPPP IS DETERMINED TO BE INEFFECTIVE IN SIGNIFICANTLY MINIMIZING OR CONTROLLING EROSION OR EXCESSIVE SEDIMENT DEPOSITS IN STREAMS OR LAKES.
  - THE SWPPP IS DETERMINED TO BE INEFFECTIVE IN PREVENTING POLLUTION OF WATERWAYS FROM CONSTRUCTION WASTE, CHEMICALS, FUELS FACILITIES, CONCRETE TRUCK WASHOUT, TOXIC OR HAZARDOUS MATERIALS, SITE LITTER OR ANY OTHER SUBSTANCES OR WASTES LIKELY TO HAVE AN ADVERSE IMPACT ON WATER QUALITY.
  - THE TOTAL SETTLEABLE SOLIDS FROM A STORM WATER OUTFALL EXCEEDS 1/2 (0.5) mL/L<sub>1hr</sub> IF DISCHARGE IS WITHIN THE PRESCRIBED PROXIMITY OF A "VALUABLE RESOURCE WATER" AS DEFINED BY MOHNR.
  - THE TOTAL SETTLEABLE SOLIDS FROM A STORM WATER OUTFALL EXCEEDS 2 1/2 mL/L<sub>1hr</sub> FOR ANY OTHER OUTFALL.
  - THE CITY OR THE MOHNR DETERMINES VIOLATIONS OF WATER QUALITY STANDARDS MAY OCCUR OR HAVE OCCURRED.



**LEGEND**

- AREA INLET/CURB INLET
- MANHOLE
- ▭ FLARED END SECTION (FES)
- CLEAN OUT
- LIGHT STANDARD
- ROLLER LIGHT
- GUY WIRE
- UP UTILITY POLE
- GV GAS VALVE
- WV WATER VALVE
- WM WATER METER
- BENCHMARK
- SIGN
- MB MAILBOX
- HANDICAP
- YF YARD FAUCET
- FL FLAGPOLE
- W — WATER LINE
- G — GAS LINE
- OE — OVERHEAD ELECTRIC
- OT — OVERHEAD TELEPHONE
- OCT — OVERHEAD ELECTRIC TELEPHONE CABLE
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE

**DESCRIPTION OF ACTIVITIES**

CLEARINGS AND GRADINGS FOR A NEW PARKING FACILITIES, SIDEWALKS, SHELTER & PLAYGROUND AREA FOR RECREATION PARK.

**ANTICIPATED ACTIVITY SCHEDULE**

ACTIVITY 2013	May	Jun	July	Aug	Sept	Oct	Nov	Dec
1. BEGIN PROJECT								
2. INSTALL SEDIMENT CONTROL								
3. CLEARING AND GRADING								
4. GRASS (TEMP.) (PERU)								
5. MAINTAIN EROSION CONTROL								
6. CLEAN UP								
7. END PROJECT								

**BMP SUMMARY TABLE**

BMP Description	Temporary	Permanent	Quantity
Construction Entrance	X		1 ea.
Wash Down Station	X		1 ea.
Silt Fence	X		3/4 LI.
Seeding & Mulching	X	X	4,545 sq.

**SWPPP CERTIFICATION**

I CERTIFY UNDER PENALTY OF LAW THAT THIS STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS AND REGULATIONS OF ST. LOUIS COUNTY, THE MISSOURI DEPARTMENT OF NATURAL RESOURCES, AND THE GENERAL PERMIT REQUIREMENTS OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE INFORMATION CONTAINED IN THIS PLAN IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR KNOWINGLY SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT FOR THESE VIOLATIONS.

LAND PLANNING  
RECREATION PLANNING AND DESIGN  
LANDSCAPE ARCHITECTURE  
5030 GRIFFIN ROAD  
ST. LOUIS, MO 63128  
(314)984-8211 FAX(314)843-1718



**Al Foster Park**  
**Trailhead Park**  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO 63040  
Ph: 636-458-0440  
Fax: (636) 458-6969

SHEET TITLE  
Sediment & Erosion Control Plan

JOB NUMBER  
10015

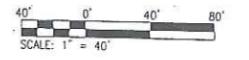
DATE  
02/08/16  
DRAWN BY  
DWD

SHEET NUMBER

STOP! Call Before you DIG  
1-800-344-7483  
TOLL FREE

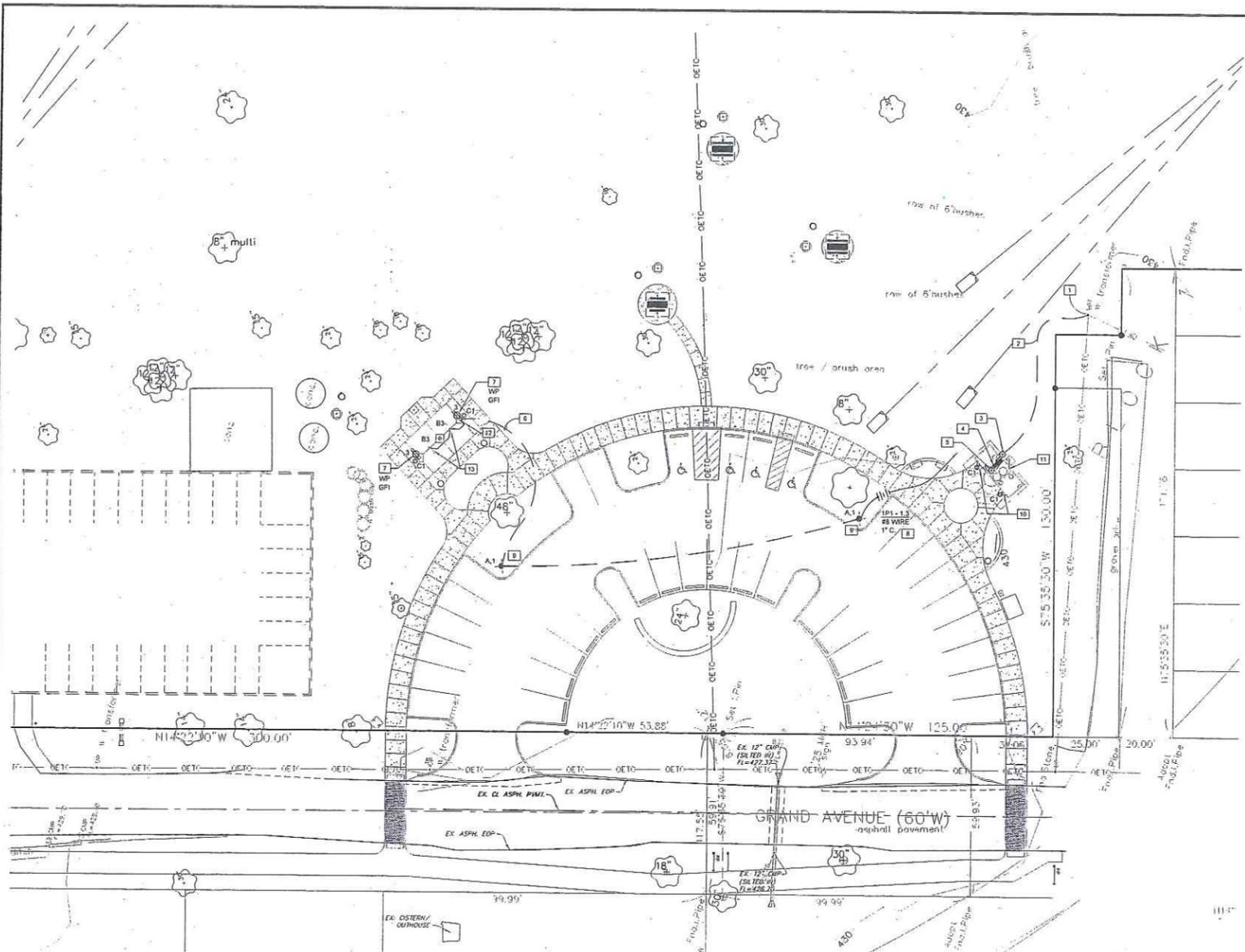


Missouri One-Call System Inc.  
1023 HORNBEAM DR  
JEFFERSON CITY, MO 65109



- SILTATION CONTROL DEVICE
- ▨ AREAS TO BE SEEDING & MULCHED, SEE LANDSCAPE PLAN & SPECS.

NOTE: Underground facilities, structures, and utilities have been plotted from best available records. Therefore the relationship between proposed work and existing facilities, structures, and utilities must be considered approximate, and it is the contractor's responsibility to determine their exact location and the existence of any not shown.



**KEYED NOTES: (THIS DRAWING ONLY)**

1. EXISTING AMEREN U.E. POWER POLE AND TRANSFORMER.
2. PROVIDE 4# 3 & 1# 8G, 1 1/2" CONDUIT FROM AMEREN POWER POLE. RUN FROM AMEREN U.E. POLE TO AMEREN U.E. METER MOUNTED ON WALL OF RESTROOM BUILDING. ALL ELECTRICAL INSTALLATION SHALL CONFORM TO AMEREN U.E. REQUIREMENTS.
3. AMEREN U.E. METER MOUNTED ON WALL OF RESTROOM BUILDING.
4. PANELBOARD '1P1' INCLUDED AS PART OF PRE MANUFACTURED RESTROOM BUILDING. PROVIDE CONNECTION OF THE PANELBOARD FROM THE AMEREN U.E. METER 4# 3, & 1# 8G, 1 1/2" C.
5. PROVIDE A TORQ # 71202-18 ASTRONOMIC TIME CLOCK FOR CONTROL OF THE SITE LIGHTING. RUN CIRCUIT #1 THRU TIME CLOCK FOR CONTROL.
6. ROUTE CONDUIT WITHIN PAVILION STRUCTURE TO THE LIGHTING, FAN AND OUTLET FIXTURES. COORDINATE WITH PAVILION MANUFACTURER TO ACCOMMODATE INTERNAL ROUTING. FIXTURES TO BE SURFACE MOUNTED ON STRUCTURAL STEEL FRAME OF PAVILION. FIXTURE BOXES TO BE PAINTED SAME COLOR AS MOUNTING SURFACE.
7. PROVIDE TAMPER RESISTANT & WEATHER RESISTANT GROUND FAULT RECEPTACLES ON PAVILION STRUCTURE AT 18" ABOVE. SEE DETAIL ON DRAWING D3. DRESS OUT CONDUIT PER ARCHITECTURAL DETAIL.
8. TRANSITION FROM #8 WIRE TO #10 WIRE FOR TERMINATION TO LOADS. #8 WIRE PROVIDED FOR VOLTAGE DROP DUE TO LOAD DISTANCE FROM PANELBOARD. PROVIDE PROPER SIZE BOX FOR WIRE CAPACITY.
9. SITE LIGHTING FIXTURE (TYPE 'A'). SEE BASE DETAIL ON THIS DRAWING.
10. WALL MOUNTED LIGHTING FIXTURES TO BE INSTALLED CENTERED OVER DOORS ON CONTRACTOR FRAMED FRONT WALL EXTENSION ABOVE CONCRETE PORTION OF PREMANUFACTURED PORTION OF RESTROOM BUILDING AS INDICATED ON RESTROOM DETAIL SHEET D4.
11. ALL ELECTRICAL UTILITIES WITHIN THE RESTROOM BUILDING SHALL BE PROVIDED AND PREWIRED TO PANELBOARD '1P1' BY THE RESTROOM MANUFACTURER.
12. LOCATE FAN CONTROLLER ON PAVILION SUPPORT STRUCTURE.
13. MOUNT CEILING FANS AND ROUTE CONDUIT IN PAVILION PER MANUFACTURER AND ARCHITECTURAL DETAILS. SEE NOTE #12 FOR FAN CIRCUITING AND CONTROLS.

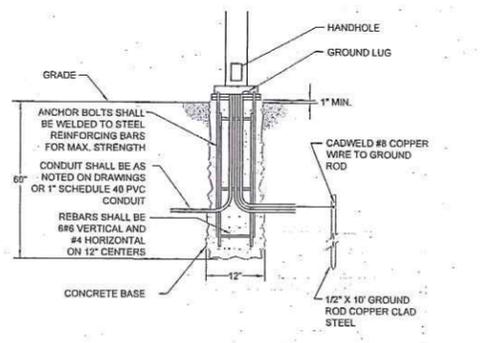
**GENERAL NOTES: (THIS DRAWING ONLY)**

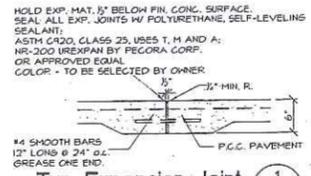
1. ALL WORK SHALL CONFORM TO THE ENFORCED 2008 NEC & ALL LOCAL CODES THAT APPLY.
2. ALL CONDUIT BELOW GRADE SHALL BE SCHEDULE 40 PVC AND RGS ABOVE GRADE.
3. ALL WIRING SHALL BE "RHW" 90°C.
4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL UNDERGROUND CONDUIT AND FEEDERS IN CONDUIT FROM AMEREN POWER POLE TO NEW SERVICE PANEL '1P1'. THE ELECTRICAL CONTRACTOR SHALL STUB THE CONDUIT UP THE AMEREN POLE APPROX. 3' AND COIL UP APPROX. 20' OF CABLE AT THE POLE BASE FOR AMEREN TO RUN UP THE POLE AND TERMINATE ON THE POLE MOUNTED TRANSFORMER. AMEREN WILL PROVIDE THE CONDUIT UP THE POLE.
5. THE ELECTRICAL CONTRACTOR WILL PROVIDE AND INSTALL THE METER BASE. ALL WIRING THRU THE METER BASE TO THE NEW SERVICE PANEL. AMEREN WILL PROVIDE AND INSTALL THE METER.
6. ALL WORK SHALL CONFORM TO THE AMEREN U.E. REQUIREMENTS.
7. AMEREN U.E. CHARGES SHALL BE PAID FOR BY THE OWNER AND NOT INCLUDED IN THE BID.

PANEL: 1P1											
CIRCUIT	DESCRIPTION	AMPERAGE				VOLTAGE				LOAD	
		W	E	R	L	120V	240V	208V	480V		
1	FIXTURES	200	200	200	200	120	240	208	480	FIXTURES	
2	SPACE	200	200	200	200	120	240	208	480	SPACE	
3	SPACE	200	200	200	200	120	240	208	480	SPACE	
4	SPACE	200	200	200	200	120	240	208	480	SPACE	
5	SPACE	200	200	200	200	120	240	208	480	SPACE	
6	SPACE	200	200	200	200	120	240	208	480	SPACE	
7	SPACE	200	200	200	200	120	240	208	480	SPACE	
8	SPACE	200	200	200	200	120	240	208	480	SPACE	
9	SPACE	200	200	200	200	120	240	208	480	SPACE	
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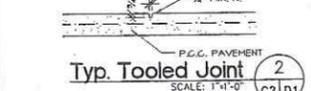
LIGHTING FIXTURE SCHEDULE											
TYPE	DESCRIPTION	MANUFACTURER AND CATALOG NUMBER	MOUNTING	QUANTITY	FIXTURE/LAMP DATA				VOLT	NOTES	
					SYSTEM	LAMP TYPE	BALLAST	ENERGY CODE			
A	SITE LIGHTING	USA-8007318-LED-111-BLLED-RW-120	1/2" POLE	1	91	LED	NA	NA	120	EQUALS BARCODE OR KIM 2	
B	SHELTER FAN	MINIKA (SUNSHOWER) T985-BW	CEILING	NA	NA	NA	NA	NA	120		
C	RESTROOM/SHOWER LIGHTING	LITHONIA LIGHTING - OLVTW	W	1	15	LED	NA	NA	120	2	

NOTE: PROVIDE PRODUCT DATA SHEETS FOR LAMPS AND BALLASTS FOR EACH FIXTURE. SEE SPECIFICATION SECTION 16316.  
 1. PROVIDE FAN SPEED CONTROLLER MOUNTED ON PAVILION SUPPORT STRUCTURE.  
 2. LIGHTING SHALL BE CONTROLLED VIA TORQ TIME CLOCK.

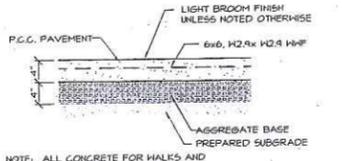




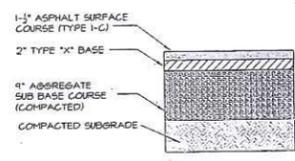
**Typ. Expansion Joint**  
SCALE: 1"-1'-0"  
C2 | D1



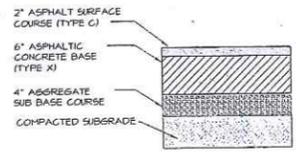
**Typ. Tooled Joint**  
SCALE: 1"-1'-0"  
C2 | D1



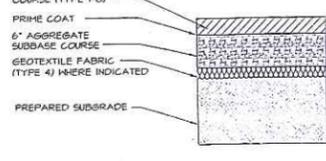
**Typ. Concrete Pavement**  
SCALE: 1"-1'-0"  
C2 | D1



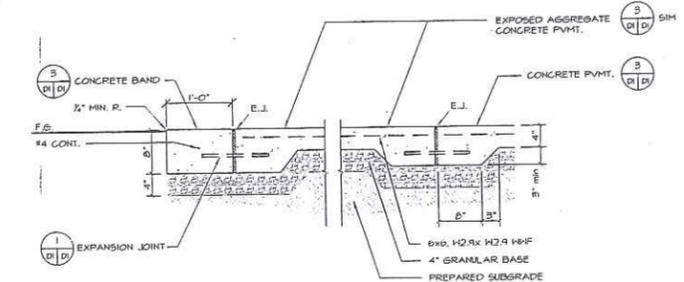
**Asphalt Pavement**  
SCALE: 1"-1'-0"  
C2 | D1



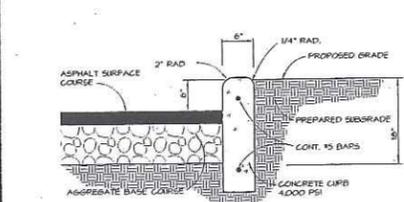
**Entrance Pavement**  
SCALE: 1"-1'-0"  
C2 | D1



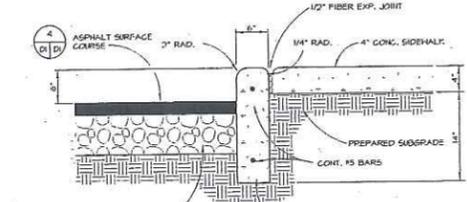
**Asphalt Trail**  
SCALE: 1"-1'-0"  
C2 | D1



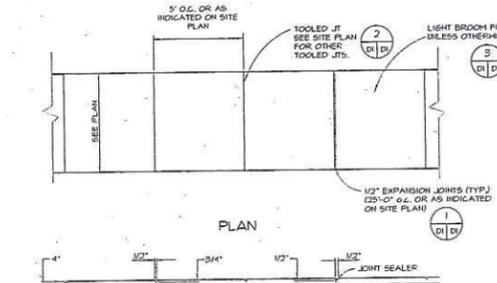
**Exposed Agg. Concrete**  
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C2 | D1



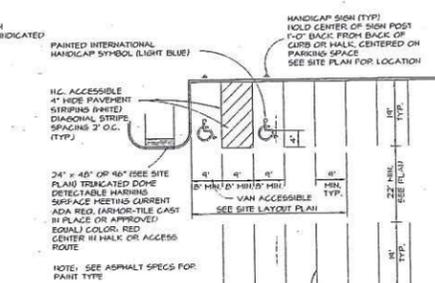
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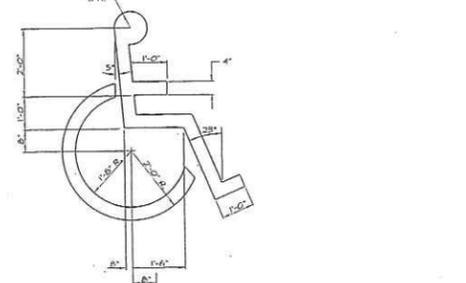
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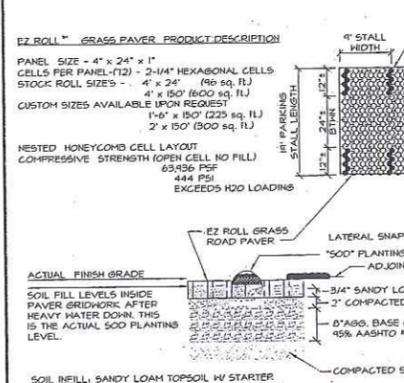
**Concrete Sidewalk Detail**  
SCALE: 1"-1'-0"  
C2 | D1



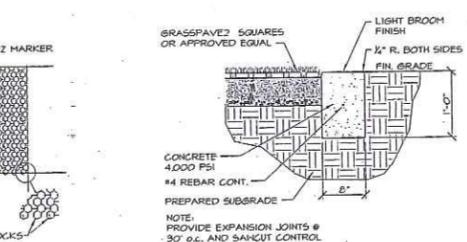
**Typical Parking Detail**  
SCALE: 1"-1'-0"  
C2 | D1



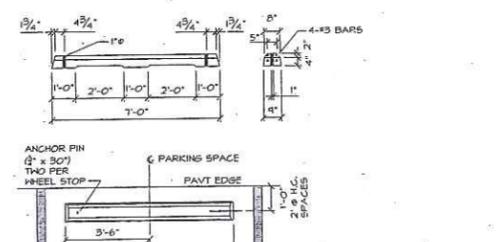
**International Handicap Symbol**  
SCALE: 1"-1'-0"  
C2 | D1



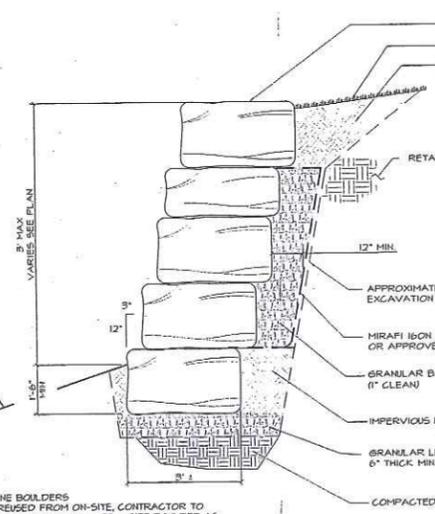
**Grass Paver Unit**  
SCALE: 1"-1'-0"  
C2 | D1



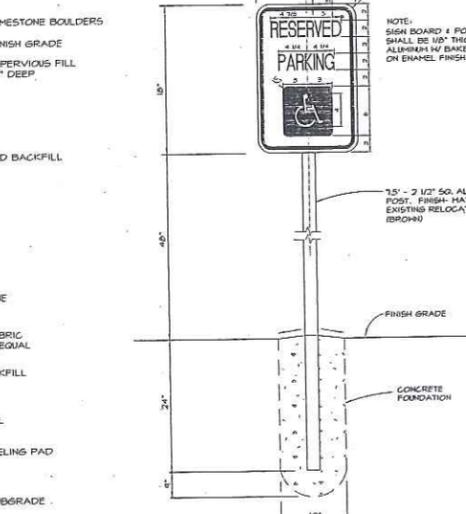
**Flush Concrete Curb**  
SCALE: 1"-1'-0"  
C2 | D1



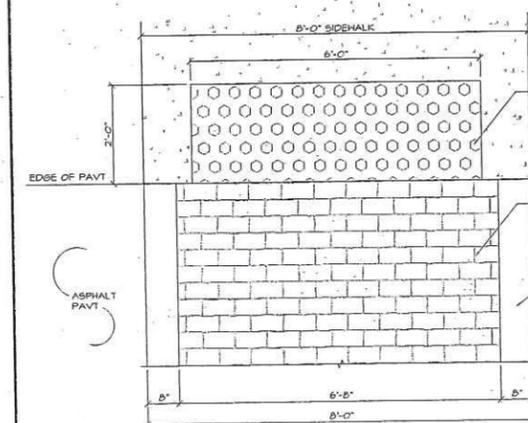
**Typ. Conc Wheel Stops**  
SCALE: 3/8"-1'-0"  
C2 | D1



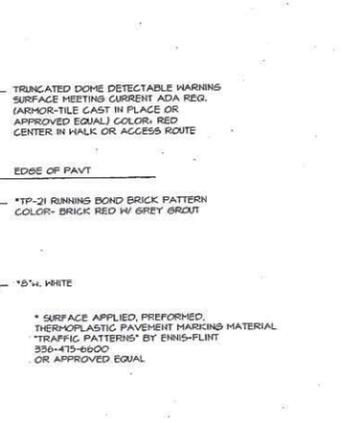
**Typical Boulder Wall Section-Non Reinforced**  
SCALE: 1/2"-1'-0"  
C2 | D1



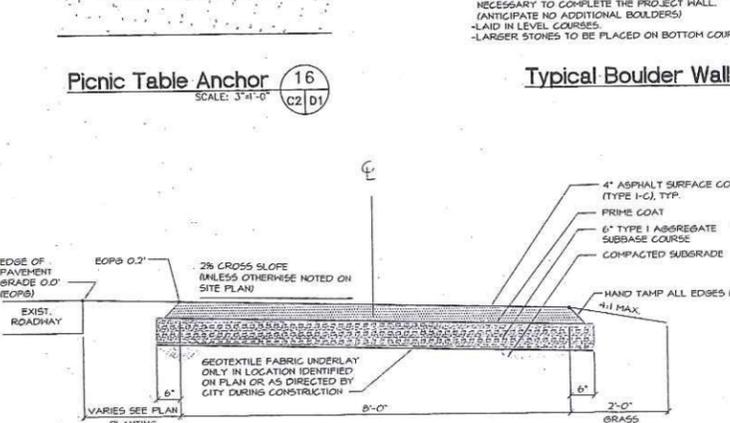
**Handicap Sign Detail**  
SCALE: 1"-1'-0"  
C2 | D1



