



**AGENDA FOR THE REGULAR MEETING OF THE
BRENTWOOD MUNICIPAL PLANNING COMMISSION
MONDAY, JULY 6, 2020 -- 7:00 P.M.
BRENTWOOD CITY HALL**

In the interest of the health, safety, and welfare of the public, this meeting will be held electronically pursuant to Governor Lee's Executive Orders No. 16, 34 & 50. Physical presence of the public will be limited, but the meeting may be viewed online at www.brentwoodtn.gov/livestream.

Agenda Item Location Map

Call to Order
Roll Call
Pledge of Allegiance to the Flag
Approval or correction of the minutes from the June 1, 2020 regular meeting

DRAFT -- Regular Meeting Minutes -- June 1, 2020

Comments from Citizens: Any citizen who wishes to make a comment for all regular agenda items and items removed from the consent agenda may have access to do so via webcam at City Hall. The comments shall be limited to the agenda item being discussed.

CONSENT AGENDA

1. **BPC2006-001 Revised Hillside Protection Overlay Site Plan Review – Witherspoon Subdivision, Section Four, Lot 47, 9252 Lehigh Drive, Zoning OSRD – Applicant: Mr. Keith Schumacher, Schumacher Homes, LLC, P.O. Box 2111, Brentwood, TN 37024-2111**
2. **BPC2006-003 Minor Revisions to Previously Approved Site Plan – Brentwood Church of Christ, 208 Granny White Pike, Zoning SI-1 -- Applicant: Mr. Norm Harber, Harber Architecture, Inc., 303 Springfield Highway, Goodlettsville, TN 37072**

3. **BPC2006-006 Hillside Protection Overlay Site Plan Review – Stonehenge Subdivision, Section Three, Lot 117, 1324 Robert E. Lee Lane, Zoning OSRD - Applicant:** *Mr. Mark Miller, 5116 Prince Phillip Cove, Brentwood, TN 37027*
4. **BPC2006-007 Revised Site Plan – AC Marriott Brentwood, Hill Center Brentwood, Zoning C-2 – Applicant:** *Brantley Beeler, Goodwyn, Mills & Cawood, 3310 West End Ave., Suite 420 Nashville, TN 37203*
5. **BPC2006-010 Revised Building Elevations – Wellington