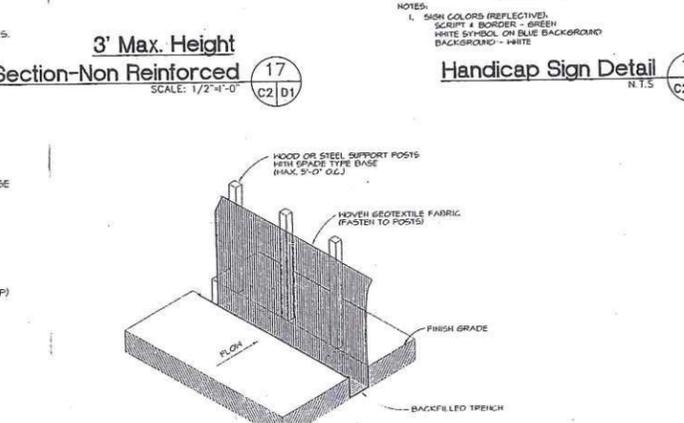
**Cross Walk Detail**  
SCALE: 3/4"-1'-0"  
C2 | D1



**Picnic Table Anchor**  
SCALE: 3/4"-1'-0"  
C2 | D1



**Typ. Trail Pavt Cross Section**  
SCALE: 1"-1'-0"  
C2 | D1



**Siltation Control Device**  
SCALE: 1"-1'-0"  
C2 | D1

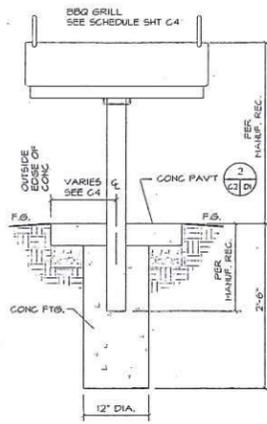
LAND PLANNING  
RECREATION PLANNING AND DESIGN  
LANDSCAPE ARCHITECTURE  
5030 GRIFFIN ROAD  
ST. LOUIS, MO 63128  
(314)984-0211 FAX(314)943-1718



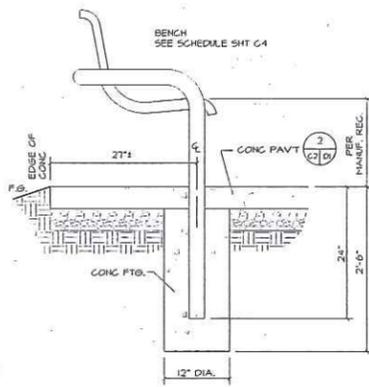
**Al Foster Trailhead Park**  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO  
63040  
Ph: 636-458-0440  
Fax: (636) 458-6969

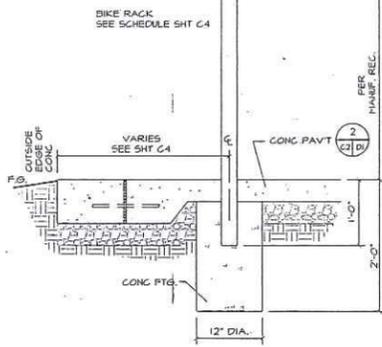
SHEET TITLE  
Details  
JOB NUMBER  
10015  
DATE  
02/08/16  
DRAWN BY  
DWD  
REVISION  
SHEET NUMBER  
D1



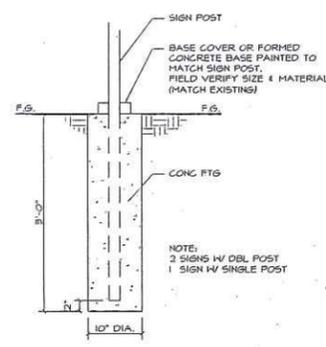
**BBQ Pit Fig Detail 1**  
SCALE: 1" = 1'-0"  
C4/D2



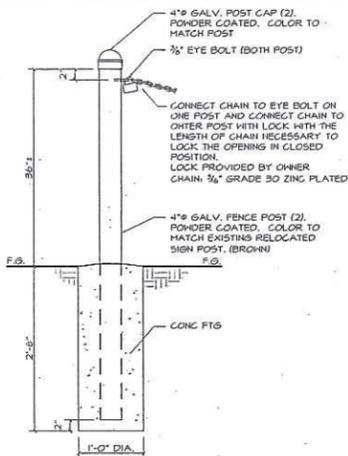
**Bench Fig Detail 2**  
SCALE: 1" = 1'-0"  
C4/D2



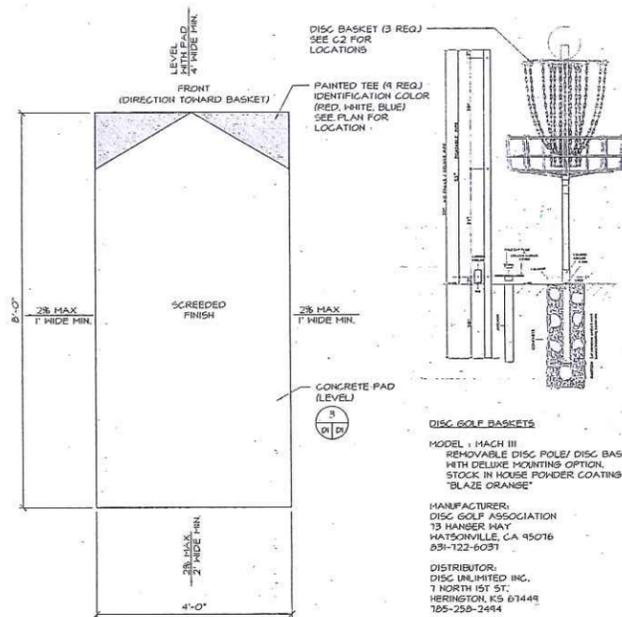
**Bike Rack Fig Detail 3**  
SCALE: 1" = 1'-0"  
C4/D2



**Relocated Sign Fig Detail 4**  
SCALE: 1" = 1'-0"  
C2/D2

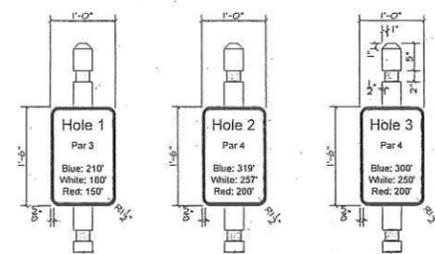


**Access Control Gate Post Detail 5**  
SCALE: 1" = 1'-0"  
C2/D2



**Disc Golf Tee 6**  
SCALE: 3/4" = 1'-0"  
ADD ALT. #5  
C2/D2

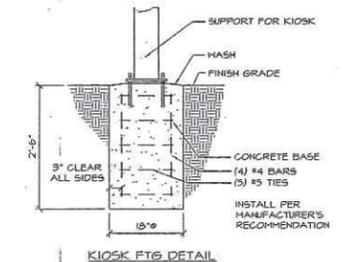
**Disc Golf Basket 7**  
SCALE: 1/4" = 1'-0"  
ADD ALT. #5  
C2/D2



**Disc Golf Tee + Rules Signs 8**  
SCALE: 1" = 1'-0"  
C2/D1



**BASE PLAN**



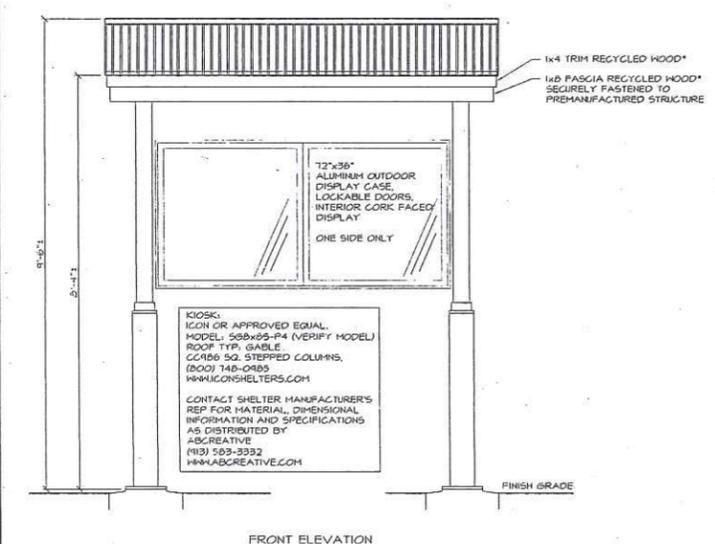
**KIOSK FTG DETAIL**

12"x18" STANDARD METAL SIGN PANELS 0.080" THICK, ALUMINUM, HIGH INTENSITY PRISMATIC. INSTALLATION HARDWARE TO BE STAINLESS STEEL.

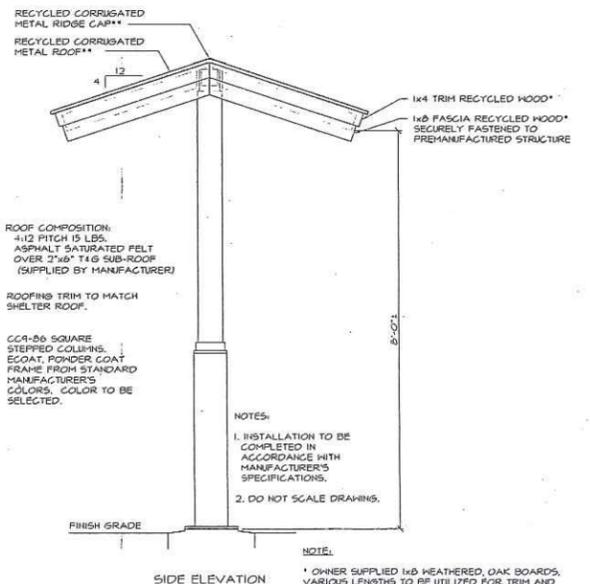
3/8" DIA. MOUNTING HOLES (2 REQUIRED)

NOTE:  
- COORDINATE LETTER SIZE AND STYLE WITH SIGN MANUFACTURER.  
- VERIFY TIES TO HOLE DISTANCE.  
- SIGNS TO BE FIELD LOCATED BY I.A.

COLORS:  
TEXT: - BLACK  
HOLE # - BLACK  
PAR # - BLACK  
BLUE: xxxx - BLUE  
WHITE: xxxx - WHITE  
RED: xxxx - RED  
BACKGROUND - YELLOW  
SIGN BACK - NO COLOR

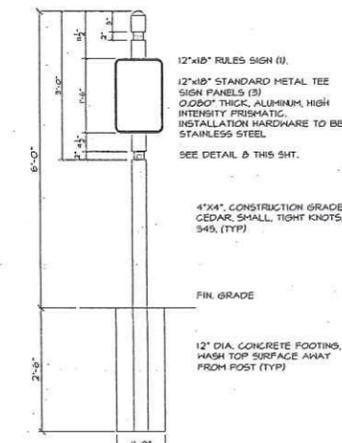


**FRONT ELEVATION**

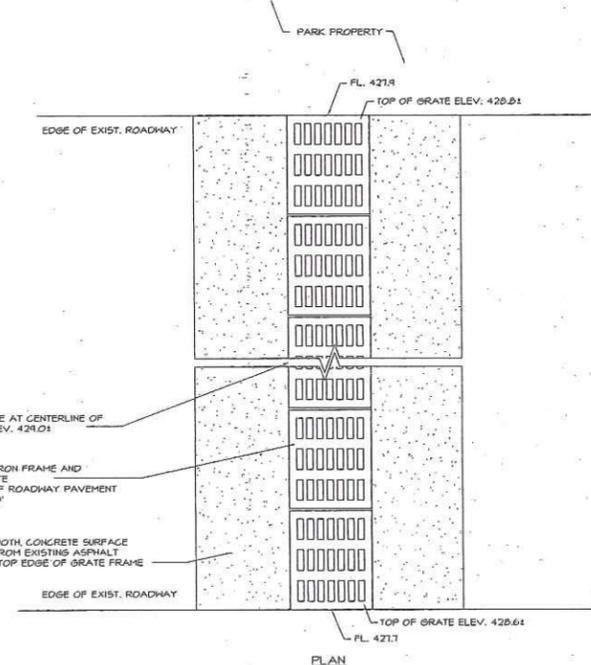


**SIDE ELEVATION**

**Information Board 9**  
SCALE: 3/4" = 1'-0"  
ADD ALT. #3  
C2/D2



**Disc Golf Sign/Post 10**  
SCALE: 3/4" = 1'-0"  
C2/D2



**Grated Drainage Trough Detail 11**  
SCALE: 3/4" = 1'-0"  
ADD ALT. #6  
C2/D2

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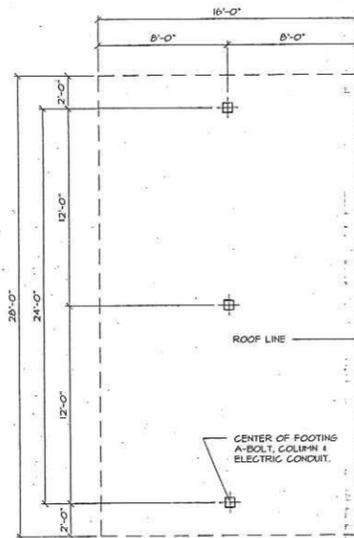


**Al Foster Trailhead Park**  
Grand Ave & 3rd St.  
Wildwood, Missouri

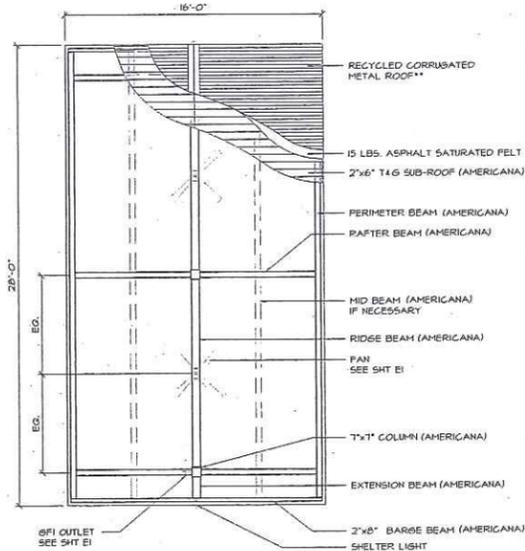
OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO 63040  
Ph: 636-458-0440  
Fax: (636) 458-6969

SHEET TITLE  
Details  
JOB NUMBER  
10015  
DATE 02/08/16 DRAWN BY DWD  
REVISION

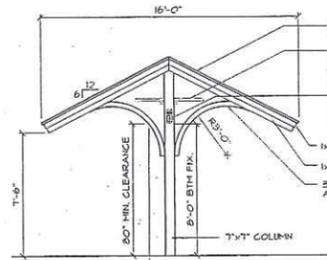
SHEET NUMBER  
D2



**Layout Plan**  
SCALE: 1/4" = 1'-0"



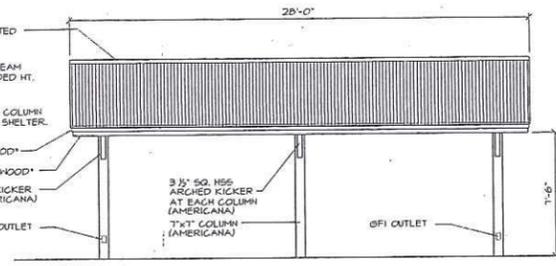
**Plan View**  
SCALE: 1/4" = 1'-0"



**End Elevation**  
SCALE: 1/4" = 1'-0"

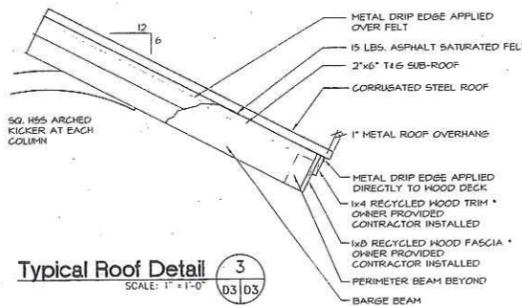
\* OWNER SUPPLIED 1x6 HEATHERED, OAK BOARDS, VARIOUS LENGTHS TO BE UTILIZED FOR TRIM AND FASCIA ON ALL 4x4 MINI SHELTERS AND 28x16 MAIN SHELTER. INSTALLATION CONTRACTOR IS RESPONSIBLE FOR RIPPING MATERIAL TO SIZES INDICATED.

\*\* OWNER SUPPLIED 2'x10' HEATHERED, CORRUGATED METAL PANELS TO BE UTILIZED FOR ROOFING ON ALL 4x4 MINI SHELTERS AND 28x16 MAIN SHELTER. INSTALLATION CONTRACTOR IS RESPONSIBLE FOR RIPPING MATERIAL TO SIZES INDICATED.

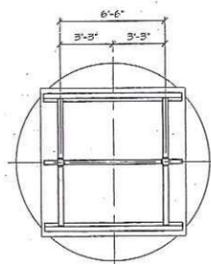


**Side Elevation**  
SCALE: 1/4" = 1'-0"

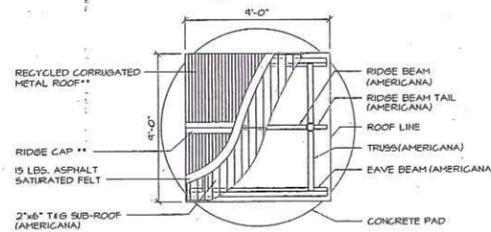
**28'x16' Main Shelter**  
SCALE: 1/4" = 1'-0"



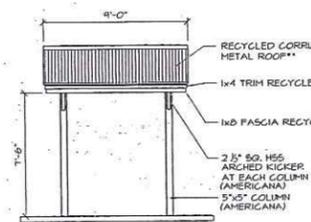
**Typical Roof Detail**  
SCALE: 1" = 1'-0"



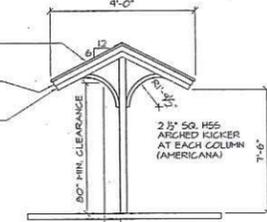
**Layout Plan**  
SCALE: 1/4" = 1'-0"



**Plan View**  
SCALE: 1/4" = 1'-0"



**Side Elevation**  
SCALE: 1/4" = 1'-0"

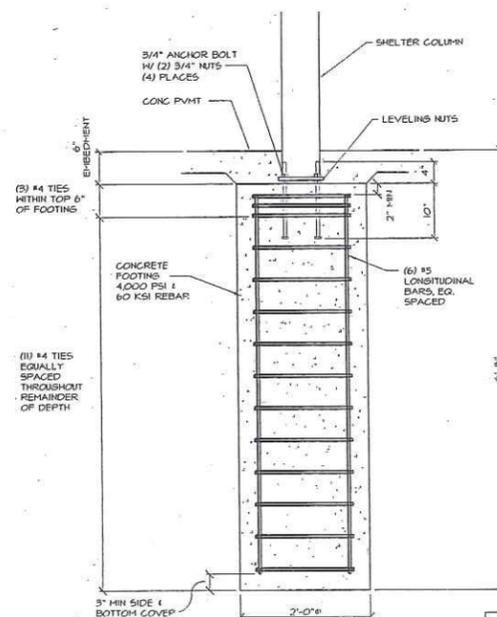


**End Elevation**  
SCALE: 1/4" = 1'-0"

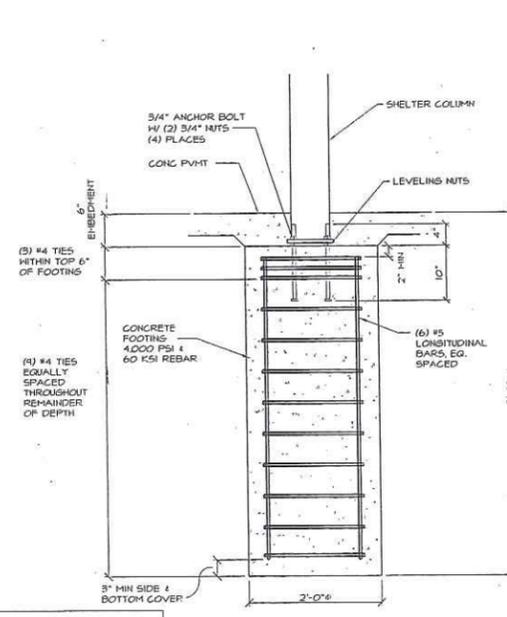
\* OWNER SUPPLIED 1x6 HEATHERED, OAK BOARDS, VARIOUS LENGTHS TO BE UTILIZED FOR TRIM AND FASCIA ON ALL 4x4 MINI SHELTERS AND 28x16 MAIN SHELTER. INSTALLATION CONTRACTOR IS RESPONSIBLE FOR RIPPING MATERIAL TO SIZES INDICATED.

\*\* OWNER SUPPLIED 2'x10' HEATHERED, CORRUGATED METAL PANELS TO BE UTILIZED FOR ROOFING ON ALL 4x4 MINI SHELTERS AND 28x16 MAIN SHELTER. INSTALLATION CONTRACTOR IS RESPONSIBLE FOR RIPPING MATERIAL TO SIZES INDICATED.

**9'x9' Mini Shelter**  
SCALE: 1/4" = 1'-0"



**28'x16' Shelter**  
Column Base-Plate / Footing Detail  
SCALE: 1" = 1'-0"



**9'x9' Shelter**  
Column Base-Plate / Footing Detail  
SCALE: 1" = 1'-0"

NOTE: SOILS NEED TO BE VERIFIED AND CAPABLE OF HANDLING 2000 PSF AND HAVE ALLOWABLE LATERAL PASSIVE SOIL RESISTANCE OF 40 PS/FT.

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**Al Foster Park**  
Trailhead Park  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO  
63040  
Ph: 636-458-0440  
Fax: (636) 458-6969

SHEET TITLE  
Shelter  
Details

JOB NUMBER  
10015

DATE 02/08/16  
DRAWN BY DWD  
REVISION

SHEET NUMBER

D3

- GENERAL NOTES**
- SHELTER DESIGN**
    - THIS SHELTER HAS BEEN DESIGNED AS AN OPEN STRUCTURE. THE ADDITION OF ANY ENCLOSURE SUCH AS WALLS, INSECT MESH, OR SHADE SCREENS SHALL BE PROHIBITED AS INCREASED WIND FORCES MAY RESULT.
  - FOUNDATION**
    - THE FOUNDATION SHALL REST ON SOUND SOIL THAT IS FREE OF ORGANIC AND DELETERIOUS MATERIALS AND CAPABLE OF SUPPORTING 1000 PSF VERTICAL BEARING PRESSURE.
    - FOUNDATION DESIGN SHOWN IS A RECOMMENDATION ONLY. OWNER SHALL VERIFY ACTUAL SOIL CONDITIONS AT EACH JOB SITE AND ANY REQUIRED ADJUSTMENTS TO THE FOOTING DESIGN SHALL BE DESIGNED BY OTHERS.
  - CONCRETE**
    - COMPRESSION STRENGTH OF ALL REINFORCED CONCRETE SHALL NOT BE LESS THAN 2500 PSI AT 28 DAYS.
    - REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF MINIMUM ASTM A615 GRADE 40 FOR #4 AND SMALLER BARS AND GRADE 60 FOR BARS LARGER THAN #4.
    - MINIMUM CONCRETE CLEAR COVER FOR REINFORCING BARS SHALL BE 2", UNLESS NOTED OTHERWISE.
    - ANCHOR RODS SHALL BE #1554 GRADE 36 ROD, HEADED, OR WITH HEAVY HEX NUT TACKED TO ROD.
  - STRUCTURAL STEEL**
    - STEEL PLATE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36.
    - HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500, GRADE C.
    - WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY'S SPECIFICATION FOR THE MATERIAL BEING WELDED.
    - WELDING ELECTRODES SHALL BE E70XX.
    - STRUCTURAL STEEL COMPONENTS SHALL BE COATED WITH ANTI-GRAFFITI POLYESTER TGIC POWDER COAT FINISH MEETING AAMA 2604-02 SPECIFICATION.
  - ROOF DECK**
    - ROOF DECK SHALL BE TONGUE AND GROOVE WOOD, SOUTHERN YELLOW PINE OR WESTERN RED CEDAR #1 GRADE OR BETTER, KILN DRIED 3/8" NOMINAL DIMENSION.
    - TONGUE AND GROOVE DECK SHALL BE COVERED BY ROOFING MATERIALS BY OTHERS AS NOTED ON THE DRAWING.
  - FASTENERS**
    - HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325 OR A307 (SEE DETAILS).
    - HIGH STRENGTH BOLTS SHALL BE HOT DIP GALVANIZED.
    - ALL BOLTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED IN THE 2004 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
  - SHOP FABRICATION AND FIELD ASSEMBLY**
    - ALL STRUCTURAL STEEL COMPONENTS SHALL BE SHOP FABRICATED SO THAT FIELD ASSEMBLY OF CONNECTIONS CAN BE PERFORMED USING ONLY BOLTING AND SCREW PLACEMENT.
    - ALL SHOP WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS.
    - ALL SHOP WELDS SHALL BE IN STRICT ACCORDANCE WITH THE STRUCTURAL WELDING CODE AWS D1.1 OF THE AMERICAN WELDING SOCIETY SPECIFICATIONS. ALL STRUCTURAL WELDS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF "PRE-QUALIFIED" WELDED JOINTS. ALL WELDING SHALL CONFORM TO AWS A5.18 ER70S-6 SERIES E70XX ELECTRODES - LOW HYDROGEN.
    - FIELD WELDING SHALL NOT BE REQUIRED.

**BASIS OF DESIGN**

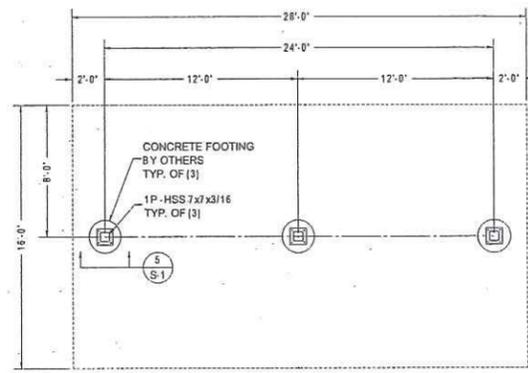
DESIGN PARAMETERS	
ROOF LIVE LOAD	20 PSF
GROUND SNOW LOAD	20 PSF
DESIGN ROOF DEAD LOAD	5 PSF
WIND CRITERIA   EXPOSURE C	90 MPH
SOIL DESIGN BEARING STRENGTH	1000 PSF
CODES	2009 IBC ASCE 7-05

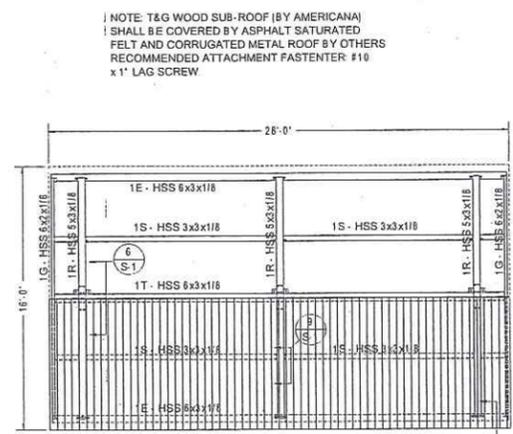
BUILDING DATA	
OCCUPANCY CLASSIFICATION	A-3 (NONSEPARATE USE)
CONSTRUCTION TYPE	TYPE II-B
FLOOR AREA	448 SQ. FT.
OCCUPANCY LOAD	7 SQ. FT. / OCCUPANT = 64 OCCUPANTS / SHELTER

**DESIGN CRITERIA**

WIND DESIGN CRITERIA	90 MPH
BASIC WIND SPEED	1 = 1.0
WIND IMPORTANCE FACTOR	II
OCCUPANCY CATEGORY	C
WIND EXPOSURE	II (OPEN STRUCTURE)
INTERNAL PRESSURE COEFFICIENT	SEE CALCS
DESIGN WIND PRESSURE (COMPONENTS & CLADDING)	
SEISMIC DESIGN CRITERIA	
BASIC SEISMIC FACTOR	$I_e = 1.0$
OCCUPANCY CATEGORY	II
SPECTRAL RESPONSE ACCELERATION, 0.2 SECOND	$S_s = 0.505$
SPECTRAL RESPONSE ACCELERATION, 1.0 SECOND	$S_1 = 0.155$
SITE CLASS	D (ASSUMED)
SPECTRAL RESPONSE COEFFICIENT, $S_{DS}$	0.470
SPECTRAL RESPONSE COEFFICIENT, $S_{D1}$	0.225
SEISMIC DESIGN CATEGORY	D
BASIC SEISMIC FORCE RESISTING SYSTEM	CANTILEVERED COLUMN SYSTEM
DESIGN BASE SHEAR	$V = C \cdot W$
RESPONSE MODIFICATION FACTOR	$R = 1.25$
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

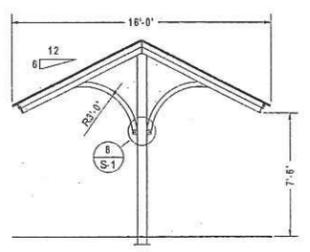


1 FOUNDATION PLAN  
Scale: 1/4" = 1'-0"

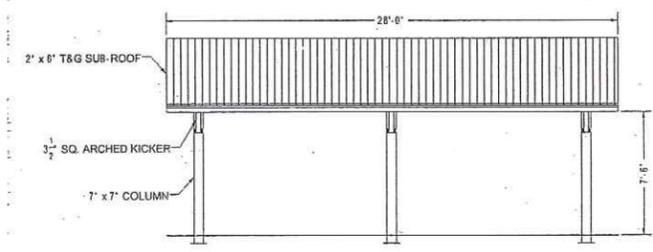


2 ROOF PLAN  
Scale: 1/4" = 1'-0"

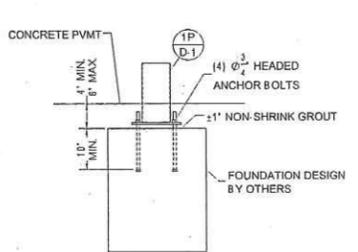
NOT FOR CONSTRUCTION  
THIS DRAWING FOR ESTIMATING PURPOSES ONLY



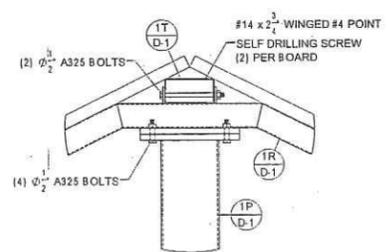
3 END ELEVATION  
Scale: 1/4" = 1'-0"



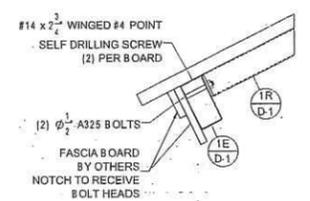
4 SIDE ELEVATION  
Scale: 1/4" = 1'-0"



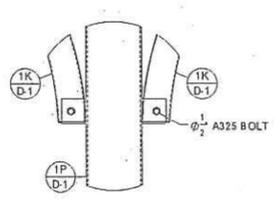
5 FOUNDATION SECTION  
Scale: 1/4" = 1'-0"



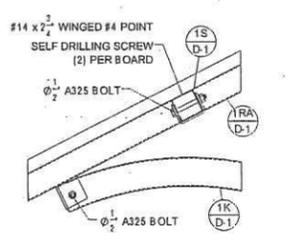
6 RAFTER TO POST CONNECTION  
Scale: 1/2" = 1'-0"



7 EDGE BEAM TO RAFTER CONNECTION  
Scale: 1/2" = 1'-0"



8 KICKER TO POST CONNECTION  
Scale: 1/2" = 1'-0"



9 PURLIN TO RAFTER CONNECTION  
Scale: 1/2" = 1'-0"

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PRELIMINARY  
THIS DRAWING IS FOR ESTIMATING PURPOSES ONLY. NOT INTENDED FOR CONSTRUCTION USE.

16'-0" x 28'-0"  
CHEROKEE SHELTER  
WILDWOOD, MO 63038

DRAWN BY	AY
CHECKED BY	
SCALE	SEE DETAILS
DATE	12/02/15
REVISE DATE	12/02/15
P.O. NO.	
JOB NO.	
DRAWING NO.	
SHEET	S-1
OF 1 SHEETS	

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OWNER  
City of Wildwood  
16850 Main Street  
Wildwood, MO  
63040  
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Fax: (636) 458-6969

SHEET TITLE  
16x28  
Shelter

JOB NUMBER  
10015  
DATE DRAWN BY  
02/08/16 DWD  
REVISION

SHEET NUMBER  
D3A

**GENERAL NOTES**

1. SHELTER DESIGN  
A. THIS SHELTER HAS BEEN DESIGNED AS AN OPEN STRUCTURE. THE ADDITION OF ANY ENCLOSURE SUCH AS WALLS, INSECT MESH, OR SHADE SCREENS SHALL BE PROHIBITED AS INCREASED WIND FORCES MAY RESULT.
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A. STEEL PLATE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36.  
B. HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500, GRADE C.  
C. WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY'S SPECIFICATION FOR THE MATERIAL BEING WELDED.  
D. WELDING ELECTRODES SHALL BE E70XX.  
E. STRUCTURAL STEEL COMPONENTS SHALL BE COATED WITH ANTI-GRAFFITI POLYESTER TIG COAT FINISH MEETING AAMA 2604-02 SPECIFICATION.
5. ROOF DECK  
A. ROOF DECK SHALL BE TONGUE AND GROOVE WOOD, SOUTHERN YELLOW PINE OR WESTERN RED CEDAR #1 GRADE OR BETTER, 2x6 NOMINAL DIMENSION.  
B. TONGUE AND GROOVE DECK SHALL BE COVERED BY ROOFING MATERIALS BY OTHERS AS NOTED ON THE DRAWING.
6. FASTENERS  
A. HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325 OR A307 (SEE DETAILS).  
B. HIGH STRENGTH BOLTS SHALL BE HOT DIP GALVANIZED.  
C. ALL BOLTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED IN THE 2004 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A499 BOLTS.  
D. SHOP FABRICATION AND FIELD ASSEMBLY  
A. ALL STRUCTURAL STEEL COMPONENTS SHALL BE SHOP FABRICATED SO THAT FIELD ASSEMBLY OF CONNECTIONS CAN BE PERFORMED USING ONLY BOLTING AND SCREW PLACEMENT.  
B. ALL SHOP WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS.  
C. ALL SHOP WELDS SHALL BE IN STRICT ACCORDANCE WITH THE STRUCTURAL WELDING CODE AWS D1.1 OF THE AMERICAN WELDING SOCIETY SPECIFICATIONS.  
D. ALL STRUCTURAL WELDS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF PRE-QUALIFIED WELDED JOINTS. ALL WELDING SHALL CONFORM TO AWS AS 18 ERT'S & SERIES E70XX ELECTRODES - LOW HYDROGEN.  
E. FIELD WELDING SHALL NOT BE REQUIRED.

**BASIS OF DESIGN**

DESIGN PARAMETERS	
ROOF LIVE LOAD	20 PSF
GROUND SNOW LOAD	20 PSF
DESIGN ROOF DEAD LOAD	5 PSF
WIND CRITERIA EXPOSURE C	10 MPH
SOIL DESIGN BEARING STRENGTH	2000 PSF
CODES	2009 IBC ASCE 7-05

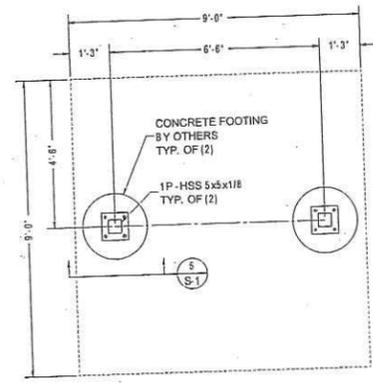
BUILDING DATA	
OCCUPANCY CLASSIFICATION	A-3 (NONSEPARATE USE)
CONSTRUCTION TYPE	TYPE I-B
FLOOR AREA	81 SQ. FT.
OCCUPANCY LOAD	7 SQ. FT. / OCCUPANT = 11 OCCUPANTS / SHELTER

**DESIGN CRITERIA**

WIND DESIGN CRITERIA	50 MPH
BASIC WIND SPEED	II
WIND IMPORTANCE FACTOR	I <sub>w</sub> = 1.0
OCCUPANCY CATEGORY	C
WIND EXPOSURE	NO (OPEN STRUCTURE)
INTERNAL PRESSURE COEFFICIENT	SEE CALCS
DESIGN WIND PRESSURE (COMPONENTS & CLADDING)	SEE CALCS

SEISMIC DESIGN CRITERIA	I <sub>e</sub> = 1.0
BASIC SEISMIC FACTOR	II
OCCUPANCY CATEGORY	S <sub>s</sub> = 0.505
SPECTRAL RESPONSE ACCELERATION 0.2 SECOND	S <sub>s</sub> = 0.155
SPECTRAL RESPONSE ACCELERATION 1.0 SECOND	0.478
SITE CLASS	0.225
SPECTRAL RESPONSE COEFFICIENT, S <sub>w</sub>	D
SEISMIC DESIGN CATEGORY	ORDINARY STEEL MOMENT FRAME
BASIC SEISMIC FORCE RESISTING SYSTEM	V = C, W
DESIGN BASE SHEAR	R = 1.25
RESPONSE MODIFICATION FACTOR	EQUVALENT LATERAL FORCE
ANALYSIS PROCEDURE	

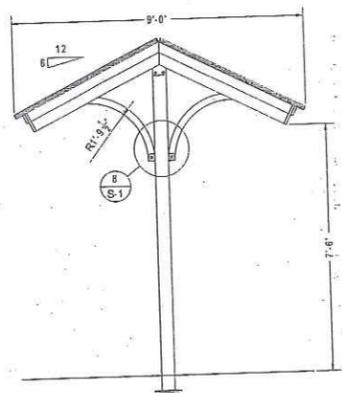


1 FOUNDATION PLAN  
Scale: 1/2" = 1'-0"

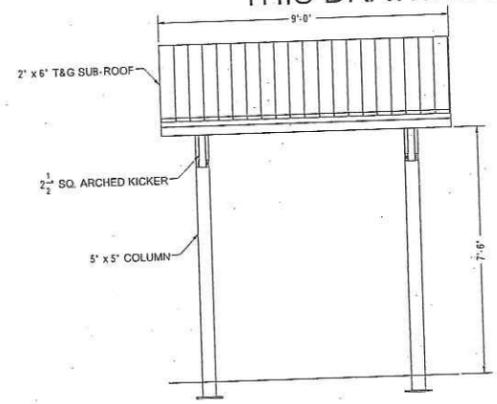


2 ROOF PLAN  
Scale: 1/2" = 1'-0"

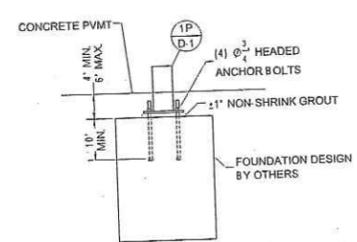
**NOT FOR CONSTRUCTION**  
THIS DRAWING FOR ESTIMATING PURPOSES ONLY



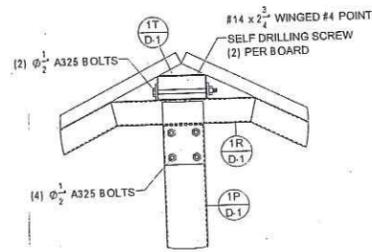
3 END ELEVATION  
Scale: 1/2" = 1'-0"



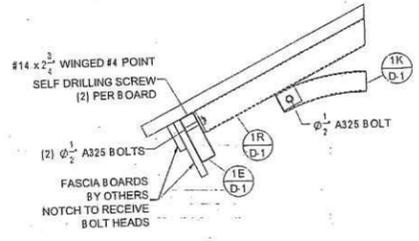
4 SIDE ELEVATION  
Scale: 1/2" = 1'-0"



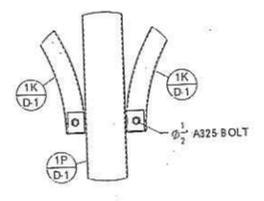
5 FOUNDATION SECTION  
Scale: 1/2" = 1'-0"



6 RAFTER TO POST CONNECTION  
Scale: 1/2" = 1'-0"



7 EDGE BEAM TO RAFTER CONNECTION  
Scale: 1/2" = 1'-0"



8 KICKER TO POST CONNECTION  
Scale: 1/2" = 1'-0"

**AMERICANA BUILDING PRODUCTS**  
#2 INDUSTRIAL DRIVE, SALEM, IL 62881  
(800) 851-0865 · www.americana.com

**CHEROKEE SHELTER**  
WILDWOOD, MO 63038

9'-0" x 9'-0"

PRELIMINARY DRAWING IS FOR ESTIMATING USE ONLY. NOT INTENDED FOR CONSTRUCTION USE.

DRAWN BY	AY
CHECKED BY	
SCALE	SEE DETAILS
DATE	12/21/2015
REVISE DATE	12/21/2015
P.O. NO.	
JOB NO.	
DRAWING NO.	
SHEET	S-1
OF 1 SHEETS	

LAND PLANNING  
RECREATION PLANNING AND DESIGN  
LANDSCAPE ARCHITECTURE

5030 GRIFFIN ROAD  
ST. LOUIS, MO 63126  
(314) 984-0211 FAX (314) 843-1718



**Al Foster Park**  
Trailhead Park  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER

City of Wildwood  
16860 Main Street  
Wildwood, MO  
63040  
Ph: 636-458-0440  
Fa: (636) 458-6969

SHEET TITLE

9x9 Mini Shelter

JOB NUMBER

10015

DATE

02/08/16

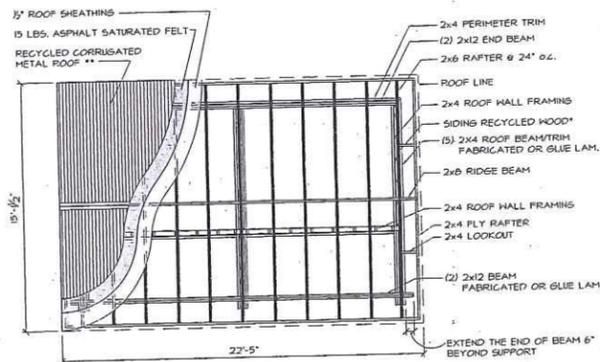
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DWD

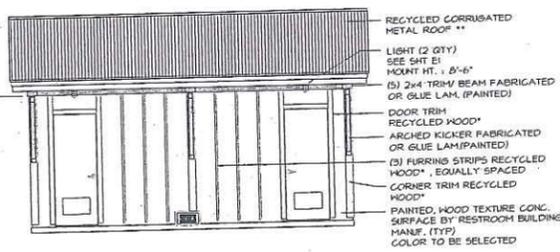
REVISION

SHEET NUMBER

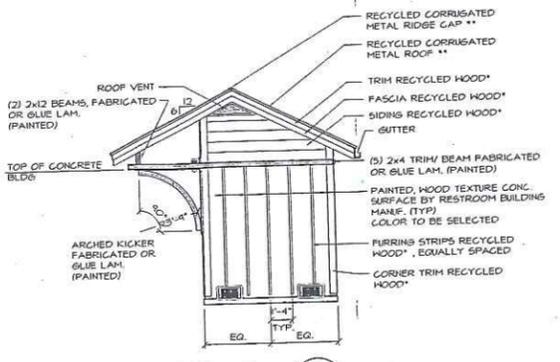
D3B



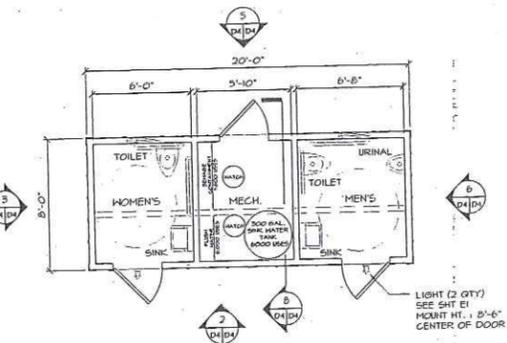
**Roof Plan**  
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D4 | D4



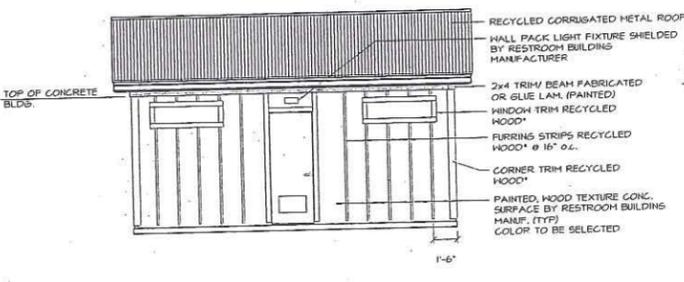
**Front Elevation**  
SCALE: 1/4" = 1'-0"  
D4 | D4



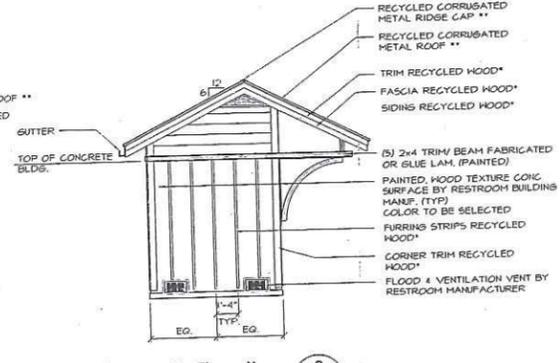
**Right Elevation**  
SCALE: 1/4" = 1'-0"  
D4 | D4



**Floor Plan**  
SCALE: 1/4" = 1'-0"  
C2 | D4



**Rear Elevation**  
SCALE: 1/4" = 1'-0"  
D4 | D4

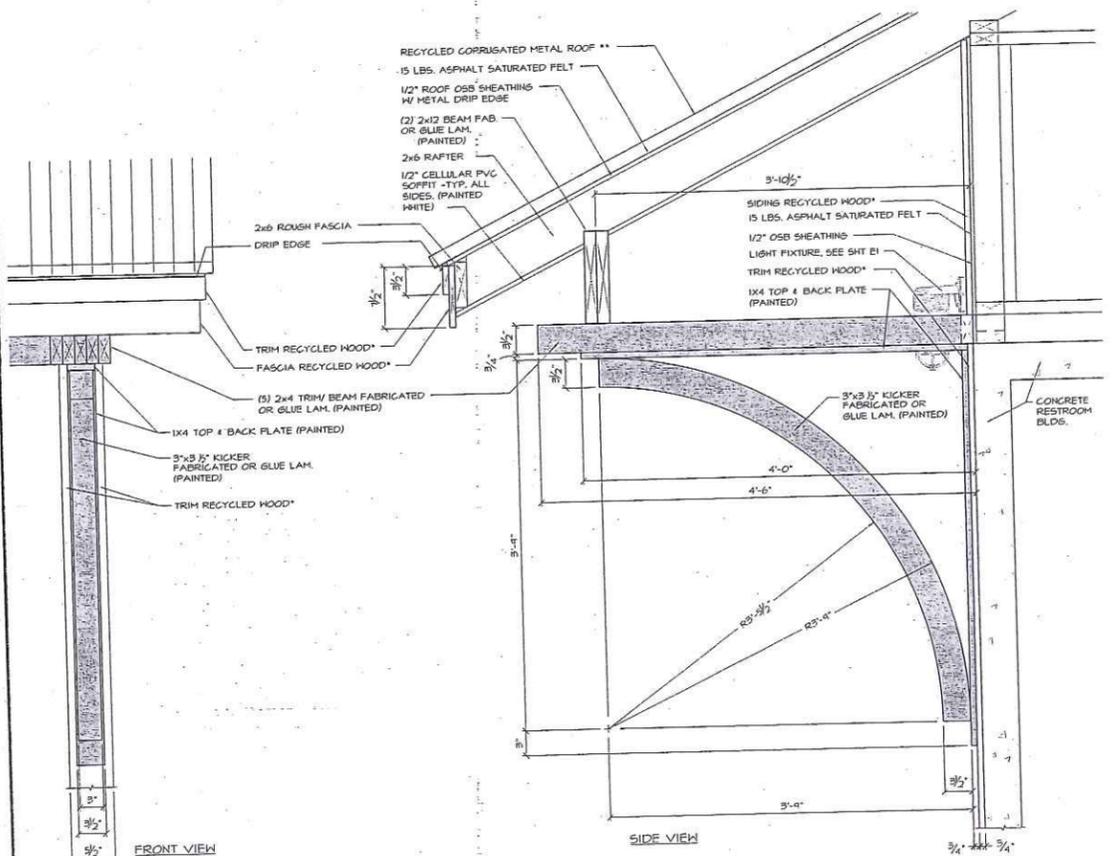


**Left Elevation**  
SCALE: 1/4" = 1'-0"  
D4 | D4

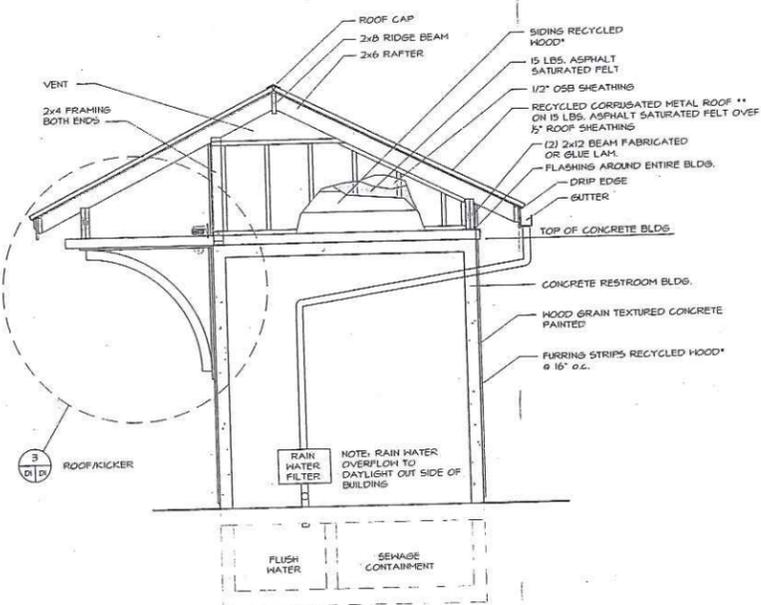
**GENERAL NOTES:**  
\* OWNER SUPPLIED. CONTRACTOR INSTALLED. 1x6 WEATHERED, OAK BOARDS, VARIOUS LENGTHS TO BE UTILIZED FOR SIDING, TRIM AND FASCIA ON PRE-MANUFACTURED RESTROOM BLDGS. INSTALLATION CONTRACTOR IS RESPONSIBLE FOR RIPPING MATERIAL TO SIZES INDICATED.  
\*\* OWNER SUPPLIED 2"x12" WEATHERED, CORRUGATED METAL PANELS TO BE UTILIZED FOR ROOFING ON RESTROOM BLDGS. INSTALLATION CONTRACTOR IS RESPONSIBLE FOR RIPPING MATERIAL TO SIZES INDICATED.

**SPECIFICATIONS FOR PRECAST RESTROOM BUILDING (CUSTOMIZED DURANGO MODEL) AS DISTRIBUTED BY GREEN FLUSH TECHNOLOGIES OR APPROVED EQUAL**

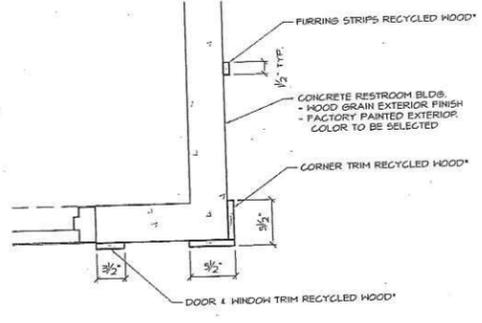
- PRECAST CONCRETE RESTROOM BUILDING WITH OUTSIDE DIMENSIONS EQUAL TO 8'-0" X 20'-0" X 9'-0" SET OVER A CONCRETE VAULT WITH OUTSIDE DIMENSIONS EQUAL TO 8'-0" X 20'-0" X 9'-0".
- CONCRETE FLOORS FOR CABIN AND VAULT SHALL BE MINIMUM 6" THICK. CONCRETE CEILING/ROOF SHALL BE FLAT WITH NO SLOPE.
- CONCRETE CABIN WALLS SHALL BE 4" THICK. CONCRETE VAULT WALLS SHALL BE 4" THICK MINIMUM.
- INTERIOR CABIN WALLS SHALL BE SMOOTH, PAINTED CONCRETE (WHITE). EXTERIOR CABIN WALLS SHALL HAVE SIMULATED WOOD, PAINTED FINISH (COLOR TO BE SELECTED).
- CONCRETE FLOORS SHALL HAVE A LIGHT BROOM FINISH (NATURAL COLOR, SEALED).
- FIBERGLASS 3'-0" X 1'-0" DOORS WITH VANDAL RESISTANT VENTILATION GRILLS - APPROX. 1X2, AND FRAMES (COLOR TO BE SELECTED).
- TRANSFER GRILLS IN WALLS BETWEEN CABINS AND MECHANICAL ROOM.
- FAN IN CEILING OF MECHANICAL ROOM EQUIPPED WITH MOTION SENSORS IN BOTH CABINS AND AUTOMATIC TIMER WITH MANUAL OVERRIDE.
- FROSTED POLYCARBONATE WINDOWS (1'-0" X 4'-0") WITH METAL FRAMES, PLUMBING, VITREOUS CHINA PLUMBING FIXTURES INCLUDING SINKS, URINAL, AND 1-2 QT. FLUSH TOILETS.
- HETTERING FAUCETS.
- TAMPER PROOF HOSE BIBS (2).
- FLOOR DRAINS (2).
- RAINWATER CATCHMENT SYSTEM WITH 100 MICRON FILTER WITH FULL LENGTH GUTTER ON BACK FASCIA.
- ONE POLYETHYLENE 300 GALLON POTABLE WATER STORAGE TANK IN MECHANICAL ROOM, AND ALL NECESSARY PIPING.
- ELECTRICAL: 120V AC ELECTRICAL SERVICE AND PANEL; MOTION AND PHOTO-CELL CONTROLLED INTERIOR AND EXTERIOR LIGHTS.
- AUTOMATIC MAGNETIC DOOR LOCKS.
- APPROACHES FULL CAPACITY; ALL NECESSARY HIRING.
- ACCESSORIES: DOOR CLOSERS, GRAB BARS; TOILET PAPER HOLDERS, SOAP DISPENSERS, AND MIRRORS.
- FLOOD AND VENTILATION VENTS.



**Roof /Kicker**  
SCALE: 1-1/2" = 1'-0"  
D4 | D4



**Section 8**  
SCALE: 1/2" = 1'-0"  
D4 | D4



**Trim/Furring Detail**  
SCALE: 1-1/2" = 1'-0"  
D4 | D4

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**Al Foster**  
**Trailhead Park**  
Grand Ave & 3rd St.  
Wildwood, Missouri

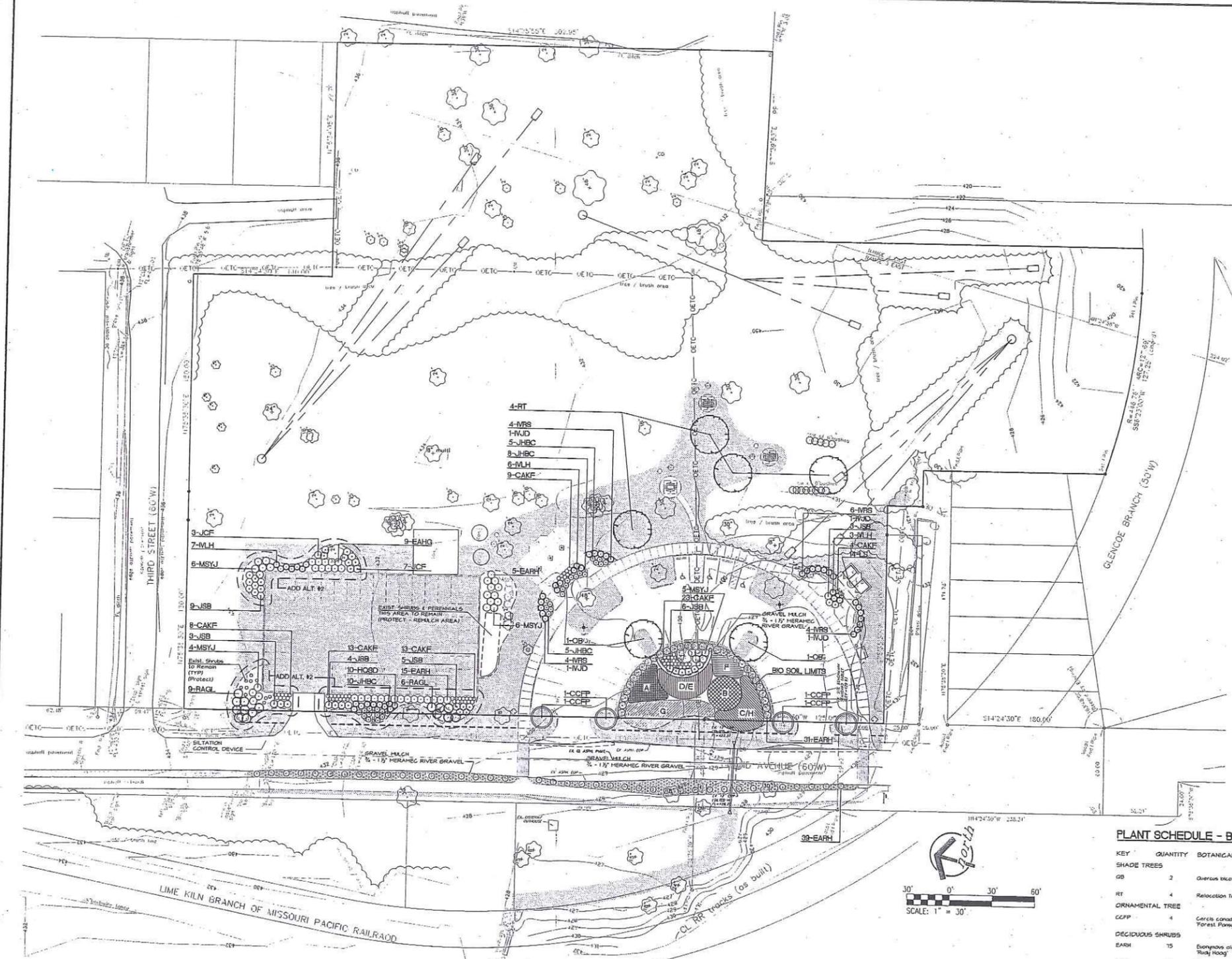
OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO 63040  
Ph: 636-458-0440  
Fa: (636) 458-6969

SHEET TITLE  
**Restroom Details**

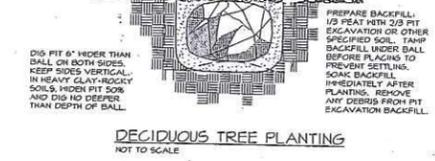
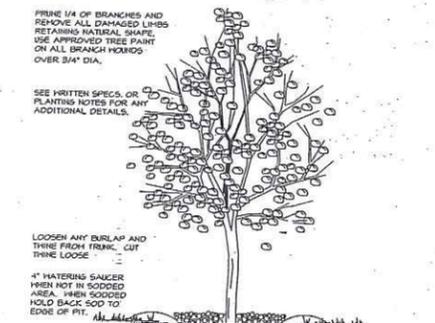
JOB NUMBER  
10015

DATE  
02/08/16  
DRAWN BY  
DWD  
REVISION

SHEET NUMBER  
**D4**



- GENERAL NOTES**
1. REPORT ANY DISCREPANCIES FOUND WITH REGARD TO EXISTING AND/OR PROPOSED CONDITIONS IMMEDIATELY TO THE CITY'S REPRESENTATIVE.
  2. DO NOT PROCEED WITH CONSTRUCTION ACTIVITIES WHERE EXISTING DISCREPANCIES EXIST. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR NECESSARY REVISIONS RESULTING FROM FAILURE TO PROVIDE PROPER NOTIFICATION.
  3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH OTHER RELATED CONSTRUCTION ACTIVITIES NECESSARY TO ACCOMPLISH SPECIFIED WORK.
  4. SEE PLANTING DETAILS AND NOTES FOR ADDITIONAL INFORMATION.
  5. ALL SHRUB BEDS SHALL RECEIVE 3"-4" GRENDED HARDWOOD BARK MULCH. APPLY GRANULAR PRE-EMERGENT HERBICIDE TREATMENT PLANT BED. APPLY PER MANUFACTURER'S RECOMMENDED RATE.
  6. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION. THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE. OTHERS THAT EXIST THAT ARE PRESUMED BY CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL UTILITIES FIELD LOCATED PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
  7. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL NECESSARY CONSTRUCTION PERMITS FROM APPROPRIATE AGENCIES PRIOR TO BEGINNING WORK.
  8. IN THE EVENT THAT PLAN GRAPHICS AND PLANT SCHEDULE CONFLICT, PLAN GRAPHICS SHALL TAKE PRECEDENCE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES.



**PLANT SCHEDULE - BASE BID**

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE & PLANTING METHOD	REMARKS
<b>SHADE TREES</b>					
QB	2	<i>Quercus bicolor</i>	SHAMP WHITE OAK	3-3 1/2" CAL.	B x B
RT	4	<i>Rhus typhina</i>	RELOCATION TREE (Red Maple)	3-4" CAL.	B x B
<b>ORNAMENTAL TREE</b>					
CCPP	4	<i>Cercis canadensis</i>	FOREST PANSY REDBUD	2-2 1/2" CAL.	D x B
<b>DECIDUOUS SHRUBS</b>					
EARH	15	<i>Erigeron phillyria</i>	RED HAIR BURNING BUSH	5 GAL.	CONT.
MLH	9	<i>Melicope virginica</i>	LITTLE HENRY VIRGINIA SHEETSPIRE	5 GAL.	CONT.
IVJD	4	<i>Illex verticillata</i>	JM DANDY HINTERBERRY	5 GAL.	CONT.
IVRS	16	<i>Illex verticillata</i>	RED SPRITE HINTERBERRY	5 GAL.	CONT.
<b>EVERGREEN SHRUBS</b>					
JHC	18	<i>Juniperus horizontalis</i>	BLUE CHIP JUNIPER	5 GAL.	CONT.
JSB	4	<i>Juniperus scopulorum</i>	BUFFALO JUNIPER	5 GAL.	CONT.
<b>GROUNDCOVER/ANNUALS/ PERENNIALS/GRASSES</b>					
CAKF	26	<i>Calamagrostis x acutiflora</i>	FEATHER REED GRASS 'CARL FOERSTER'	3 GAL.	CONT.
LS	14	<i>Liriodendron tulipifera</i>	LILY TURF	1 QT.	CONT. 12" dia.
HSYJ	11	<i>Hesperis matronalis</i>	MAIDENHAIR GRASS	5 GAL.	CONT.

**PLANT SCHEDULE (WATER QUALITY BASIN) - BASE BID**

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE & PLANTING METHOD	REMARKS
A	105	<i>Carex muskingsensis</i>	PALM SEDGE	TYPE 35 DCP	24" dia.
B	100	<i>Carex stricta</i>	ROSE TURTLEHEAD	TYPE 35 DCP	24" dia.
C	80	<i>Amorpha canescens</i>	SHRUB BLUESTAR	TYPE 35 DCP	24" dia. RANDOM PLACEMENT
D	60	<i>Eupatorium altissimum</i>	HIST FLOWER	TYPE 35 DCP	24" dia. RANDOM PLACEMENT
E	60	<i>Hibiscus rickardsonii</i>	PRAIRIE ALUM-ROOT	TYPE 35 DCP	24" dia. RANDOM PLACEMENT
F	60	<i>Hibiscus lasiocarpus</i>	ROSE MALLOX	TYPE 35 DCP	24" dia.
G	25	<i>Pycnanthemum tenuifolium</i>	SLENDER MOUNTAIN MINT	TYPE 35 DCP	24" dia.
H	50	<i>Juncus effusus</i>	SOFT RUSH	TYPE 35 DCP	24" dia. RANDOM PLACEMENT

**PLANT SCHEDULE - ADD ALTERNATE #2**

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE & PLANTING METHOD	REMARKS
<b>DECIDUOUS SHRUBS</b>					
EARH	24	<i>Erigeron phillyria</i>	RED HAIR BURNING BUSH	5 GAL.	CONT.
HOSD	10	<i>Hydrangea ovatifolia</i>	SIKES DWARF OAKLEAF HYDRANGEA	5 GAL.	CONT.
MLH	7	<i>Melicope virginica</i>	LITTLE HENRY VIRGINIA SHEETSPIRE	5 GAL.	CONT.
RAFL	15	<i>Rhus typhina</i>	SHAMP WHITE OAK	5 GAL.	CONT.
<b>EVERGREEN SHRUBS</b>					
JHC	10	<i>Juniperus horizontalis</i>	BLUE CHIP JUNIPER	5 GAL.	CONT.
JSB	21	<i>Juniperus scopulorum</i>	BUFFALO JUNIPER	5 GAL.	CONT.
JCF	10	<i>Juniperus chinensis</i>	FRITLAND COMPACT JUNIPER	5 GAL.	CONT.
<b>GROUNDCOVER/ANNUALS/ PERENNIALS/GRASSES</b>					
CAKF	24	<i>Calamagrostis x acutiflora</i>	FEATHER REED GRASS 'CARL FOERSTER'	3 GAL.	CONT.
HSYJ	10	<i>Hesperis matronalis</i>	MAIDENHAIR GRASS	5 GAL.	CONT.

**BIO RETENTION SOIL SPECIFICATIONS**

PLANTING SOIL SHALL BE SANDY LOAM OR LOAMY SAND SHOULD CONTAIN A MINIMUM OF 60 PERCENT SAND BY VOLUME. THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 10 PERCENT BY VOLUME. A SANITIZED HYDRALIC CONDUCTIVITY OF AT LEAST 10 FEET PER DAY (251 INCHES PER HOUR) IS REQUIRED. THE SOIL SHOULD BE FREE OF STONES, STICKS, OR OTHER HOODY MATERIAL OVER 1/4" IN DIAMETER. BRUSH OR BRUSHES FROM HOUSES, STOPS, SIGN AS, JUNKY GRASS, HAYCOCK AND CANADIAN THISTLE SHALL NOT BE PRESENT IN THE SOILS. PLACEMENT OF THE PLANTING SOIL SHALL BE IN LIFTS OF 12 TO 18 INCHES TO 30" FINAL DEPTH. LOOSELY COMPACTED (NON-MECHANIZED) HEAVY EQUIPMENT AND MECHANICAL TAMPING DEVICES ARE NOT RECOMMENDED FOR CONSTRUCTION.

**SPECIFIC PLANTING SOIL CHARACTERISTICS**

PARAMETER	VALUE
PH RANGE	5.2 TO 6.0
ORGANIC MATTER	15 TO 20%
NITROGEN	55 LBS. PER ACRE, MINIMUM
PHOSPHORUS	15 LBS. PER ACRE, MINIMUM
POTASSIUM	85 LBS. PER ACRE, MINIMUM
SOLUBLE SALTS	1,500 PPM

**BIO RETENTION MULCH SPECIFICATIONS**

MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE DOUBLE SHREDED HARDWOOD MULCH. MULCH LAYER SHOULD BE FREE OF OTHER MATERIALS, SUCH AS NAILS, SOIL, ROOTS, ETC. MULCH DEPTH: 2"-3"

NOTE: Underground facilities, structures, and utilities have been plotted from best available records, therefore the relationship between proposed work and existing facilities, structures, and utilities must be considered approximate, and it is the contractor's responsibility to determine their exact location and the existence of any not shown.

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Al Foster  
Trailhead Park  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER  
City of Wildwood  
16860 Main Street  
Wildwood, MO  
63040  
Ph: 636-458-0440  
Fax: (636) 458-6969

SHEET TITLE  
Landscape Plan

JOB NUMBER  
10015

DATE DRAWN BY  
02/08/16 DWD

REVISION

SHEET NUMBER  
11

**PART 1 - GENERAL**

**SUMMARY**

THIS SECTION INCLUDES PROVISIONS FOR THE FOLLOWING ITEMS:

- TREES
- SHRUBS
- GROUND COVER
- LAWN REPAIRATIONS
- SOIL AMENDMENTS
- INITIAL MAINTENANCE OF LANDSCAPE MATERIALS

**QUALITY ASSURANCE**

SUBCONTRACT LANDSCAPE WORK TO A SINGLE FIRM SPECIALIZING IN LANDSCAPE WORK.

**SOURCE QUALITY CONTROL**

GENERAL: SHIP LANDSCAPE MATERIALS WITH CERTIFICATES OF INSPECTION REQUIRED BY GOVERNING AUTHORITIES, COMPLY WITH REGULATIONS APPLICABLE TO LANDSCAPE MATERIALS.

DO NOT MAKE SUBSTITUTIONS, IF SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON-AVAILABILITY TO LANDSCAPE ARCHITECT, TOGETHER WITH PROPOSAL FOR USE OF EQUIVALENT MATERIAL.

ANALYSIS AND STANDARDS: PACKAGE STANDARD PRODUCTS WITH MANUFACTURER'S CERTIFIED ANALYSIS, FOR OTHER MATERIALS, PROVIDE ANALYSIS BY RECOGNIZED LABORATORY MADE IN ACCORDANCE WITH METHODS ESTABLISHED BY THE ASSOCIATION OF OFFICIAL AGRICULTURE CHEMISTS, WHEREVER APPLICABLE.

TREES, SHRUBS AND PLANTS: PROVIDE TREES, SHRUBS, AND PLANTS OF QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY SHOWN AND SCHEDULED FOR LANDSCAPE WORK AND COMPLIING WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z601 "AMERICAN STANDARD FOR NURSERY STOCK", PROVIDE HEALTHY, VIGOROUS STOCK GROWN IN RECOGNIZED NURSERY, IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICE AND FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN-SCALD, INJURIES, ABRASIONS, OR DISFIGUREMENT.

LABEL AT LEAST ONE TREE AND ONE SHRUB OF EACH VARIETY WITH A SECURELY ATTACHED WATERPROOF TAG BEARING LEGIBLE DESIGNATION OF BOTANICAL AND COMMON NAME.

WHERE FORMAL ARRANGEMENTS OR CONSECUTIVE ORDER OF TREES OR SHRUBS ARE SHOWN, SELECT STOCK FOR UNIFORM HEIGHT AND SPREAD, AND LABEL WITH NUMBER TO ASSURE SYMMETRY IN PLANTING.

INSPECTION: THE LANDSCAPE ARCHITECT MAY INSPECT TREES AND SHRUBS EITHER AT PLACE OF GROWTH OR AT SITE BEFORE PLANTING, FOR COMPLIANCE WITH REQUIREMENTS FOR QUANTITY, VARIETY, SIZE, AND QUALITY. ARCHITECT RETAINS RIGHT TO FURTHER INSPECT TREES AND SHRUBS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEMS, INJURIES, INSECTS, AND LAIT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. REMOVE REJECTED TREES OR SHRUBS IMMEDIATELY FROM PROJECT SITE.

**SUBMITTALS**

PLANT AND MATERIAL CERTIFICATIONS

CERTIFICATES OF INSPECTION AS REQUIRED BY GOVERNMENTAL AUTHORITIES.

MANUFACTURER'S OR VENDOR'S CERTIFIED ANALYSIS FOR SOIL AMENDMENTS AND FERTILIZER MATERIALS.

LABEL DATA SUBSTANTIATING THAT PLANTS, TREES, SHRUBS AND PLANTING MATERIALS COMPLY WITH SPECIFIED REQUIREMENTS.

SEED VENDORS CERTIFIED STATEMENT FOR EACH GRASS SEED MIXTURE REQUIRED, STATING BOTANICAL AND COMMON NAME, PERCENTAGES BY WEIGHT, AND PERCENTAGES OF PURITY, GERMINATION, AND YIELD SEED FOR EACH GRASS SEED SPECIES.

**DELIVERY, STORAGE AND HANDLING**

PACKAGED MATERIALS: DELIVER PACKAGED MATERIALS IN CONTAINERS SHOWING HEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. PROTECT MATERIALS FROM DETERIORATION DURING DELIVERY, AND WHILE STORED AT SITE.

SOIL: THE DELIVERY SO THAT SOIL WILL BE PLACED WITHIN 24 HOURS AFTER STRIPPING, PROTECT SOIL AGAINST DRYING AND BREAKING OF ROLLED STRIPS.

TREES AND SHRUBS: PROVIDE FREELY DUG TREES AND SHRUBS. DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE APPROVED BY LANDSCAPE ARCHITECT. DO NOT BIND OR BRIDGE TREES OR SHRUBS IN SUCH MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERINGS DURING DELIVERY. DO NOT DROP BALLED AND BURLAPPED STOCK DURING DELIVERY.

DELIVER TREES AND SHRUBS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, SET TREES AND SHRUBS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST BY COVERING WITH MULCH, BURLAP OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE.

DO NOT REMOVE CONTAINER-GROWN STOCK FROM CONTAINERS UNTIL PLANTING THE.

**JOB CONDITIONS**

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

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

**SEQUENCING AND SCHEDULING**

PLANTING TIME: PROCEED WITH AND COMPLETE LANDSCAPE WORK AS RAPIDLY AS PORTIONS OF SITE BECOME AVAILABLE, WORKING WITHIN SEASONAL LIMITATIONS FOR EACH KIND OF LANDSCAPE WORK REQUIRED.

PLANT OR INSTALL MATERIALS DURING NORMAL PLANTING SEASONS FOR EACH TYPE OF PLANT MATERIAL REQUIRED.

**SPECIAL PROTECT WARRANTY**

WARRANTY TREES AND SHRUBS: FOR A PERIOD OF ONE YEAR AFTER DATE OF SUBSTANTIAL COMPLETION, AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM NEGLIGENCE BY OWNER, ADVERSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND LANDSCAPE INSTALLER'S CONTROL.

REMOVE AND REPLACE TREES, SHRUBS, OR OTHER PLANTS FOUND TO BE DEAD OR IN UNHEALTHY CONDITION DURING WARRANTY PERIOD. MAKE REPLACEMENTS DURING GROWTH SEASON FOLLOWING END OF WARRANTY PERIOD. REPLACE TREES AND SHRUBS WHICH ARE IN DUBIOUS CONDITION AT END OF WARRANTY PERIOD, UNLESS IN OPINION OF LANDSCAPE ARCHITECT, IT IS ADVISABLE TO EXTEND WARRANTY PERIOD FOR A FULL GROWING SEASON.

ANOTHER WARRANTY INSPECTION WILL BE CONDUCTED AT END OF EXTENDED WARRANTY PERIOD, IF ANY, TO DETERMINE ACCEPTANCE OR REJECTION. ONLY ONE REPLACEMENT PER TREE, SHRUB OR PLANT WILL BE REQUIRED AT END OF WARRANTY PERIOD, EXCEPT FOR LOSSES OR REPLACEMENTS DUE TO FAILURE TO COMPLY WITH SPECIFIED REQUIREMENTS.

**PART 2 - PRODUCTS TOPSOIL**

PROVIDE NEW TOPSOIL THAT IS FERTILE, FRIABLE, NATURAL LOAM SURFACE SOIL, REASONABLY FREE OF SUBSOIL, GLAY LUMPS, BRUSH WEDDS AND OTHER LITTER, AND FREE OF ROOTS, STUMPS, STONES LARGER THAN 2 INCHES IN ANY DIMENSION, AND OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

OBTAIN TOPSOIL FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT PROJECT SITE. OBTAIN TOPSOIL ONLY FROM NATURALLY WELL-DRAINING SITES WHERE TOPSOIL OCCURS IN A DEPTH OF NOT LESS THAN 4 INCHES, DO NOT OBTAIN FROM BODYS OR MARSHES.

**SOIL AMENDMENTS**

PEAT HAYS: FINELY DIVIDED PEAT, SO COMPLETELY DECOMPOSED AND FREE OF FIBERS THAT ARTS BIOLOGICAL IDENTITY IS LOST. PROVIDE IN GRANULAR FORM, FREE OF HARD LUMPS AND WITH A RANGE SUITABLE FOR MIXED USE.

HANMER: WELL ROTTED, UNBLEACHED SWALE OR CATTLE HANMER CONTAINING NOT MORE THAN 25 PERCENT BY VOLUME OF STRAW, SANDWST, OR OTHER BEDDING MATERIALS AND CONTAINING NO CHEMICALS OR INGREDIENTS HARMFUL TO PLANTS.

MULCH: ORGANIC MULCH FREE FROM DELETERIOUS MATERIALS AND SUITABLE FOR TOP DRESSING OF TREES, SHRUBS, OR PLANTS AND COMPOSTING OF SHREDDED HARDWOOD. COMMERCIAL FERTILIZER: COMPLETE FERTILIZER OF NEUTRAL CHARACTER, WITH SOME ELEMENTS DERIVED FROM ORGANIC SOURCES AND CONTAINING FOLLOWING PERCENTAGES OF AVAILABLE PLANT NUTRIENTS:

FOR TREES AND SHRUBS, PROVIDE FERTILIZER WITH NOT LESS THAN 20 PERCENT (20%) TOTAL NITROGEN, 10 PERCENT (10%) AVAILABLE PHOSPHORIC ACID AND 5 PERCENT (5%) SOLUBLE POTASH. THIS FERTILIZER SHALL BE PROVIDED IN SLOW RELEASE TABLET FORM.

FOR SOODED LAWNS, AFTER INSTALLATION OF SOID, PROVIDE FERTILIZER WITH NOT LESS THAN TEN PERCENT (10%) AVAILABLE NITROGEN AND NOT LESS THAN SIX PERCENT (6%) AVAILABLE PHOSPHORIC ACID AND NOT LESS THAN FOUR PERCENT (4%) POTASH. IRRIGATE AFTER APPLICATION.

FOR SOIL PREPARATION OF ALL LAWN AREAS, PROVIDE STARTER FERTILIZER IS-24-6.

**PLANT MATERIALS**

QUALITY: PROVIDE TREES, SHRUBS, AND OTHER PLANTS OF SIZE, GENUS, SPECIES, AND VARIETY SHOWN AND SCHEDULED FOR LANDSCAPE WORK AND COMPLIING WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z601 "AMERICAN STANDARD FOR NURSERY STOCK".

DECIDUOUS TREES: PROVIDE TREES OF HEIGHT AND CALIPER SCHEDULED OR SHOWN AND WITH BRANCHING CONFIGURATION RECOMMENDED BY ANSI Z601 FOR TYPE AND SPECIES. REQUIRED: PROVIDE SINGLE STEM TREES EXCEPT WHERE SPECIAL FORMS ARE SHOWN OR LISTED.

PROVIDE BALLED AND BURLAPPED (B&B) DECIDUOUS TREES.

CONTAINER-GROWN DECIDUOUS TREES WILL BE ACCEPTABLE IN LIEU OF BALLED AND BURLAPPED DECIDUOUS TREES SUBJECT TO SPECIFIED LIMITATIONS OF ANSI Z601 FOR CONTAINER STOCK.

DECIDUOUS SHRUBS: PROVIDE SHRUBS OF THE HEIGHT SHOWN OR LISTED AND WITH NOT LESS THAN MINIMUM NUMBER OF CANES REQUIRED BY ANSI Z601 FOR TYPE AND HEIGHT OF SHRUBS REQUIRED.

PROVIDE BALLED AND BURLAPPED (B&B) DECIDUOUS SHRUBS. CONTAINER-GROWN DECIDUOUS SHRUBS WILL BE ACCEPTABLE IN LIEU OF BALLED AND BURLAPPED DECIDUOUS SHRUBS SUBJECT TO SPECIFIED LIMITATIONS FOR CONTAINER-GROWN STOCK.

CONIFEROUS AND BROADLEAFED EVERGREENS: PROVIDE EVERGREENS OF SIZES SHOWN OR LISTED. DIMENSIONS INDICATE MINIMUM SPREAD FOR SPREADING AND OTHER SPREADING-TYPE EVERGREENS AND HEIGHT FOR OTHER TYPES, SUCH AS GLOBE, DWARF, CONE, PYRAMIDAL, BROAD UPRIGHT, AND COLUMNAR. PROVIDE NORMAL QUALITY EVERGREENS WITH WELL-BALANCED FORM, COMPLIING WITH REQUIREMENTS FOR OTHER SIZE RELATIONSHIPS TO THE PRIMARY DIMENSION SHOWN.

PROVIDE BALLED AND BURLAPPED (B&B) EVERGREENS.

CONTAINER-GROWN EVERGREENS WILL BE ACCEPTABLE SUBJECT TO SPECIFIED LIMITATIONS FOR CONTAINER-GROWN STOCK.

PLANT MIX BACKFILL: PLANT MIX SHALL BE USED TO BACKFILL AROUND ALL TREE/SHRUB PLANTINGS AND IN ALL PLANTERS, AS INDICATED ON THE DRAWINGS.

GRASS MATERIALS: GRASS SEED, PROVIDE FRESH, CLEAN, NON-CROP SEED COMPLIING WITH TOLERANCE FOR PURITY AND GERMINATION ESTABLISHED BY OFFICIAL SEED ANALYSTS OF NORTH AMERICA. PROVIDE SEED MIXTURE COMPOSED OF GRASS SPECIES AND PROPORTIONS AS INDICATED BELOW. SEED SHALL NOT EXCEED ONE (1) PERCENT YIELD CONTACT.

20-30% ANNUAL RYEGRASS  
10-20% K-31 TALL FESCUE  
OR SIMILAR CONTRACTORS' SEED MIX

GROUND COVER: PROVIDE PLANTS ESTABLISHED AND WELL ROOTED IN REMOVABLE CONTAINERS OR INTEGRAL PEAT POTS AND WITH NOT LESS THAN MINIMUM NUMBER AND LENGTH OF RUNNERS REQUIRED BY ANSI Z601 FOR THE POT SIZE SHOWN OR LISTED.

MISCELLANEOUS LANDSCAPE MATERIALS:  
ANTI-EROSION MULCH: PROVIDE CLEAN, SEED-FREE SALT HAY OR THRESHED STRAW OF WHEAT, RYE, OATS OR BARLEY.

ANTI-DEBRICANT: EVALUATION TYPE FILM-FORMING AGENT DESIGNED TO PERMIT TRANSMISSION BUT RETARD EXCESSIVE LOSS OF MOISTURE FROM PLANTS. DELIVER IN MANUFACTURER'S FULLY IDENTIFIED CONTAINERS AND MIX IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

FILTRATION/SEPARATION FABRIC: WATER PERMEABLE FILTRATION FABRIC OF POLYPROPYLENE FABRIC OR AS NOTED ON DRAWINGS.

**PART 3 - EXECUTION**

**INSTALLATION**

PROCEED WITH AND COMPLETE THE LANDSCAPE WORK AS RAPIDLY AS PORTIONS OF THE SITE BECOME AVAILABLE, WORKING WITHIN SEASONAL LIMITATIONS FOR EACH KIND OF LANDSCAPE WORK REQUIRED.

COOPERATE WITH ANY OTHER CONTRACTORS AND TRADES WHICH MAY BE WORKING IN ANY ADJACENT TO THE LANDSCAPE WORK AREAS. EXAMINE DRAWINGS WHICH SHOW THE DEVELOPMENT OF THE ENTIRE SITE AND BECOME FAMILIAR WITH THE SCOPE OF ALL WORK REQUIRED.

**EXCAVATION FOR PLANTINGS**

WHERE RUBBLE FILL IS ENCOUNTERED, PREPARE PLANTING PITS PROPERLY BY REMOVAL OF RUBBLE OR OTHER ACCEPTABLE METHODS.

OBSTRUCTIONS: IF ROCK, UNDERGROUND CONSTRUCTION WORK, OR OTHER OBSTRUCTIONS ARE ENCOUNTERED IN EXCAVATION FOR PLANTING OF TREES OR SHRUBS, NOTIFY THE LANDSCAPE ARCHITECT. NEW LOCATIONS MAY BE SELECTED BY THE LANDSCAPE ARCHITECT.

DRAINAGE: IF SUBSOIL CONDITIONS INDICATE THE RETENTION OF WATER IN PLANTING AREAS, AS SHOWN BY SEEPAGE OR OTHER EVIDENCE INDICATING PRESENCE OF UNDERGROUND WATER, NOTIFY THE LANDSCAPE ARCHITECT BEFORE BACKFILLING.

**SOIL PREPARATION**

LAWN PREPARATION TO AREAS WHICH WILL BE PLANTED IN THE IMMEDIATE FUTURE AND TO AREAS WHERE MAIN AND LATERAL IRRIGATION LINES HAVE BEEN INSTALLED.

IMMEDIATELY PRIOR TO APPLICATION OF THE REQUIRED AMENDMENTS, THE AREA SHALL BE THOROUGHLY RIPPED, DISKED, OR CULTIVATED TO A DEPTH OF SIX INCHES (6").

PREPARE SOIL FOR LAWN AS FOLLOWS: THE HANMER SHALL BE APPLIED UNFORMLY TO ALL LAWN AREAS AT THE RATE OF THREE (3) CUBIC YARDS/500 SQ. FEET.

REPLACE OR REPAIR HANMER TO PROPER RATES, THOROUGHLY ROTOILL TO A DEPTH AFTER PLACEMENT OF HANMER TO PROPER RATES, THOROUGHLY ROTOILL TO A DEPTH OF SIX INCHES (6"). ALL AREAS TO BE SOIL PREPARED IMMEDIATELY AFTER SPREADING OF THE SOIL AMENDMENTS. DISKS OR RIPPERS IN AMENDMENTS WILL NOT BE ACCEPTABLE.

FOR ALL SHRUB BEDS AND GROUND COVER AREAS, MIX INTO THE TOP 6" OF SOIL SIX (6) CUBIC FEET OF HANMER PER 100 SQ. FT. OF AREA. REMOVE ANY TURF, PEES, OR OTHER VEGETATION COMPLETELY (INCLUDING ROOTS) PRIOR TO SOIL PREPARATION.

**FINE GRADING**

FINE GRADING SHALL BE ACCOMPLISHED TO WITHIN 1/40 OF A FOOT OF PROPOSED ELEVATIONS ON ANY AREA OF DISTURBED OR FILL SOIL. A SMOOTH, COMPACTABLE FINISH SHALL BE PROVIDED BETWEEN AREAS OF UNDISTURBED SOIL, AND THE AREAS BEING FINISH GRADED. DEBRIS SHALL BE REMOVED AFTER FINAL PASS.

BLADING, DRESSING, AND SOIL CULTIVATION TECHNIQUES SHALL BE USED TO PROMOTE A SOIL CONDITION ACCEPTABLE FOR ROOTING, SEEDING, GROUND COVER BEDS, SHRUB AREAS, OR MULCHED AREAS AS SHOWN ON THE PLANS. IN SOODING AREAS, THE FINISH GRADE SHALL BE HELD TWO INCHES (2") BELOW EXISTING OR PROPOSED LEVEL OF SIDEWALKS, CURBS, SPRINKLER HEADS, ETC. SEEDING AREAS SHALL BE HELD ONE INCH (1") BELOW SUCH ELEMENTS, AND MULCHED AREAS SHALL BE HELD ONE INCH (1") GREATER THAN SPECIFIED DEPTH OF THE MULCH.

DRAINAGE SHADES, DRAIN PIPES, OR OTHER OPEN SHEET DRAINAGE AREAS REQUIRING PARTICULARLY ACCURATE GRADING SHALL BE STAKED BY USE OF AN INSTRUMENT CONTAINED BETWEEN 1/2 AND 6 GRADICES UNLESS OTHERWISE SPECIFIED. DRAINAGE WAYS SHALL NOT CONTAIN ANY WATER HOLDING DEPRESSIONS.

HOUNDS, TERRACES OR OTHER EARTH FORMS SHALL BE CONTRACTED TO PLANS AND APPROVED INSTRUCTIONS OF LANDSCAPE ARCHITECT AND SHALL BE INSPECTED AND APPROVED PRIOR TO FINISH LANDSCAPE TREATMENT. CONTRACTOR SHALL USE APPROPRIATE GRADING METHODS TO INSURE DETAILED IMPLEMENTATION OF FORMS AS SHOWN ON PLANS OR DIRECTED BY LANDSCAPE ARCHITECT.

THE CONTRACTOR SHALL PREPARE THE SITE IN AN ORDERLY CONDITION FREE OF ALL DEBRIS SO THAT SEEDING, SOODING, PLANTING, AND OTHER CONSTRUCTION OPERATIONS MAY PROCEED IMMEDIATELY. ALL AREAS OUTSIDE THE CONTRACT LIMITS WHICH HAVE BEEN DISTURBED SHALL BE RESTORED TO THEIR ORIGINAL CONDITION IN ACCORDANCE WITH PROCEDURES AS DESCRIBED HEREIN AT CONTRACTOR'S EXPENSE.

JUSTIFY PREPARED LAWN AREAS BEFORE PLANTING IF SOIL IS VERY DRY. WATER THOROUGHLY AND ALLOW SURFACE TO DRY OUT BEFORE PLANTING OF LAWNS. DO NOT CREATE A MOODY SURFACE EXPOSURE.

RESTORE PREPARED AREAS TO SPECIFIED CONDITION IF ERODED OR OTHERWISE DISTURBED AFTER FINE GRADING AND PRIOR TO PLANTING.

AFTER FINE GRADING, APPLY STARTER FERTILIZER (IS-24-6) AT A RATE OF FOUR POUNDS (4 LBS) PER THOUSAND SQ. FEET (5000 SQ. FT.) UNFORMLY ACROSS THE LANDSCAPE AREAS.

EXCAVATION FOR TREES AND SHRUBS: EXCAVATE PITS, BEDS AND TRENCHES WITH VERTICAL SIDES AND WITH BOTTOM OF EXCAVATION SLIGHTLY RAISED AT CENTER TO PROVIDE PROPER DRAINAGE. LOOSEN HARD SUBSOIL IN BOTTOM OF EXCAVATION.

FOR BALLED AND BURLAPPED (B&B) TREES AND SHRUBS, MAKE EXCAVATIONS AT LEAST HALF AGAIN AS WIDE AS THE BALL DIAMETER AND EQUAL TO THE BALL DEPTH, PLUS FOLLOWING ALLOWANCE FOR SETTING OF BALL ON A LAYER OF COMPACTED BACKFILL:

ALLOW FOR 3 INCH THICK SETTING LAYER OF PLANTING SOIL MIXTURE. FOR CONTAINER-GROWN STOCK, EXCAVATE AS SPECIFIED FOR BALLED AND BURLAPPED STOCK, ADJUSTED TO SIZE OF CONTAINER WIDTH AND DEPTH.

FILL EXCAVATIONS FOR TREES AND SHRUBS WITH WATER AND ALLOW WATER TO PERCOLATE OUT PRIOR TO PLANTING.

PLANTING TREES AND SHRUBS: SET BALLED AND BURLAPPED (B&B) STOCK ON LAYER OF COMPACTED PLANTING SOIL MIXTURE. PLUMB AND IN CENTER OF PIT OR TRENCH WITH TOP OF BALL AT SAME ELEVATION AS ADJACENT FINISHED LANDSCAPE GRADES. REMOVE BURLAP FROM SIDES OF BALLS, RETAIN ON BOTTOMS. WHEN SET, PLACE ADDITIONAL BACKFILL AROUND BASE AND SIDES OF BALL, AND MORE EACH LAYER TO SETTLE BACKFILL. ELIMINATE VOIDS AND AIR POCKETS. WHEN EXCAVATION IS APPROXIMATELY 2/3 FULL, WATER THOROUGHLY BEFORE PLACING REMAINDER OF BACKFILL. REPEAT WATERING UNTIL NO MORE IS ABSORBED. WATER AGAIN AFTER PLACING FINAL LAYER OF BACKFILL.

SET CONTAINER-GROWN STOCK, AS SPECIFIED, FOR BALLED BURLAPPED STOCK. EXCEPT CUT CANES ON 2 SIDES WITH AN APPROVED CAN CUTTER, REMOVE BOTTOMS OF WOODEN BOXES AFTER PARTIAL BACKFILLING SO AS NOT TO DAMAGE ROOT BALLS.

AT THE TIME OF PLANTING, SLOW RELEASE FERTILIZER TABLETS SHALL BE APPLIED TO EACH PLANT AT THE MANUFACTURER'S PRESCRIBED RATE. IN CASE OF MULTIPLE STEM, MORE THAN FOUR INCHES (4"DBH) AWAY FROM PLANT ROOTS OR BALL AND ABOUT SIX INCHES (6") BELOW FINISH GRADE.

DISH TOP OF BACKFILL TO ALLOW FOR MULCHING.

MULCH PITS, TRENCHES, AND PLANTED AREAS. PROVIDE NOT LESS THAN 4 INCHES (4") THICKNESS OF MULCH ON TOP OF BACKFILL.

APPLY ANTI-DEBRICANT USING POWER SPRAY, TO PROVIDE AN ADEQUATE FILM OVER TRUNKS, BRANCHES, STEMS, TWIGS AND FOLIAGE.

IF DECIDUOUS TREES OR SHRUBS ARE MOVED WHEN IN FULL LEAF, SPRAY WITH ANTI-DEBRICANT AT NURSERY BEFORE MOVING AND SPRAY AGAIN 2 WEEKS AFTER PLANTING.

PRUNE, TRIM OUT, AND SHAPE TREES AND SHRUBS IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE. PRUNE TREES TO RETAIN REQUIRED HEIGHT AND SPREAD, UNLESS OTHERWISE DIRECTED BY ARCHITECT. DO NOT CUT TREE LEADERS, AND REMOVE ONLY INJURED OR DEAD BRANCHES FROM FLOUNDERING TREES. IF ANY, PRUNE SHRUBS TO RETAIN NATURAL CHARACTER.

REMOVE AND REPLACE EXCESSIVELY PRUNED OR MISFORMED STOCK RESULTING FROM IMPROPER PRUNING.

MULCH: BEFORE MULCH IS PLACED, GRANULAR PRE-EMERGENCE NEEED KILLER SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS OVER ALL MULCHED AREAS. EVEN CORRECT APPLICATION OF PRE-EMERGENCE IS INEFFECTIVE. ANY PLANTS FOUND TO BE IN UNHEALTHY CONDITION AS A RESULT OF IMPROPER APPLICATION SHALL IMMEDIATELY BE REMOVED AND REPLACED BY THE CONTRACTOR.

MULCH TREE PITS AND ENTIRE SHRUB BEDS WITH FOUR INCHES (4") OF MULCH. INSTALL SHRUB BED MULCH OVER WEED CONTROL FABRIC. MAKE SURE MULCH IS TO SPECIFIED DEPTH AT EDGES OF WALKS AND OTHER PAVED SURFACES, AND DOES NOT PROTRUDE ABOVE ADJACENT FINISHED GRADE OF SAME SURFACES.

SEEDING: SEED MIXTURE: DO NOT USE NET SEED OR SEED THAT IS MOIST OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE.

SOIL SEED MIXES: A SPREADER OR SEEDING MACHINE, DO NOT USE WHEN WIND VELOCITY EXCEEDS 5 MPH PER HOUR. DISTRIBUTE SEED EVENLY OVER ENTIRE AREA BY SOUING EQUAL QUANTITY IN 2 DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.

SOIL SPECIFIED SEED AT A RATE OF 10 LBS/5000 SQ. FT.

RAKE SEED LIGHTLY INTO TOP 1/4 INCH OF SOIL, ROLL LIGHTLY AND WATER WITH A FINE SPRAY.

PROTECT SEEDING AREAS AGAINST EROSION BY SPREADING SPECIFIED LAWN MULCH AFTER COMPLETION OF SEEDING OPERATIONS. SPREAD UNFORMLY TO FORM A CONTINUOUS BLANKET NOT LESS THAN 1-1/2 INCHES LOOSE MEASUREMENT OVER SEEDING AREAS.

STRAW MULCH SHALL BE APPLIED TO ALL SEEDING AREAS. RATE OF APPLICATION SHALL BE 1/2 TONS PER ACRE.

EROSION CONTROL: NETTING SHALL BE INSTALLED ON ALL SLOPES GREATER THAN 4:1.

SPACE GROUND COVER PLANTS AS INDICATED OR SCHEDULED.

DIG HOLES LARGE ENOUGH TO ALLOW FOR SPREADING OF ROOTS AND BACKFILL WITH PLANTING SOIL. WORK SOIL AROUND ROOTS TO ELIMINATE AIR POCKETS AND LEAVE A SLIGHT SAUCER INDENTATION AROUND PLANTS TO HOLD WATER. WATER THOROUGHLY AFTER PLANTING TAKING CARE NOT TO COVER GROWTH OF PLANTS WITH NET SOILS.

MULCH AREAS BETWEEN GROUND COVER PLANTS, PLACE NOT LESS THAN 3 INCHES THICK, UNLESS OTHERWISE NOTED.

MAINTENANCE: BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING.

MAINTAIN TREES, SHRUBS, AND OTHER PLANTS UNTIL FINAL ACCEPTANCE, BUT IN NO CASE LESS THAN FOLLOWING PERIOD:

30 DAYS AFTER SUBSTANTIAL COMPLETION OF PLANTING.

MAINTAIN TREES, SHRUBS, AND OTHER PLANTS BY PRUNING, CULTIVATING, AND WEEDING AS REQUIRED FOR HEALTHY GROWTH. RESTORE PLANTING SAUCERS, TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND REPAIR TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED. RESTORE OR REPLACE DAMAGED WRAPPINGS, SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE.

CLEANUP AND PROTECTION: DURING LANDSCAPE WORK, KEEP PAVED AREAS CLEAN AND WORK AREA IN AN ORDERLY CONDITION.

PROTECT LANDSCAPE WORK AND MATERIALS FROM DAMAGE DUE TO LANDSCAPE OPERATIONS, OPERATIONS BY OTHER CONTRACTORS AND TRADES, AND REVISITORS. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE DAMAGED LANDSCAPE WORK AS DIRECTED.

INSPECTION AND ACCEPTANCE: WHEN LANDSCAPE WORK IS COMPLETED, INCLUDING MAINTENANCE, LANDSCAPE ARCHITECT WILL, UPON REQUEST, MAKE AN INSPECTION TO DETERMINE ACCEPTABILITY.

LANDSCAPE WORK MAY BE INSPECTED FOR ACCEPTANCE IN PORTIONS AS AGREEABLE TO LANDSCAPE ARCHITECT PROVIDED EACH PORTION OF WORK OFFERED FOR INSPECTION IS COMPLETE, INCLUDING MAINTENANCE.

WHEN INSPECTED LANDSCAPE WORK DOES NOT COMPLY WITH REQUIREMENTS, REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL REINSPECTED BY ARCHITECT AND FOUND TO BE ACCEPTABLE. REMOVE REJECTED PLANTS AND MATERIALS PROMPTLY FROM PROJECT SITE.

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RECREATION PLANNING AND DESIGN  
LANDSCAPE ARCHITECTURE  
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Al Foster  
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Grand Ave & 3rd St.  
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SHEET TITLE  
Landscape  
Plan

JOB NUMBER  
10015  
DATE 02/08/16 DRAWN BY DW  
REVISION

SHEET NUMBER  
L2

LAND PLANNING  
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SHEET TITLE  
Technical  
Specification

JOB NUMBER  
10015  
DATE DRAWN BY  
02/08/16 DWD  
REVISION

SHEET NUMBER  
S1

**I. EARTHWORK**

- PROJECT CONDITIONS**

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

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

PROTECTION OF PERSONS AND PROPERTY - BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK.

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

PERSON EXCAVATION BY HAND WITHIN DRIFLINE OF LARGE TREES TO REMAIN. PROTECT ROOT SYSTEMS FROM DAMAGE OR DRY OUT TO THE GREATEST EXTENT POSSIBLE. MAINTAIN MOIST CONDITION FOR ROOT SYSTEM AND COVER EXPOSED ROOTS WITH MOISTENED BURLAP.
- SOIL MATERIALS**

SUBBASE MATERIAL - NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, CRUSHED SLAG AND NATURAL OR CRUSHED SAND.

BACKFILL AND FILL MATERIALS - SATISFACTORY SOIL MATERIALS FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2 INCHES IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION AND OTHER DELETERIOUS MATTER.
- EXCAVATION**

EARTH EXCAVATION INCLUDES EXCAVATION OF PAVEMENTS AND OTHER OBSTRUCTIONS VISIBLE ON SURFACE, UNDERGROUND STRUCTURES, UTILITIES AND OTHER ITEMS INDICATED TO BE DEMOLISHED AND REMOVED, TOGETHER WITH EARTH AND OTHER MATERIALS ENCOUNTERED THAT ARE NOT CLASSIFIED AS ROCK.
- DEWATERING**

PREVENT SURFACE WATER AND SUBSURFACE OR 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 FOUNDATION BOTTOMS, UNDERMINING AND FOUNDATIONS. PROVIDE AND MAINTAIN PUMP, HELL POINTS, SHIMS, SECTION AND DISCHARGE LINES AND OTHER DEWATERING SYSTEM COMPONENTS NECESSARY TO CONVEY WATER AWAY FROM EXCAVATIONS.

ESTABLISH AND MAINTAIN TEMPORARY DRAINAGE DITCHES AND OTHER DIVERSIONS OUTSIDE EXCAVATION LIMITS TO CONVEY RAINWATER AND WATER REMOVED FROM EXCAVATIONS TO COLLECTING OR RUNOFF AREAS. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DRAINAGE DITCHES.
- STORAGE OF EXCAVATED MATERIALS**

STOCKPILE EXCAVATED MATERIALS ACCEPTABLE FOR BACKFILL AND FILL WHERE DIRECTED. 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 INDICATED TO REMAIN.
- EXCAVATION FOR STRUCTURES**

CONFORM TO ELEVATIONS AND DIMENSIONS SHOWN WITHIN A TOLERANCE OF PLUS OR MINUS 0.10 FOOT AND EXTENDING A SUFFICIENT DISTANCE FROM FOOTINGS AND FOUNDATIONS TO PERMIT PLACING AND REMOVAL OF CONCRETE FORMWORK, INSTALLATION OF SERVICES AND OTHER CONSTRUCTION AND FOR INSPECTION.

EXCAVATIONS FOR FOOTINGS AND FOUNDATIONS. DO NOT DISTURB BOTTOM OF EXCAVATION. EXCAVATE BY HAND TO FINAL GRADE JUST BEFORE CONCRETE REINFORCEMENT IS PLACED. TRIM BOTTOMS TO REQUIRED LINES AND GRADES TO LEAVE SOLID BASE TO RECEIVE OTHER WORK.
- EXCAVATION FOR PAVEMENTS**

CUT SURFACE UNDER PAVEMENTS TO CONFORM WITH CROSS-SECTIONS, ELEVATIONS AND GRADES AS INDICATED.
- COLD WEATHER PROTECTION**

PROTECT EXCAVATION BOTTOMS AGAINST FREEZING WHEN ATMOSPHERIC TEMPERATURE IS LESS THAN 35 DEGREES.
- BACKFILL AND FILL**

GENERAL - PLACE SOIL MATERIAL IN LAYERS TO REQUIRED SUBGRADE ELEVATIONS FOR EACH AREA CLASSIFICATION LISTED BELOW.

UNDER GRASSED AREAS, USE SATISFACTORY EXCAVATED OR BORROW MATERIAL.

UNDER WALKS AND PAVEMENTS, USE SUBBASE MATERIAL, SATISFACTORY EXCAVATED OR BORROW MATERIAL OR A COMBINATION.

UNDER STEPS, USE SUBBASE MATERIAL.

BACKFILL EXCAVATIONS AS PROMPTLY AS WORK PERMITS, BUT NOT UNTIL COMPLETION OF THE FOLLOWING:

  - ACCEPTANCE OF CONSTRUCTION BELOW FINISH GRADE.
  - REMOVAL OF CONCRETE FORMWORK.
  - REMOVAL OF TRASH AND DEBRIS FROM EXCAVATION.
- PLACEMENT AND COMPACTION**

GROUND SURFACE PREPARATION - REMOVE VEGETATION, DEBRIS, OBSTRUCTIONS AND DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO PLACEMENT OF FILL. FLOW STRIP OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL, SO THAT FILL MATERIAL WILL BOND WITH EXISTING SURFACE.

WHEN EXISTING GROUND SURFACE HAS A DENSITY LESS THAN THAT SPECIFIED UNDER "COMPACTION" FOR PARTICULAR AREA CLASSIFICATION, BREAK UP GROUND SURFACE, PULVERIZE, MOISTURE-CONDITION TO OPTIMUM MOISTURE CONTENT AND COMPACT TO REQUIRED DEPTH AND PERCENTAGE OF MAXIMUM DENSITY.

PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8 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. DO NOT PLACE BACKFILL OR FILL MATERIAL ON SURFACES THAT ARE WET, FROZEN OR CONTAIN FROST OR ICE.

CONTROL SOIL AND FILL COMPACTION, PROVIDING MINIMUM PERCENTAGE OF DENSITY SPECIFIED FOR EACH AREA CLASSIFICATION INDICATED BELOW.

PERCENTAGE OF MAXIMUM DENSITY REQUIREMENTS - COMPACT SOIL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DENSITY, IN ACCORDANCE WITH ASTM D 1557:

  - UNDER LAWN OR UNPAVED AREAS, COMPACT TOP 6 INCHES OF SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL AT 90 PERCENT MAXIMUM DENSITY.
  - UNDER WALKWAYS, COMPACT TOP 6 INCHES OF SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL AT 95 PERCENT MAXIMUM DENSITY.
  - UNDER STEPS AND PAVEMENTS, COMPACT TOP 12" OF SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL AT 95 PERCENT MAXIMUM DENSITY.
- GRADING**
  - GENERAL** - UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING UNDER THIS SECTION, INCLUDING ADJACENT TRANSITION AREAS. SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, COMPACT WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE INDICATED OR BETWEEN SUCH POINTS AND EXISTING GRADES.
  - LAWN OR UNPAVED AREAS** - FINISH AREAS TO RECEIVE TOPSOIL TO WITHIN NOT MORE 0.10 FOOT ABOVE OR BELOW REQUIRED SUBGRADE ELEVATIONS.
  - PAVEMENT & WALKS** - SHAPE SURFACE OF AREAS UNDER WALKS TO LINE, GRADE AND CROSS-SECTION, WITH FINISH SURFACE NOT MORE THAN 0.10 FOOT ABOVE OR BELOW REQUIRED SUBGRADE ELEVATION.

COMPACTION - AFTER GRADING, COMPACT SUBGRADE SURFACES TO THE DEPTH AND INDICATED PERCENTAGE OF MAXIMUM OR RELATIVE DENSITY FOR EACH AREA CLASSIFICATION.
- EROSION CONTROL**

PROVIDE EROSION CONTROL METHODS IN ACCORDANCE WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- MAINTENANCE**

PROTECTION OF GRADED AREAS - PROTECT NEARLY GRADED AREAS FROM TRAFFIC AND EROSION. KEEP FREE OF TRASH AND DEBRIS.

REPAIR AND REESTABLISH GRADES IN SETTLED, ERODED AND RUTTED AREAS TO SPECIFIED TOLERANCES.

RECONDITIONING COMPACTED AREAS - WHERE COMPLETED COMPACTED AREAS ARE DISTURBED BY SUBSEQUENT CONSTRUCTION OPERATIONS OR ADVERSE WEATHER, SCARIFY SURFACE, REPAIR, AND COMPACT TO REQUIRED DENSITY PRIOR TO FURTHER CONSTRUCTION.
- DISPOSAL OF EXCESS AND WASTE MATERIALS**

EXCESS EXCAVATED MATERIAL SHALL BE DISTRIBUTED ON SITE PER OWNER AND/OR ARCHITECT DIRECTION OR EXCESS EXCAVATED MATERIAL ANTICIPATED.

REMOVE WASTE MATERIALS, INCLUDING TRASH AND DEBRIS AND DISPOSE OF IT OFF OWNER'S PROPERTY.

**II. ASPHALT PAVING**

- SITE CONDITIONS**

WEATHER LIMITATIONS - APPLY PRIME AND TACK COATS WHEN AMBIENT TEMPERATURE IS ABOVE 50 DEGREES F (10 DEGREES C) AND WHEN TEMPERATURE HAS NOT BEEN BELOW 35 DEGREES F (1 DEGREE C) FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. DO NOT APPLY WHEN BASE IS WET OR CONTAINS AN EXCESS OF MOISTURE.

CONSTRUCT HOT-MIXED ASPHALT SURFACE COURSE WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40 DEGREES F (4 DEGREES C) AND WHEN BASE IS DRY. BASE COURSE MAY BE PLACED WHEN AIR TEMPERATURE IS ABOVE 30 DEGREES F MINUS 1 DEGREE C) AND RISINS.

GRADE CONTROL - ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS.
- MATERIALS**

GENERAL - USE LOCALLY AVAILABLE MATERIALS AND GRADATIONS THAT EXHIBIT A SATISFACTORY RECORD OF PREVIOUS INSTALLATIONS.

COARSE AGGREGATE - SOUND ANGULAR CRUSHED STONE, CRUSHED GRAVEL OR PROPERLY CURED CRUSHED BLAST FURNACE SLAG, COMPLYING WITH ASTM D 642-80.

FINE AGGREGATE - SHARP-EDGED NATURAL SAND OR SAND PREPARED FROM STONE, PROPERLY CURED BLAST FURNACE SLAG, GRAVEL, OR COMBINATIONS THEREOF, COMPLYING WITH ASTM D 1073.

ASPHALT CEMENT - ASTM D 3381 FOR VISCOSITY-GRADED MATERIAL; ASTM D 946 FOR PENETRATION-GRADED MATERIAL.

PRIME COAT - CUT-BACK ASPHALT TYPE, ASTM D 2027; HC-30, HC-70 OR HC-250.
- ASPHALT-AGGREGATE MIXTURE**

PROVIDE PLANT-MIXED, HOT-LAID ASPHALT-AGGREGATE MIXTURE COMPLYING WITH ST. LOUIS COUNTY STANDARD SPECIFICATIONS FOR TYPE "C" AND TYPE "C" ASPHALTIC CONCRETE.
- SURFACE PREPARATION**

GENERAL - REMOVE LOOSE MATERIAL FROM COMPACTED GRANULAR BASE SURFACE IMMEDIATELY BEFORE APPLYING PRIME COAT.

PRIME COAT - CUT-BACK ASPHALT TYPE, ASTM D 2027; HC-30, HC-70 OR HC-250 APPLY AT RATE OF 0.20 TO 0.50 GALLON PER SQ. YD. OVER COMPACTED BASE.

TACK COAT - EMULSION ASPHALT, ASTM D1111 APPLY TO CONTACT SURFACES OF PREVIOUSLY CONSTRUCTED ASPHALT SURFACES AT A RATE OF 0.05 TO 0.15 GAL. PER SQ. YD. OF SURFACE.
- PLACING MIX**

GENERAL - PLACE HOT-MIXED ASPHALT MIXTURE ON PREPARED SURFACE, SPREAD, AND STRIKE OFF.

SPREAD MIXTURE AT MINIMUM TEMPERATURE OF 225 DEGREES F (107 DEGREES C).

PLACE AREAS INACCESSIBLE TO EQUIPMENT BY HAND. PLACE EACH COURSE TO REQUIRED GRADE, CROSS-SECTION, AND COMPACTED THICKNESS.
- ROLLING**

GENERAL - BEGIN ROLLING WHEN MIXTURE WILL BEAR ROLLER HEIGHT WITHOUT EXCESSIVE DISPLACEMENT.

COMPACT MIXTURE WITH HOT HAND TAMPERS OR VIBRATING PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.

BREAKDOWN ROLLING - ACCOMPLISH BREAKDOWN OR INITIAL ROLLING IMMEDIATELY FOLLOWING ROLLING OF JOINTS AND OUTSIDE EDGE. CHECK SURFACE AFTER BREAKDOWN ROLLING AND REPAIR DISPLACED AREAS BY LOOSENING AND FILLING, IF REQUIRED, WITH HOT MATERIAL.

SECOND ROLLING - FOLLOW BREAKDOWN ROLLING AS SOON AS POSSIBLE, WHILE MIXTURE IS HOT. CONTINUE SECOND ROLLING UNTIL MIXTURE HAS BEEN EVENLY COMPACTED.

FINISH ROLLING - PERFORM FINISH ROLLING WHILE MIXTURE IS STILL WARM ENOUGH FOR REMOVAL OF ROLLER MARKS. CONTINUE ROLLING UNTIL ROLLER MARKS ARE ELIMINATED AND COURSE HAS ATTAINED 95 PERCENT LABORATORY DENSITY.

PATCHING - REMOVE AND REPLACE PAVING AREAS MIXED WITH FOREIGN MATERIALS AND DEFECTIVE AREAS. CUT OUT SUCH AREAS AND FILL WITH FRESH HOT-MIXED ASPHALT. COMPACT BY ROLLING TO SPECIFIED SURFACE DENSITY AND SMOOTHNESS.

PROTECTION - AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.
- PORTLAND CEMENT CONCRETE PAVING**
  - JOB CONDITIONS**

TRAFFIC CONTROL - MAINTAIN ACCESS FOR VEHICULAR AND PEDESTRIAN TRAFFIC AS REQUIRED FOR OTHER CONSTRUCTION ACTIVITIES.
  - MATERIALS**

FORMS - STEEL, WOOD, OR OTHER SUITABLE MATERIAL OF SIZE AND STRENGTH TO RESIST MOVEMENT DURING CONCRETE 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 RADII BENDS AS REQUIRED.

COAT FORMS WITH A NONSTAINING FORM RELEASE AGENT THAT WILL NOT DISCOLOR OR DEFACE SURFACE OF CONCRETE.

HELDED WIRE MESH - HELDED PLAIN GOLD-DRAWN STEEL WIRE FABRIC, ASTM A 105.

REINFORCING BARS - DEFORMED STEEL BARS, ASTM A 615, GRADE 60.

JOINT DOVEL BARS - PLAIN STEEL BARS, ASTM A 615, GRADE 60. CUT BARS TRUE TO LENGTH WITH ENDS SQUARE AND FREE OF BURRS.

CONCRETE MATERIALS - COMPLY WITH REQUIREMENTS OF APPLICABLE "CONCRETE" NOTES FOR CONCRETE MATERIALS, ADMIXTURES, BONDING MATERIALS, CURING MATERIALS AND OTHERS AS REQUIRED.
  - CONCRETE MIX, DESIGN AND TESTING**

COMPLY WITH REQUIREMENTS OF APPLICABLE "CONCRETE" NOTES FOR CONCRETE MIX DESIGN AND AS HEREIN SPECIFIED.

DESIGN MIX TO PRODUCE NORMAL-HEIGHT CONCRETE CONSISTS OF PORTLAND CEMENT, AGGREGATE, WATER-REDUCING OR HIGH-RANGE WATER-REDUCING ADMIXTURE (SUPERPLASTICIZER), AIR-ENTRAINING ADMIXTURE AND WATER TO PRODUCE THE FOLLOWING PROPERTIES:

    - COMPRESSIVE STRENGTH - 4000 PSI, MINIMUM AT 28 DAYS, UNLESS OTHERWISE INDICATED.
    - SUMP LIMITS - 8 INCHES MINIMUM FOR CONCRETE CONTAINING HIGH-RANGE WATER-REDUCING ADMIXTURE (SUPERPLASTICIZER); 4 INCHES FOR OTHER CONCRETE.
    - AIR CONTENT - 5 TO 8 PERCENT.
  - SURFACE PREPARATION**

REMOVE LOOSE MATERIAL FROM COMPACTED SUBGRADE SURFACE IMMEDIATELY BEFORE PLACING CONCRETE.
  - FORM CONSTRUCTION**

SET FORMS TO REQUIRED GRADES AND LINES, BRACED AND SECURED. INSTALL FORMS TO ALLOW CONTINUOUS PROGRESS OF WORK AND SO THAT FORMS CAN REMAIN IN PLACE AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT.
  - REINFORCEMENT**

LOCATE, PLACE, AND SUPPORT REINFORCEMENT AS SPECIFIED IN "CAST IN PLACE CONCRETE" NOTES, UNLESS OTHERWISE INDICATED.
  - CONCRETE PLACEMENT**

GENERAL - COMPLY WITH REQUIREMENTS OF "CONCRETE" NOTES FOR MIXING AND PLACING CONCRETE, AND AS HEREIN INDICATED. PLACE CONCRETE BY METHODS THAT PREVENT SEGREGATION OF MIX. CONSOLIDATE CONCRETE ALONG FACE OF FORMS AND ADJACENT TO TRANSVERSE JOINTS WITH INTERNAL VIBRATOR. KEEP VIBRATOR AWAY FROM JOINT ASSEMBLIES, REINFORCEMENT, OR PREVENT DISLOCATION OF REINFORCING, DONNELLS, AND JOINT DEVICES.
  - JOINTS**

GENERAL - CONSTRUCT EXPANSION, HEADED-PLANE (CONTRACTION), AND CONSTRUCTION JOINTS TRUE TO LINE WITH FACE PERPENDICULAR TO SURFACE OF CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO THE CENTERLINE, UNLESS OTHERWISE INDICATED.

TOOLED JOINTS - FORM HEADED-PLANE JOINTS IN FRESH CONCRETE BY BROOVING TOP PORTION WITH A RECOMMENDED CUTTING TOOL AND FINISHING EDGES WITH A JOINTER.

EXPANSION JOINTS - PROVIDE 1/2" x 4" PREFORMED EXPANSION JOINT MATERIAL FOR EXPANSION JOINTS ABUTTING CONCRETE CURBS, CATCH BASINS, HANIKLES, ISLETS, STRIKEBARS, HALLS, AND OTHER FIXED OBJECTS UNLESS OTHERWISE INDICATED. JOINTS SHALL BE FULL DEPTH WITH TOP EDGE 1/2 INCH BELOW FINISH SURFACE OF CONCRETE AND SEALED.

EXTEND JOINT MATERIAL FULL WIDTH AND DEPTH OF JOINT.

FINISH JOINT MATERIAL IN ONE-PIECE LENGTHS FOR FULL WIDTH BEING PLACED WHEREVER POSSIBLE.

PROTECT TOP EDGE OF JOINT MATERIAL DURING CONCRETE PLACEMENT WITH A METAL CAP OR OTHER TEMPORARY MATERIAL. REMOVE PROTECTION AFTER CONCRETE HAS BEEN PLACED ON BOTH SIDES OF JOINT.
  - CONCRETE FINISHING**

AFTER STRIKING-OFF AND CONSOLIDATING CONCRETE, SMOOTH SURFACE BY SCREENING AND FLOATING.

AFTER FLOATING, TEST SURFACE FOR TRENDS WITH A 10-FT. STRAIGHTEDGE. DISTRIBUTE CONCRETE AS REQUIRED TO REMOVE SURFACE IRREGULARITIES, AND REFLOAT REPAIRED AREAS TO PROVIDE A CONTINUOUS SMOOTH FINISH.

WORK EDGES OF SLABS, BUTTERS, BACK TOP EDGE OF CURB AND FORMED JOINTS WITH AN EDGING TOOL AND ROUND TO 1/4" RADIUS, UNLESS OTHERWISE INDICATED. ELIMINATE TOOL MARKS ON CONCRETE SURFACE.

AFTER COMPLETION OF FLOATING AND WHEN EXCESS MOISTURE OR SURFACE SHEEN HAS DISAPPEARED, COMPLETE TROWELING AND FINISH SURFACE AS INDICATED ON DRAWINGS.

DO NOT REMOVE FORMS FOR 24 HOURS AFTER CONCRETE HAS BEEN PLACED. AFTER FORM REMOVAL, CLEAN ENDS OF JOINTS AND POINT-UP ANY MINOR HONEYCOMBED AREAS. REMOVE AND REPLACE AREAS OR SECTIONS WITH MAJOR DEFECTS, AS DIRECTED.
  - REPAIRS AND PROTECTIONS**

REPAIR OR REPLACE BROKEN OR DEFECTIVE CONCRETE, AS DIRECTED.

PROTECT CONCRETE FROM DAMAGE UNTIL ACCEPTANCE OF WORK. EXCLUDE TRAFFIC FROM PAVEMENT FOR AT LEAST 14 DAYS AFTER PLACEMENT.

SHEEP CONCRETE PAVEMENT AND WASH FREE OF STAINS, DISCOLORATIONS, DIRT AND OTHER FOREIGN MATERIAL, JUST BEFORE FINAL INSPECTION.
  - CAST-IN PLACE CONCRETE**
    - QUALITY ASSURANCE**

CODES AND STANDARDS - COMPLY WITH PROVISIONS OF FOLLOWING CODES, SPECIFICATIONS AND STANDARDS, EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED:

      - ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE";
      - CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE";
    - FORM MATERIALS**

FORMS FOR EXPOSED FINISH CONCRETE - PLYWOOD, METAL, METAL-FRAMED PLYWOOD FACED, OR OTHER ACCEPTABLE PANEL-TYPE MATERIALS, TO PROVIDE CONTINUOUS, STRAIGHT, SMOOTH, EXPOSED SURFACES. FURNISH IN LARGEST PRACTICABLE SIZES TO MINIMIZE NUMBER OF JOINTS AND TO CONFORM TO JOINT SYSTEM SHOWN ON DRAWINGS.

FORMS FOR UNEXPOSED FINISH CONCRETE - PLYWOOD, LUMBER, METAL, OR OTHER ACCEPTABLE MATERIAL. PROVIDE LUMBER DRESSED ON AT LEAST 2 EDGES AND ONE SIDE FOR TIGHT FIT.

FORMS FOR CYLINDRICAL COLUMNS AND SUPPORTS - METAL, FIBERGLASS-REINFORCED PLASTIC, OR PAPER OR FIBER TUBES. PROVIDE PAPER OR FIBER TUBES OF LAMINATED PLYS WITH WATER-RESISTANT ADHESIVE AND MAX-IMPREGNATED EXTERIOR FOR WEATHER AND MOISTURE PROTECTION. PROVIDE UNITS WITH SUFFICIENT WALL THICKNESS TO RESIST NET CONCRETE LOADS WITHOUT DEFORMATION.

FORM COATINGS - PROVIDE COMMERCIAL FORM-COATING COMPOSITIONS WITH A MAXIMUM VOC OF 300 HSM THAT WILL NOT BOND WITH STAIN OR ADVERSELY AFFECT CONCRETE SURFACES AND WILL NOT IMPAIR SUBSEQUENT TREATMENTS OF CONCRETE SURFACES.

FORM TIES - FACTORY-FABRICATED, ADJUSTABLE-LENGTH REMOVABLE OR SNAP-OFF METAL FORM TIES, DESIGNED TO PREVENT FORM DEFLECTION AND TO PREVENT SPILLING CONCRETE UPON REMOVAL. PROVIDE UNITS THAT WILL LEAVE NO METAL, CLOSER THAN 1/2 INCHES TO EXPOSED SURFACE.
    - REINFORCING MATERIALS**

REINFORCING BARS - ASTM A 615, GRADE 60 DEFORMED.
    - CONCRETE MATERIALS**

PORTLAND CEMENT - ASTM C 150, TYPE I.

      - USE ONE BRAND OF CEMENT THROUGHOUT PROJECT UNLESS OTHERWISE ACCEPTABLE TO ARCHITECT.

NORMAL WEIGHT AGGREGATES - ASTM C 33 AND AS HEREIN SPECIFIED. PROVIDE AGGREGATES FROM A SINGLE SOURCE FOR EXPOSED CONCRETE.

FOR EXTERIOR EXPOSED SURFACES, DO NOT USE FINE OR COARSE AGGREGATES CONTAINING SPILLING-CAUSING DELETERIOUS SUBSTANCES.

WATER - DRINKABLE.
    - PROPORTIONING AND DESIGN OF MIXES**

DESIGN MIXES TO PROVIDE NORMAL HEIGHT CONCRETE WITH THE FOLLOWING PROPERTIES, AS INDICATED ON DRAWINGS AND SCHEDULES:

      - 4000-PSI, 28-DAY COMPRESSIVE STRENGTH (W/C RATIO, 0.50 MAXIMUM NON-AIR-ENTRAINED), 0.46 MAXIMUM (AIR-ENTRAINED);
      - SUMP LIMITS - PROPORTION AND DESIGN MIXES TO RESULT IN CONCRETE SUMP AT POINT OF PLACEMENT AS FOLLOWS:
        - REINFORCED FOUNDATION SYSTEMS; NOT LESS THAN 1 INCH AND NOT MORE THAN 3 INCHES.
        - OTHER CONCRETE; NOT MORE THAN 4 INCHES.
    - CONCRETE MIXING**

READY-MIX CONCRETE - COMPLY WITH REQUIREMENTS OF ASTM C 94, AND AS SPECIFIED.

      - WHEN AIR TEMPERATURE IS BETWEEN 65 DEGREES F (19 DEGREES C) AND 90 DEGREES F (32 DEGREES C), REDUCE MIXING AND DELIVERY TIME FROM 1 1/2 HOURS TO 75 MINUTES, AND WHEN AIR TEMPERATURE IS ABOVE 90 DEGREES F (32 DEGREES C), REDUCE MIXING AND DELIVERY TIME TO 60 MINUTES.
    - PLACING REINFORCEMENT**

GENERAL - COMPLY WITH CONCRETE REINFORCING STEEL INSTITUTE'S RECOMMENDED PRACTICE FOR "PLACING REINFORCING BARS", FOR DETAILS AND METHODS OF REINFORCEMENT PLACEMENT AND SUPPORTS AND HEREIN SPECIFIED.

CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE, AND OTHER MATERIALS THAT REDUCE OR DESTROY BOND WITH CONCRETE.

ACCURATE POSITION, SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT.

PLACE REINFORCEMENT TO OBTAIN AT LEAST MINIMUM COVERSAGES FOR CONCRETE PROTECTION. ARRANGE, SPACE, AND SECURELY TIE BARS AND BAR SUPPORTS TO HOLD REINFORCEMENT IN POSITION DURING CONCRETE PLACEMENT OPERATIONS. SET WIRE TIES SO ENDS ARE DIRECTED INTO CONCRETE, NOT TOWARD EXPOSED CONCRETE SURFACES.

INSTALL HELDED WIRE FABRIC IN AS LONG LENGTHS AS PRACTICABLE. LAP ADJOINING PIECES AT LEAST ONE FULL MESH AND LACE SPLICES WITH WIRE. OFFSET LAPS OF ADJOINING WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION.
    - PREPARATION OF FORM SURFACES**

GENERAL - COAT CONTACT SURFACES OF FORMS WITH AN APPROVED, NONRESIDUAL, LOW-VOC, FORM-COATING COMPOUND BEFORE REINFORCEMENT IS PLACED.

DO NOT ALLOW EXCESS FORM-COATING MATERIAL TO ACCUMULATE IN FORMS OR TO COME INTO CONTACT WITH IN-PLACE CONCRETE SURFACES AGAINST WHICH FRESH CONCRETE WILL BE PLACED. APPLY IN COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS.

COAT STEEL FORMS WITH A NONSTAINING, RUST-PREVENTATIVE MATERIAL. RUST-STAINED STEEL FORMWORK IS NOT ACCEPTABLE.
    - CONCRETE PLACEMENT**

INSPECTION - BEFORE PLACING CONCRETE, INSPECT AND COMPLETE FORMWORK INSTALLATION, REINFORCING STEEL, AND ITEMS TO BE EMBEDDED OR CAST IN. NOTIFY OTHER CRAFTS TO PERMIT INSTALLATION OF THEIR WORK; COOPERATE WITH OTHER TRADES IN SETTING SUCH WORK.

DEPOSIT CONCRETE CONTINUOUSLY OR IN LAYERS OF SUCH THICKNESS THAT NO CONCRETE WILL BE PLACED ON CONCRETE THAT HAS HARDENED SUFFICIENTLY TO CAUSE THE FORMATION OF SEAMS OR PLANES OF WEAKNESS. IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE CONSTRUCTION JOINTS AS HEREIN SPECIFIED. DEPOSIT CONCRETE TO AVOID SEGREGATION AT ITS FINAL LOCATION.

PLACING CONCRETE IN FORMS - DEPOSIT CONCRETE IN FORMS IN HORIZONTAL LAYERS NOT DEEPER THAN 24 INCHES AND IN A MANNER TO AVOID UNNECESSARY CONSTRUCTION JOINTS. WHERE PLACEMENT CONSISTS OF SEVERAL LAYERS, PLACE EACH LAYER WHILE PRECEDING LAYER IS STILL PLASTIC TO AVOID COLD JOINTS.

CONSOLIDATE PLACED CONCRETE BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND-SPADING, RODDING, OR TAMPING. USE EQUIPMENT AND PROCEDURES FOR CONSOLIDATION OF CONCRETE IN ACCORDANCE WITH ACI 308.

DO NOT USE VIBRATORS TO TRANSPORT CONCRETE INSIDE FORMS. INSERT AND WITHDRAW VIBRATORS VERTICALLY AT UNIFORMLY SPACED LOCATIONS NOT FARTHER THAN VISIBLE EFFECTIVENESS OF MACHINE. PLACE VIBRATORS TO RARELY PENETRATE PLACED LAYER AND AT LEAST 6 INCHES INTO PRECEDING LAYER. DO NOT INSERT VIBRATORS INTO LOWER LAYERS OF CONCRETE THAT HAVE BEGUN TO SET. AT EACH INSERTION LIMIT DURATION OF VIBRATION TO THE NECESSARY TO CONSOLIDATE CONCRETE AND COMPLETE EMBEDMENT OF REINFORCEMENT AND OTHER EMBEDDED ITEMS WITHOUT CAUSING SEGREGATION OF MIX.

PLACING CONCRETE SLABS - DEPOSIT AND CONSOLIDATE CONCRETE SLABS IN A CONTINUOUS OPERATION, WITHIN LIMITS OF CONSTRUCTION JOINTS, UNTIL THE PLACING OF A PANEL OR SECTION IS COMPLETED.

CONSOLIDATE CONCRETE DURING PLACING OPERATIONS SO THAT CONCRETE IS THOROUGHLY WORKED AND AROUND REINFORCEMENT AND OTHER EMBEDDED ITEMS AND INTO CORNERS.

BURNS SLAB SURFACES TO CORRECT LEVEL WITH STRAIGHTEDGE AND STRIKE OFF. USE BALL FLOATS OR DARBIES TO SMOOTH SURFACE. FREE OF HIPS OR HOLLOW. DO NOT DISTURB SLAB SURFACES PRIOR TO BEGINNING FINISHING OPERATIONS.

MAINTAIN REINFORCING IN PROPER POSITION DURING CONCRETE PLACEMENT.

COLD-WEATHER PLACING - COMPLY WITH PROVISIONS OF ACI 308 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW TEMPERATURES. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40 DEGREES F (4 DEGREES C), UNFORMALLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50 DEGREES F (10 DEGREES C) AND NOT MORE THAN 80 DEGREES F (27 DEGREES C) AT POINT OF PLACEMENT.

      - DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
      - DO NOT USE CALCIUM CHLORIDE, SALT, AND OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS OTHERWISE ACCEPTED IN MIX DESIGN.

NOT-WEATHER PLACING - WHEN HOT WEATHER CONDITIONS EXIST THAT WOULD SERIOUSLY IMPAIR QUALITY AND STRENGTH OF CONCRETE, PLACE CONCRETE IN COMPLIANCE WITH ACI 308 AND AS HEREIN SPECIFIED.

COOL INGREDIENTS BEFORE MIXING TO MAINTAIN CONCRETE TEMPERATURE AT THE OF PLACEMENT BELOW 90 DEGREES F (32 DEGREES C). MIXING WATER MAY BE Cooled, OR CAPPED USE MAY BE USED TO CONTROL TEMPERATURE PROVIDED WATER EQUIVALENT OF ICE IS CALCULATED TO TOTAL AMOUNT OF MIXING WATER. USE OF LIQUID NITROGEN TO COOL CONCRETE IS CONTRACTOR'S OPTION.

- CONCRETE FINISHING**

AFTER STRIKING-OFF AND CONSOLIDATING CONCRETE, SMOOTH SURFACE BY SCREENING AND FLOATING.

AFTER FLOATING, TEST SURFACE FOR TRENDS WITH A 10-FT. STRAIGHTEDGE. DISTRIBUTE CONCRETE AS REQUIRED TO REMOVE SURFACE IRREGULARITIES, AND REFLOAT REPAIRED AREAS TO PROVIDE A CONTINUOUS SMOOTH FINISH.

WORK EDGES OF SLABS, BUTTERS, BACK TOP EDGE OF CURB AND FORMED JOINTS WITH AN EDGING TOOL AND ROUND TO 1/4" RADIUS, UNLESS OTHERWISE INDICATED. ELIMINATE TOOL MARKS ON CONCRETE SURFACE.

AFTER COMPLETION OF FLOATING AND WHEN EXCESS MOISTURE OR SURFACE SHEEN HAS DISAPPEARED, COMPLETE TROWELING AND FINISH SURFACE AS INDICATED ON DRAWINGS.

DO NOT REMOVE FORMS FOR 24 HOURS AFTER CONCRETE HAS BEEN PLACED. AFTER FORM REMOVAL, CLEAN ENDS OF JOINTS AND POINT-UP ANY MINOR HONEYCOMBED AREAS. REMOVE AND REPLACE AREAS OR SECTIONS WITH MAJOR DEFECTS, AS DIRECTED.
- REPAIRS AND PROTECTIONS**

REPAIR OR REPLACE BROKEN OR DEFECTIVE CONCRETE, AS DIRECTED.

PROTECT CONCRETE FROM DAMAGE UNTIL ACCEPTANCE OF WORK. EXCLUDE TRAFFIC FROM PAVEMENT FOR AT LEAST 14 DAYS AFTER PLACEMENT.

SHEEP CONCRETE PAVEMENT AND WASH FREE OF STAINS, DISCOLORATIONS, DIRT AND OTHER FOREIGN MATERIAL, JUST BEFORE FINAL INSPECTION.
- CAST-IN PLACE CONCRETE**
  - QUALITY ASSURANCE**

CODES AND STANDARDS - COMPLY WITH PROVISIONS OF FOLLOWING CODES, SPECIFICATIONS AND STANDARDS, EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED:

    - ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE";
    - CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE";
  - FORM MATERIALS**

FORMS FOR EXPOSED FINISH CONCRETE - PLYWOOD, METAL, METAL-FRAMED PLYWOOD FACED, OR OTHER ACCEPTABLE PANEL-TYPE MATERIALS, TO PROVIDE CONTINUOUS, STRAIGHT, SMOOTH, EXPOSED SURFACES. FURNISH IN LARGEST PRACTICABLE SIZES TO MINIMIZE NUMBER OF JOINTS AND TO CONFORM TO JOINT SYSTEM SHOWN ON DRAWINGS.

FORMS FOR UNEXPOSED FINISH CONCRETE - PLYWOOD, LUMBER, METAL, OR OTHER ACCEPTABLE MATERIAL. PROVIDE LUMBER DRESSED ON AT LEAST 2 EDGES AND ONE SIDE FOR TIGHT FIT.

FORMS FOR CYLINDRICAL COLUMNS AND SUPPORTS - METAL, FIBERGLASS-REINFORCED PLASTIC, OR PAPER OR FIBER TUBES. PROVIDE PAPER OR FIBER TUBES OF LAMINATED PLYS WITH WATER-RESISTANT ADHESIVE AND MAX-IMPREGNATED EXTERIOR FOR WEATHER AND MOISTURE PROTECTION. PROVIDE UNITS WITH SUFFICIENT WALL THICKNESS TO RESIST NET CONCRETE LOADS WITHOUT DEFORMATION.

FORM COATINGS - PROVIDE COMMERCIAL FORM-COATING COMPOSITIONS WITH A MAXIMUM VOC OF 300 HSM THAT WILL NOT BOND WITH STAIN OR ADVERSELY AFFECT CONCRETE SURFACES AND WILL NOT IMPAIR SUBSEQUENT TREATMENTS OF CONCRETE SURFACES.

FORM TIES - FACTORY-FABRICATED, ADJUSTABLE-LENGTH REMOVABLE OR SNAP-OFF METAL FORM TIES, DESIGNED TO PREVENT FORM DEFLECTION AND TO PREVENT SPILLING CONCRETE UPON REMOVAL. PROVIDE UNITS THAT WILL LEAVE NO METAL, CLOSER THAN 1/2 INCHES TO EXPOSED SURFACE.
  - REINFORCING MATERIALS**

REINFORCING BARS - ASTM A 615, GRADE 60 DEFORMED.
  - CONCRETE MATERIALS**

PORTLAND CEMENT - ASTM C 150, TYPE I.

    - USE ONE BRAND OF CEMENT THROUGHOUT PROJECT UNLESS OTHERWISE ACCEPTABLE TO ARCHITECT.

NORMAL WEIGHT AGGREGATES - ASTM C 33 AND AS HEREIN SPECIFIED. PROVIDE AGGREGATES FROM A SINGLE SOURCE FOR EXPOSED CONCRETE.

FOR EXTERIOR EXPOSED SURFACES, DO NOT USE FINE OR COARSE AGGREGATES CONTAINING SPILLING-CAUSING DELETERIOUS SUBSTANCES.

WATER - DRINKABLE.
  - PROPORTIONING AND DESIGN OF MIXES**

DESIGN MIXES TO PROVIDE NORMAL HEIGHT CONCRETE WITH THE FOLLOWING PROPERTIES, AS INDICATED ON DRAWINGS AND SCHEDULES:

    - 4000-PSI, 28-DAY COMPRESSIVE STRENGTH (W/C RATIO, 0.50 MAXIMUM NON-AIR-ENTRAINED), 0.46 MAXIMUM (AIR-ENTRAINED);
    - SUMP LIMITS - PROPORTION AND DESIGN MIXES TO RESULT IN CONCRETE SUMP AT POINT OF PLACEMENT AS FOLLOWS:
      - REINFORCED FOUNDATION SYSTEMS; NOT LESS THAN 1 INCH AND NOT MORE THAN 3 INCHES.
      - OTHER CONCRETE; NOT MORE THAN 4 INCHES.
  - CONCRETE MIXING**

READY-MIX CONCRETE - COMPLY WITH REQUIREMENTS OF ASTM C 94, AND AS SPECIFIED.

    - WHEN AIR TEMPERATURE IS BETWEEN 65 DEGREES F (19 DEGREES C) AND 90 DEGREES F (32 DEGREES C), REDUCE MIXING AND DELIVERY TIME FROM 1 1/2 HOURS TO 75 MINUTES, AND WHEN AIR TEMPERATURE IS ABOVE 90 DEGREES F (32 DEGREES C), REDUCE MIXING AND DELIVERY TIME TO 60 MINUTES.
  - PLACING REINFORCEMENT**

GENERAL - COMPLY WITH CONCRETE REINFORCING STEEL INSTITUTE'S RECOMMENDED PRACTICE FOR "PLACING REINFORCING BARS", FOR DETAILS AND METHODS OF REINFORCEMENT PLACEMENT AND SUPPORTS AND HEREIN SPECIFIED.

CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE, AND OTHER MATERIALS THAT REDUCE OR DESTROY BOND WITH CONCRETE.

ACCURATE POSITION, SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT.

PLACE REINFORCEMENT TO OBTAIN AT LEAST MINIMUM COVERSAGES FOR CONCRETE PROTECTION. ARRANGE, SPACE, AND SECURELY TIE BARS AND BAR SUPPORTS TO HOLD REINFORCEMENT IN POSITION DURING CONCRETE PLACEMENT OPERATIONS. SET WIRE TIES SO ENDS ARE DIRECTED INTO CONCRETE, NOT TOWARD EXPOSED CONCRETE SURFACES.

INSTALL HELDED WIRE FABRIC IN AS LONG LENGTHS AS PRACTICABLE. LAP ADJOINING PIECES AT LEAST ONE FULL MESH AND LACE SPLICES WITH WIRE. OFFSET LAPS OF ADJOINING WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION.
  - PREPARATION OF FORM SURFACES**

GENERAL - COAT CONTACT SURFACES OF FORMS WITH AN APPROVED, NONRESIDUAL, LOW-VOC, FORM-COATING COMPOUND BEFORE REINFORCEMENT IS PLACED.

DO NOT ALLOW EXCESS FORM-COATING MATERIAL TO ACCUMULATE IN FORMS OR TO COME INTO CONTACT WITH IN-PLACE CONCRETE SURFACES AGAINST WHICH FRESH CONCRETE WILL BE PLACED. APPLY IN COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS.

COAT STEEL FORMS WITH A NONSTAINING, RUST-PREVENTATIVE MATERIAL. RUST-STAINED STEEL FORMWORK IS NOT ACCEPTABLE.
  - CONCRETE PLACEMENT**

INSPECTION - BEFORE PLACING CONCRETE, INSPECT AND COMPLETE FORMWORK INSTALLATION, REINFORCING STEEL, AND ITEMS TO BE EMBEDDED OR CAST IN. NOTIFY OTHER CRAFTS TO PERMIT INSTALLATION OF THEIR WORK; COOPERATE WITH OTHER TRADES IN SETTING SUCH WORK.

DEPOSIT CONCRETE CONTINUOUSLY OR IN LAYERS OF SUCH THICKNESS THAT NO CONCRETE WILL BE PLACED ON CONCRETE THAT HAS HARDENED SUFFICIENTLY TO CAUSE THE FORMATION OF SEAMS OR PLANES OF WEAKNESS. IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE CONSTRUCTION JOINTS AS HEREIN SPECIFIED. DEPOSIT CONCRETE TO AVOID SEGREGATION AT ITS FINAL LOCATION.

PLACING CONCRETE IN FORMS - DEPOSIT CONCRETE IN FORMS IN HORIZONTAL LAYERS NOT DEEPER THAN 24 INCHES AND IN A MANNER TO AVOID UNNECESSARY CONSTRUCTION JOINTS. WHERE PLACEMENT CONSISTS OF SEVERAL LAYERS, PLACE EACH LAYER WHILE PRECEDING LAYER IS STILL PLASTIC TO AVOID COLD JOINTS.

CONSOLIDATE PLACED CONCRETE BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND-SPADING, RODDING, OR TAMPING. USE EQUIPMENT AND PROCEDURES FOR CONSOLIDATION OF CONCRETE IN ACCORDANCE WITH ACI 308.

DO NOT USE VIBRATORS TO TRANSPORT CONCRETE INSIDE FORMS. INSERT AND WITHDRAW VIBRATORS VERTICALLY AT UNIFORMLY SPACED LOCATIONS NOT FARTHER THAN VISIBLE EFFECTIVENESS OF MACHINE. PLACE VIBRATORS TO RARELY PENETRATE PLACED LAYER AND AT LEAST 6 INCHES INTO PRECEDING LAYER. DO NOT INSERT VIBRATORS INTO LOWER LAYERS OF CONCRETE THAT HAVE BEGUN TO SET. AT EACH INSERTION LIMIT DURATION OF VIBRATION TO THE NECESSARY TO CONSOLIDATE CONCRETE AND COMPLETE EMBEDMENT OF REINFORCEMENT AND OTHER EMBEDDED ITEMS WITHOUT CAUSING SEGREGATION OF MIX.

PLACING CONCRETE SLABS - DEPOSIT AND CONSOLIDATE CONCRETE SLABS IN A CONTINUOUS OPERATION, WITHIN LIMITS OF CONSTRUCTION JOINTS, UNTIL THE PLACING OF A PANEL OR SECTION IS COMPLETED.

CONSOLIDATE CONCRETE DURING PLACING OPERATIONS SO THAT CONCRETE IS THOROUGHLY WORKED AROUND REINFORCEMENT AND OTHER EMBEDDED ITEMS AND INTO CORNERS.

BURNS SLAB SURFACES TO CORRECT LEVEL WITH STRAIGHTEDGE AND STRIKE OFF. USE BALL FLOATS OR DARBIES TO SMOOTH SURFACE. FREE OF HIPS OR HOLLOW. DO NOT DISTURB SLAB SURFACES PRIOR TO BEGINNING FINISHING OPERATIONS.

MAINTAIN REINFORCING IN PROPER POSITION DURING CONCRETE PLACEMENT.

COLD-WEATHER PLACING - COMPLY WITH PROVISIONS OF ACI 308 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW TEMPERATURES. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40 DEGREES F (4 DEGREES C), UNFORMALLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50 DEGREES F (10 DEGREES C) AND NOT MORE THAN 80 DEGREES F (27 DEGREES C) AT POINT OF PLACEMENT.

    - DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
    - DO NOT USE CALCIUM CHLORIDE, SALT, AND OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS OTHERWISE ACCEPTED IN MIX DESIGN.

NOT-WEATHER PLACING - WHEN HOT WEATHER CONDITIONS EXIST THAT WOULD SERIOUSLY IMPAIR QUALITY AND STRENGTH OF CONCRETE, PLACE CONCRETE IN COMPLIANCE WITH ACI 308 AND AS HEREIN SPECIFIED.

COOL INGREDIENTS BEFORE MIXING TO MAINTAIN CONCRETE TEMPERATURE AT THE OF PLACEMENT BELOW 90 DEGREES F (32 DEGREES C). MIXING WATER MAY BE Cooled, OR CAPPED USE MAY BE USED TO CONTROL TEMPERATURE PROVIDED WATER EQUIVALENT OF ICE IS CALCULATED TO TOTAL AMOUNT OF MIXING WATER. USE OF LIQUID NITROGEN TO COOL CONCRETE IS CONTRACTOR'S OPTION.

VI ROUGH CARPENTRY

GENERAL

1. THIS SECTION INCLUDES FRAMING WITH DIMENSION LUMBER, FRAMING WITH ENGINEERED WOOD PRODUCTS, WOOD BLOCKING AND NAILERS.

2. DEFINITIONS:

EXPOSED FRAMING: FRAMING NOT CONCEALED BY OTHER CONSTRUCTION.  
DIMENSION LUMBER: LUMBER OF 2 INCHES NOMINAL OR GREATER BUT LESS THAN 5 INCHES NOMINAL IN LEAST DIMENSION.

3. DELIVERY, STORAGE, AND HANDLING: STACK LUMBER FLAT WITH SPACERS BENEATH AND BETWEEN EACH BUNDLE TO PROVIDE AIR CIRCULATION. PROTECT LUMBER FROM WEATHER BY COVERING WITH WATERPROOF SHEETING, SECURELY ANCHORED. PROVIDE FOR AIR CIRCULATION AROUND STACKS AND UNDER COVERINGS.

PRODUCTS

4. WOOD PRODUCTS, GENERAL:

LUMBER: DOCS 1920 AND APPLICABLE RULES OF GRADING AGENCIES INDICATED. IF NO GRADING AGENCY IS INDICATED, PROVIDE LUMBER THAT COMPLIES WITH THE APPLICABLE RULES OF ANY RULE-WRITING AGENCY CERTIFIED BY THE ALSO BOARD OF REVIEW. PROVIDE LUMBER GRADED BY AN AGENCY CERTIFIED BY THE ALSO BOARD OF REVIEW TO INSPECT AND GRADE LUMBER UNDER THE RULES INDICATED.

\*FACTORY MARK EACH PIECE OF LUMBER WITH GRADE STAMP OF GRADING AGENCY.

PROVIDE DRESSED LUMBER, S4S, UNLESS OTHERWISE INDICATED.

MAXIMUM MOISTURE CONTENT OF LUMBER: 14 PERCENT FOR 2-INCH NOMINAL THICKNESS OR LESS, NO LIMIT FOR MORE THAN 2-INCH NOMINAL UNLESS OTHERWISE INDICATED.

ENGINEERED WOOD PRODUCTS: PROVIDE ENGINEERED WOOD PRODUCTS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AND FOR WHICH CURRENT MODEL CODE RESEARCH OR EVALUATION REPORTS EXIST THAT SHOW COMPLIANCE WITH BUILDING CODE IN EFFECT FOR PROJECT.

5. DIMENSION LUMBER FRAMING

LOAD-BEARING WALLS: NO. 2 GRADE.  
SPECIES: HEM-FIR (NORTH); NLGA, SOUTHERN PINE; SP1B, DOUGLAS FIR-LARCH; HCLIB OR WPPA.

RAFTERS AND OTHER FRAMING: CONSTRUCTION OR NO. 2 GRADE.  
SPECIES: HEM-FIR (NORTH); NLGA, SOUTHERN PINE; SP1B, DOUGLAS FIR-LARCH; HCLIB OR WPPA.

EXPOSED EXTERIOR FRAMING: PROVIDE MATERIAL HAND-SELECTED FOR UNIFORMITY OF APPEARANCE AND FREEDOM FROM CHARACTERISTICS, ON EXPOSED SURFACES AND EDGES, THAT WOULD IMPAIR FINISH APPEARANCE, INCLUDING DECAY, HONEYCOMB, KNOT-HOLES, SHAKE, SPLITS, TORN GRAIN, AND HANE.  
SPECIES AND GRADE: AS INDICATED ABOVE FOR LOAD-BEARING CONSTRUCTION OF SAME TYPE.

6. ENGINEERED WOOD PRODUCTS

LAMINATED-VENEER LUMBER: STRUCTURAL COMPOSITE LUMBER MADE FROM WOOD VENEERS WITH GRAIN PRIMARILY PARALLEL TO MEMBER LENGTHS, EVALUATED AND MONITORED ACCORDING TO ASTM D7546 AND MANUFACTURED WITH AN EXTERIOR-TYPE ADHESIVE COMPLYING WITH ASTM D7594.

7. MISCELLANEOUS LUMBER

GENERAL: PROVIDE MISCELLANEOUS LUMBER INDICATED AND LUMBER FOR SUPPORT OR ATTACHMENT OF OTHER CONSTRUCTION, INCLUDING BLOCKING AND NAILERS.

FOR ITEMS OF DIMENSION LUMBER SIZE, PROVIDE CONSTRUCTION OR NO. 2 GRADE LUMBER OF ANY SPECIES.

FOR BLOCKING NOT USED FOR ATTACHMENT OF OTHER CONSTRUCTION, UTILITY, STUD, OR NO. 3 GRADE LUMBER OF ANY SPECIES MAY BE USED PROVIDED THAT IT IS CUT AND SELECTED TO ELIMINATE DEFECTS THAT WILL INTERFERE WITH ITS ATTACHMENT AND PURPOSE.

FOR BLOCKING AND NAILERS USED FOR ATTACHMENT OF OTHER CONSTRUCTION, SELECT AND CUT LUMBER TO ELIMINATE KNOTS AND OTHER DEFECTS THAT WILL INTERFERE WITH ATTACHMENT OF OTHER WORK.

8. FASTENERS

GENERAL: PROVIDE FASTENERS OF SIZE AND TYPE INDICATED THAT COMPLY WITH REQUIREMENTS SPECIFIED IN THIS ARTICLE FOR MATERIAL AND MANUFACTURE.

WHERE ROUGH CARPENTRY IS EXPOSED TO WEATHER, IN GROUND CONTACT, PRESSURE-PRESERVATIVE TREATED, OR IN AREA OF HIGH RELATIVE HUMIDITY, PROVIDE FASTENERS WITH HOT-DIP ZINC COATING COMPLYING WITH ASTM A193/A193M OR TYPE 304 STAINLESS STEEL.

GALVANIZED-STEEL SHEET: HOT-DIP, ZINC-COATED STEEL SHEET COMPLYING WITH ASTM A653/A653M, 60 COATING DESIGNATION.

JOIST HANGERS: U-SHAPED JOIST HANGERS WITH 2-INCH LONG SEAT AND 1/4-INCH WIDE HAILING FLANGES AT LEAST 85 PERCENT OF JOIST DEPTH. THICKNESS: 0.050 INCH.

EXECUTION

9. INSTALLATION, GENERAL

SET ROUGH CARPENTRY TO REQUIRED LEVELS AND LINES, WITH MEMBERS FLUSH, TRUE TO LINE, CUT, AND FITTED: FIT ROUGH CARPENTRY TO OTHER CONSTRUCTION, SCRIBE AND COPE AS NEEDED FOR ACCURATE FIT. LOCATE FURRINS, NAILERS, BLOCKING, AND SIMILAR SUPPORTS TO COMPLY WITH REQUIREMENTS FOR ATTACHING OTHER CONSTRUCTION, UNLESS OTHERWISE INDICATED.

FRAMING WITH ENGINEERED WOOD PRODUCTS: INSTALL ENGINEERED WOOD PRODUCTS TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

DO NOT SPLICE STRUCTURAL MEMBERS BETWEEN SUPPORTS UNLESS OTHERWISE INDICATED.

PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, AND TRIM.

SORT AND SELECT LUMBER SO THAT NATURAL CHARACTERISTICS WILL NOT INTERFERE WITH INSTALLATION OR WITH FASTENING OTHER MATERIALS TO LUMBER. DO NOT USE MATERIALS WITH DEFECTS THAT INTERFERE WITH FUNCTION OF MEMBER OR PIECES THAT ARE TOO SMALL TO USE WITH MINIMUM NUMBER OF JOINTS OR OPTIMUM JOINT ARRANGEMENT.

SECURELY ATTACH ROUGH CARPENTRY WORK TO SUBSTRATE BY ANCHORING AND FASTENING AS INDICATED, COMPLYING WITH THE FOLLOWING: NESNER-212 FOR POWER-DRIVEN FASTENERS.

USE STEEL COMMON NAILS UNLESS OTHERWISE INDICATED. SELECT FASTENERS OF SIZE THAT WILL NOT FULLY PENETRATE MEMBERS WHERE OPPOSITE SIDE WILL BE EXPOSED TO WEATHER OR WILL RECEIVE FINISH MATERIALS. MAKE TIGHT CONNECTIONS BETWEEN MEMBERS. INSTALL FASTENERS WITHOUT SPLITTING WOOD. DRIVE NAILS SNAZ BUT DO NOT COUNTERSINK NAIL HEADS UNLESS OTHERWISE INDICATED.

FOR EXPOSED WORK, ARRANGE FASTENERS IN STRAIGHT ROWS PARALLEL WITH EDGES OF MEMBERS, WITH FASTENERS EVENLY SPACED, AND WITH ADJACENT ROWS STAGGERED.

10. WOOD BLOCKING, AND NAILER INSTALLATION

INSTALL WHERE INDICATED AND WHERE REQUIRED FOR ATTACHING OTHER WORK. FORM TO SHAPES INDICATED AND CUT AS REQUIRED FOR TRUE LINE AND LEVEL OF ATTACHED WORK. COORDINATE LOCATIONS WITH OTHER WORK INVOLVED.

ATTACH ITEMS TO SUBSTRATES TO SUPPORT APPLIED LOADINGS. RECESS BOLTS AND NUTS FLUSH WITH SURFACES UNLESS OTHERWISE INDICATED.

11. RAFTER FRAMING INSTALLATION

RAFTERS: NOTCH TO FIT EXTERIOR WALL PLATES AND USE METAL FRAMING ANCHORS. DOUBLE RAFTERS TO FORM HEADERS AND TRIMMERS IN ROOF FRAMING, IF ANY, AND SUPPORT WITH METAL HANGERS. HIRE RAFTERS ABUT AT RIDGE, PLACE DIRECTLY OPPOSITE EACH OTHER AND NAIL TO RIDGE MEMBER OR USE METAL RIDGE HANGERS.

PROVIDE SPECIAL FRAMING AS INDICATED FOR EAVES, OVERHANGS, DORMERS, AND SIMILAR CONDITIONS IF ANY.

VII SHEATHING

GENERAL

1. THIS SECTION INCLUDES WALL SHEATHING AND ROOF SHEATHING.

2. DELIVERY, STORAGE, AND HANDLING

STACK PANELS FLAT WITH SPACERS BENEATH AND BETWEEN EACH BUNDLE TO PROVIDE AIR CIRCULATION. PROTECT SHEATHING FROM WEATHER BY COVERING WITH WATERPROOF SHEETING, SECURELY ANCHORED. PROVIDE FOR AIR CIRCULATION AROUND STACKS AND UNDER COVERINGS.

PRODUCTS

3. WALL SHEATHING

ORIENTED-STRAND-BOARD WALL SHEATHING: EXPOSURE 1, SHEATHING, NOMINAL THICKNESS: NOT LESS THAN 1/2 INCH

4. ROOF SHEATHING

ORIENTED-STRAND-BOARD ROOF SHEATHING: EXPOSURE 1, SHEATHING, NOMINAL THICKNESS: NOT LESS THAN 1/2 INCH

5. FASTENERS

GENERAL: PROVIDE FASTENERS OF SIZE AND TYPE INDICATED THAT COMPLY WITH REQUIREMENTS SPECIFIED IN THIS ARTICLE FOR MATERIAL AND MANUFACTURE.  
FOR ROOF AND WALL SHEATHING, PROVIDE FASTENERS WITH HOT-DIP ZINC COATING COMPLYING WITH ASTM A193/A193M.

EXECUTION

6. INSTALLATION, GENERAL

DO NOT USE MATERIALS WITH DEFECTS THAT IMPAIR QUALITY OF SHEATHING OR PIECES THAT ARE TOO SMALL TO USE WITH MINIMUM NUMBER OF JOINTS OR OPTIMUM JOINT ARRANGEMENT. ARRANGE JOINTS SO THAT PIECES DO NOT SPAN BETWEEN FEWER THAN THREE SUPPORT MEMBERS.  
CUT PANELS AT PENETRATIONS, EDGES, AND OTHER OBSTRUCTIONS OF WORK; FIT TIGHTLY AGAINST ABUTTING CONSTRUCTION UNLESS OTHERWISE INDICATED.

USE COMMON NAIL NAILS UNLESS OTHERWISE INDICATED. SELECT FASTENERS OF SIZE THAT WILL NOT FULLY PENETRATE MEMBERS WHERE OPPOSITE SIDE WILL BE EXPOSED TO WEATHER OR WILL RECEIVE FINISH MATERIALS. MAKE TIGHT CONNECTIONS. INSTALL FASTENERS WITHOUT SPLITTING WOOD.

COORDINATE WALL AND ROOF SHEATHING INSTALLATION WITH FLASHINGS AND JOINT-SEALANT INSTALLATION SO THESE MATERIALS ARE INSTALLED IN SEQUENCE AND MANNER THAT PREVENT EXTERIOR MOISTURE FROM PASSING THROUGH COMPLETED ASSEMBLY.

COORDINATE SHEATHING INSTALLATION WITH INSTALLATION OF MATERIALS INSTALLED OVER SHEATHING SO SHEATHING IS NOT EXPOSED TO PRECIPITATION OR LEFT EXPOSED AT END OF THE WORKDAY WHEN RAIN IS FORECAST.

VIII MISCELLANEOUS CARPENTRY

1. THE GENERAL CONTRACTOR MUST ASSUME THE RESPONSIBILITY OF VERIFYING DETAILS AND DIMENSIONS, SELECTING FABRICATION PROCESSES AND SHAPING. VERIFY ALL COLOR SELECTIONS WITH THE OWNER. OBTAIN ALL BUILDING AND FIRE PERMITS BEFORE BEGINNING CONSTRUCTION.

2. SHEET METAL FLASHING AND CORNER FLASHING SHALL BE WEATHERPROOF AND COMPLY WITH "ARCHITECTURAL SHEET METAL MANUAL" BY SHACMA. FLASHING SHALL BE ALUMINUM UNLESS OTHERWISE NOTED, REQUIRED BY MANUFACTURERS, AND/OR WHERE ALUMINUM IS INCOMPATIBLE WITH OTHER COMPONENTS OR PRODUCTS.

3. ROOFING: PROVIDE AND/OR INSTALL THE ROOFING SHOWN ON THE DRAWINGS AND EVERYTHING REQUIRED TO COMPLETE A GOOD WEATHERPROOF INSTALLATION THAT QUALIFIES FOR THE MANUFACTURER'S WARRANTY, WHERE APPLICABLE. CONTRACTOR SUPPLIED CORRUGATED METAL ROOFING SHALL BE 7/8" CORRUGATED PAINTED PANELS THAT REPLICATE THE LOOK OF A REAL RUSTED ROOF. GUTTER AND RAIN DIVERTER STATES METAL ROOFING, 855-425-1858 FOR APPROVED EQUAL. FELT UNDERLAYMENT SHALL CONFORM TO ASTM D 228, AND SHALL BE 154 FELT. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

4. SOFFIT PANELS SHALL BE CELLULAR PVC 1/2" SHEETS AVAILABLE FROM AZEK TRIMBOARDS (OR APPROVED EQUAL VULCAN CORP., 2081 N. 100TH STREET, LENEXA, KS 66220, 913-322-2933. CELLULAR PVC MATERIAL SHALL BE FREE OF VOIDS, HOLES, CRACKS, FOREIGN INCLUSIONS AND OTHER DEFECTS. UNIFORM SURFACE SHALL BE FREE FROM CUPPING, WARPING AND WITING. PROVIDE MANUFACTURER'S 25 YEAR WARRANTY.

FASTENERS - ALL TYPES OF DURABLE FASTENERS (STAINLESS STEEL AND/ OR HOT DIPPED-GALVANIZED) THAT WORK WELL WITH WOOD ARE ACCEPTABLE. FASTENERS FROM A NAIL GUN WORK WELL. STANDARD BOX NAILS WITH A FULL ROUND HEAD ARE PREFERRED.

ADHESIVES - BONDING AZEK TO AZEK, SOLVENT BASED ADHESIVES SYSTEMS USED FOR RIGID PVC PIPE WORK WELL. LATEX ADHESIVES PROVIDE MORE WORKING TIME. FOR BONDING AZEK TO VARIOUS SUBSTRATES - IN GENERAL CONTACT CEMENT, EPOXY, RUBBER BASED AND URETHANE ADHESIVES ARE ACCEPTABLE.

SEALANTS - USE URETHANE, POLYURETHANE OR ACRYLIC BASED SEALANTS WITHOUT SILICONE

INSTALLATION - COMPLY WITH ALL MANUFACTURERS PRODUCT INSTALLATION INSTRUCTIONS AND TECHNICAL BULLETIN INSTRUCTIONS.

5. PAINTING OF PVC SOFFIT AND WOOD TRIM BOARDS INDICATED TO BE PAINTED SHALL BE DONE USING COMMERCIAL GRADE, PREMIUM EXTERIOR 100% ACRYLIC LATEX PAINT BY SHERWIN-WILLIAMS, PITTSBURGH PAINT, PORTER PAINT, BELLAMIN MOORE, OR APPROVED EQUAL. COLORS TO BE SELECTED, PREPARE AND PRIME ALL SURFACES PER MANUFACTURERS REQUIREMENTS. SOFFIT PANELS TO BE PAINTED: WHITE UNLESS OTHERWISE INDICATED.

IX PAINTING

GENERAL SPECIFICATIONS

1. WORK INCLUDED

THIS SECTION INCLUDES SURFACE PREPARATION AND FIELD PAINTING OF EXPOSED EXTERIOR ITEMS AND SURFACES

PAINT EXPOSED SURFACES INDICATED ON DRAWING. IF A COLOR OF FINISH IS NOT INDICATED, ARCHITECT WILL SELECT FROM STANDARD COLORS AND FINISHES AVAILABLE.  
DO NOT PAINT PREFINISHED ITEMS, CONCEALED SURFACES, FINISHED METAL SURFACES, OPERATING PARTS, AND LABELS.

2. SUBMITTALS

PRODUCT DATA: FOR EACH PAINT SYSTEM INDICATED, INCLUDE PRIMERS.

SAMPLES FOR VERIFICATION: FOR EACH COLOR AND MATERIAL TO BE APPLIED, WITH TEXTURE TO SIMULATE ACTUAL CONDITIONS, ON REPRESENTATIVE SAMPLES OF THE ACTUAL SUBSTRATE.

3. QUALITY ASSURANCE

SOURCE LIMITATIONS: OBTAIN PRIMERS FOR EACH COATING SYSTEM FROM THE SAME MANUFACTURER AS THE FINISH COATS.

4. DELIVERY, STORAGE, AND HANDLING

DELIVER MATERIALS TO PROJECT SITE IN MANUFACTURER'S ORIGINAL, UNOPENED PACKAGES AND CONTAINERS BEARING MANUFACTURER'S NAME AND LABEL.

STORE MATERIALS NOT IN USE IN TIGHTLY COVERED CONTAINERS IN A WELL-VENTILATED AREA AT A MINIMUM AMBIENT TEMPERATURE OF 45°DEG°F. MAINTAIN STORAGE CONTAINERS IN A CLEAN CONDITION, FREE OF FOREIGN MATERIALS AND RESIDUE.

5. PROJECT CONDITIONS

APPLY WATERBORNE PAINTS ONLY WHEN TEMPERATURES OF SURFACES TO BE PAINTED AND SURROUNDING AIR ARE BETWEEN 50 AND 90°DEG°F.

APPLY SOLVENT-THINNED PAINTS ONLY WHEN TEMPERATURES OF SURFACES TO BE PAINTED AND SURROUNDING AIR ARE BETWEEN 45 AND 85°DEG°F.

DO NOT APPLY PAINT IN SNOW, RAIN, FOG, OR MIST, OR WHEN RELATIVE HUMIDITY EXCEEDS 85 PERCENT, OR AT TEMPERATURES LESS THAN 5°DEG°F ABOVE THE DEW POINT; OR TO DAMP OR WET SURFACES.

PRODUCTS

6. PAINT MATERIALS, GENERAL

MATERIAL COMPATIBILITY: PROVIDE BLOCK FILLERS, PRIMERS, AND FINISH-COAT MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH THE SUBSTRATES INDICATED UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.

MATERIAL QUALITY: PROVIDE MANUFACTURER'S BEST-QUALITY PAINT MATERIAL OF THE VARIOUS COATING TYPES SPECIFIED THAT ARE FACTORY FORMULATED AND RECOMMENDED BY MANUFACTURER FOR APPLICATION INDICATED. PAINT-MATERIAL CONTAINERS NOT DISPLAYING MANUFACTURER'S PRODUCT IDENTIFICATION WILL NOT BE ACCEPTABLE.

PROPRIETARY NAMES: USE OF MANUFACTURER'S PROPRIETARY PRODUCT NAMES TO DESIGNATE COLORS OR MATERIALS IS NOT INTENDED TO IMPLY THAT PRODUCTS NAMED ARE REQUIRED TO BE USED TO THE EXCLUSION OF EQUIVALENT PRODUCTS OF OTHER MANUFACTURERS. FURNISH MANUFACTURER'S MATERIAL DATA AND CERTIFICATES OF PERFORMANCE FOR PROPOSED SUBSTITUTIONS.

COLORS: AS INDICATED ON THE DRAWINGS AND/OR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.

7. EXTERIOR AND INTERIOR FINISH COATS

EXTERIOR SATIN ACRYLIC ENAMEL: FACTORY-FORMULATED SATIN WATERBORNE ACRYLIC-LATEX ENAMEL FOR EXTERIOR APPLICATION.

GLIDDEN PROFESSIONAL: FORTIS 450 EXTERIOR SATIN PAINT; APPLIED AT A DRY FILM THICKNESS OF NOT LESS THAN .12 MILS.

EXECUTION

8. EXAMINATION

EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH APPLICATOR PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR PAINT APPLICATION.

PROCEED WITH PAINT APPLICATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AND SURFACES RECEIVING PAINT ARE THOROUGHLY DRY.  
START OF PAINTING WILL BE CONSIDERED AS APPLICATOR'S ACCEPTANCE OF SURFACES AND CONDITIONS WITHIN A PARTICULAR AREA.

9. PREPARATION

GENERAL: REMOVE HARDWARE AND HARDWARE ACCESSORIES, PLATES, MACHINED SURFACES, LIGHTING FIXTURES, AND SIMILAR ITEMS ALREADY INSTALLED THAT ARE NOT TO BE PAINTED. IF REMOVAL IS IMPRACTICAL OR IMPOSSIBLE BECAUSE OF SIZE OR HEIGHT OF THE ITEM, PROVIDE SURFACE-APPLIED PROTECTION BEFORE SURFACE PREPARATION

AND PAINTING.

CLEANING: BEFORE APPLYING PAINT OR OTHER SURFACE TREATMENTS, CLEAN SUBSTRATES OF SUBSTANCES THAT COULD IMPAIR BOND OF THE VARIOUS COATINGS. REMOVE OIL AND GREASE BEFORE CLEANING.

SURFACE PREPARATION: CLEAN AND PREPARE SURFACES TO BE PAINTED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR EACH PARTICULAR SUBSTRATE CONDITION AND AS SPECIFIED.

MATERIAL PREPARATION: MIX AND PREPARE PAINT MATERIALS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

10. APPLICATION

GENERAL: APPLY PAINT ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. USE APPLICATORS AND TECHNIQUES BEST SUITED FOR SUBSTRATE AND TYPE OF MATERIAL BEING APPLIED. ALL PAINTED SURFACES SHALL RECEIVE 2 FINISH COATS OVER A PRIMER COAT.

DO NOT PAINT OVER DIRT, RUST, SCALE, GREASE, MOISTURE, SCUFFED SURFACES, OR CONDITIONS DETRIMENTAL TO FORMATION OF A DURABLE PAINT FILM.

PROVIDE FINISH COATS THAT ARE COMPATIBLE WITH PRIMERS USED.  
SAND LIGHTLY BETWEEN EACH SUCCEEDING ENAMEL COAT.

SCHEDULING PAINTING: APPLY FIRST COAT TO SURFACES THAT HAVE BEEN CLEANED, PRETREATED, OR OTHERWISE PREPARED FOR PAINTING AS SOON AS PRACTICABLE AFTER PREPARATION AND BEFORE SUBSEQUENT SURFACE DEGRADATION.

THE NUMBER OF COATS AND FILM THICKNESS REQUIRED ARE THE SAME REGARDLESS OF APPLICATION METHOD. DO NOT APPLY SUCCEEDING COATS UNTIL PREVIOUS COAT HAS CURED AS RECOMMENDED BY MANUFACTURER. IF SANDING IS REQUIRED TO PRODUCE A SMOOTH, EVEN SURFACE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, SAND BETWEEN APPLICATIONS.

IF UNDERCOATS OR OTHER CONDITIONS SHOWN THROUGH FINAL COAT OF PAINT, APPLY ADDITIONAL COATS UNTIL PAINT FILM IS OF UNIFORM FINISH COLOR, AND APPEARANCE. GIVE SPECIAL ATTENTION TO ENSURE THAT EDGES, CORNERS, CREVICES, WELDS, AND EXPOSED FASTENERS RECEIVE A DRY FILM THICKNESS EQUIVALENT TO THAT OF FLAT SURFACES.

ALLOW SUFFICIENT TIME BETWEEN SUCCESSIVE COATS TO PERMIT PROPER DRYING. DO NOT RECOAT SURFACES UNTIL PAINT HAS DRIED TO WHERE IT FEELS FIRM AND DOES NOT DEFORM OR FEEL STICKY UNDER MODERATE THUMB PRESSURE, AND UNTIL APPLICATION OF ANOTHER COAT OF PAINT DOES NOT CAUSE UNDERCOAT TO LIFT OR LOSE ADHESION.

APPLICATION PROCEDURES: APPLY PAINTS AND COATINGS BY BRUSH, ROLLER, SPRAY, OR OTHER APPLICATORS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

BRUSHES: USE BRUSHES BEST SUITED FOR TYPE OF MATERIAL APPLIED. USE BRUSH OF APPROPRIATE SIZE FOR SURFACE OR ITEM BEING PAINTED.

ROLLERS: USE ROLLERS OF CARPET, VELVET-BACK, OR HIGH-FILM SHEEP'S WOOL AS RECOMMENDED BY MANUFACTURER FOR MATERIAL AND TEXTURE REQUIRED.  
SPRAY EQUIPMENT: USE AIRLESS SPRAY EQUIPMENT WITH ORIFICE SIZE AS RECOMMENDED BY MANUFACTURER FOR MATERIAL AND TEXTURE REQUIRED.

MINIMUM COATING THICKNESS: APPLY PAINT MATERIALS NO THINNER THAN MANUFACTURER'S RECOMMENDED SPREADING RATE TO ACHIEVE DRY FILM THICKNESS INDICATED. PROVIDE TOTAL DRY FILM THICKNESS OF THE ENTIRE SYSTEM AS RECOMMENDED BY MANUFACTURER.

PRIME COATS: BEFORE APPLYING FINISH COATS, APPLY A PRIME COAT, AS RECOMMENDED BY MANUFACTURER, TO MATERIAL THAT IS REQUIRED TO BE PAINTED OR FINISHED AND THAT HAS NOT BEEN PRIME COATED BY OTHERS. RECOAT PRIMED AND SEALED SURFACES WHERE EVIDENCE OF SUCTION SPOTS OR UNSEALED AREAS IN FIRST COAT APPEARS, TO ENSURE A FINISH COAT WITH NO BURN-THROUGH OR OTHER DEFECTS DUE TO INSUFFICIENT SEALING.

PIGMENTED (OPAGUE) FINISHES: COMPLETELY COVER SURFACES AS NECESSARY TO PROVIDE A SMOOTH, OPAGUE SURFACE OF UNIFORM FINISH COLOR, APPEARANCE, AND COVERAGE. CLOUDINESS, SPOTTING, KIDNAPS, LAPS, BRUSH MARKS, RUNS, SAGS, ROFINESS, OR OTHER SURFACE IMPERFECTIONS WILL NOT BE ACCEPTABLE.

COMPLETED WORK: MATCH APPROVED SAMPLES FOR COLOR, TEXTURE, AND COVERAGE. REMOVE, REFINISH, OR REPAINT WORK NOT COMPLYING WITH REQUIREMENTS.

11. CLEANING

CLEANUP: AT THE END OF EACH WORKDAY, REMOVE EMPTY CANS, RAGS, RUBBISH, AND OTHER SPARGED PAINT MATERIALS FROM PROJECT SITE.

AFTER COMPLETING PAINTING, CLEAN GLASS AND PAINT-SPATTERED SURFACES. REMOVE SPATTERED PAINT BY WASHING AND SCRAPING WITHOUT SCRATCHING OR DAMAGING ADJACENT FINISHED SURFACES.

12. PROTECTION

PROTECT WORK OF OTHER TRADES, WHETHER BEING PAINTED OR NOT, AGAINST DAMAGE FROM PAINTING. CORRECT DAMAGE BY CLEANING, REPAIRING OR REPLACING, AND REPAINTING, AS APPROVED BY ARCHITECT.

PROTECT "HOT PAINT" SIGNS TO PROTECT NEWLY PAINTED FINISHES. AFTER COMPLETING PAINTING OPERATIONS, REMOVE TEMPORARY PROTECTIVE WRAPPINGS PROVIDED BY OTHERS TO PROTECT THEIR WORK.

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RECREATION PLANNING AND DESIGN  
LANDSCAPE ARCHITECTURE  
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Al Foster  
Trailhead Park  
Grand Ave & 3rd St.  
Wildwood, Missouri

OWNER  
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SHEET TITLE  
Technical  
Specification

JOB NUMBER  
10015  
DATE 02/08/16 DRAWN BY DWD  
REVISION

SHEET NUMBER  
S2



# WILDWOOD

March 15, 2016

The Honorable City Council  
City of Wildwood, Missouri  
16860 Main Street  
Wildwood, Missouri 63040

Re: **On-Going and Long-Term Maintenance Costs for Parks and Trail Facilities**

Council Members:

The City Council, during its Strategic Planning Process in March 2015, identified the need to ensure that, as facilities are added to the City's system of parks and trails, the costs associated with their maintenance and upkeep are addressed and managed as well. To this end, the Council Planning/Economic Development/Parks Committee has requested, that each month an update of spending on parks and trail maintenance be provided by City staff, along with any unusual allocations in this regard as well. Therefore, as part of this reporting of monthly expenses and expenditures, the Committee will continue to provide the summary of expenditures by it in its maintenance of facilities, since 2006, which is identified below:

Year	Original Budget Allocation (\$)	Amended Budget Allocation (\$)	Actual Amount (\$)
2006	15,000	64,000	68,454
2007	62,500	58,486	57,880
2008	67,000	67,000	65,176
2009	68,000	120,000	112,608
2010	120,000	110,000	103,275
2011	125,000	135,000	127,995
2012	135,000	164,000	173,980
2013	175,000	160,000	129,788
2014	175,000	161,200	133,033
2015	160,000	160,000	172,679*
<b>2016</b>	<b>170,000</b>	TBD	TBD

\*As of December 31, 2015 (Final)

The Committee, in calculating the expenditures for Fiscal Year 2016, did so upon the date the work was completed, not necessarily the month in which the invoice was paid. Since the City Council's last meeting, not all of the invoices for the month of February have been paid, but a total of \$1,961.50 has been expended thus far for maintenance of park and trail facilities. These expenditures include the following items:

- ✓ Trash removal in park properties and trail locations
- ✓ Snow removal
- ✓ Cleaning picnic tables and pads at Glencoe Park

The spending for the year to date, on a per month basis of when the work was completed, is provided below:

2016 Expenditures	
January	\$7,555.14
February (incomplete)	\$1,961.50
<b>Year to Date Total</b>	<b>\$9,516.64</b>

The spending for the year to date, broken down by each park, is listed below:

2016 Expenditures – By Park												
	Al Foster	Anniversary	Bluff View	Community	Glencoe	Old Pond School	Rock Hollow	Pedestrian Bridges	Taylor/100 Trail	Events	General Trails	General Work
Jan	\$0	\$120.00	\$489.50	\$868.00	\$200.00	\$132.00	\$260.00	\$667.00	\$80.00	\$3,990.39	\$340.00	\$408.25
Feb	\$0	\$40.00	\$40.00	\$610.00	\$671.50	\$40.00	\$40.00	\$40.00	\$0	\$0	\$480.00	\$0
Mar												
Apr												
May												
Jun												
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
<b>Total</b>		<b>\$160.00</b>	<b>\$529.50</b>	<b>\$1,478.00</b>	<b>\$871.50</b>	<b>\$172.00</b>	<b>\$300.00</b>	<b>\$707.00</b>	<b>\$80.00</b>	<b>\$3,990.39</b>	<b>\$820.00</b>	<b>\$408.25</b>

The City Council had previously requested information on the unusually high maintenance costs in 2012. The Committee has completed this research and found that two (2) budget adjustments were completed for parks and trails maintenance in 2012. A mid-year budget adjustment, in the amount of fifteen thousand dollars (\$15,000.00), was approved due to a large amount of tree removal that was completed in the Spring. Most of this tree removal was completed in the Glencoe Area. A second budget adjustment was completed

at year-end in the amount of fourteen thousand dollars (\$14,000.00) due to vandalism on the City's trail system. This vandalism was in the pedestrian tunnel under Old State Road.

Also in 2012, several capital projects were completed that totaled nearly twenty-two thousand dollars (\$22,000.00), and included the following:

- replacement of railings within the pavilion at Anniversary Park (\$3,930.00);
- installation of new playground chips at Old Pond School (\$5,437.25);
- grading of a portion of Woodcliffe Heights Park Area to address stormwater runoff (\$5,372.00);
- new slide in Glencoe Park (\$1,247.20);
- repair work in Rock Hollow (\$2,073.75); and
- striping of the trails (\$3,925.00).

If any of the City Council Members should have questions or comments before tonight's meeting about this information, please feel free to contact the Department of Planning and Parks at (636) 458-0440. A presentation is planned on this matter at tonight's meeting. Thank you for your review of this information and participation in tonight's discussion.

Respectfully submitted,  
**CITY OF WILDWOOD**

Jim Baugus, Chair\*  
Planning/Economic Development/Parks Committee

Cc: The Honorable Timothy Woerther, Mayor  
Ryan S. Thomas, P.E., City Administrator  
Rob Golterman, City Attorney  
Kathy Arnett, Assistant Director of Planning and Parks  
Gary Crews, Superintendent of Parks and Recreation

\* The Department of Planning and Parks developed this report, in conjunction with the Planning/Economic Development/Parks Committee. Content reflects the Committee's consideration of this subject, and not necessarily an individual's position or opinion.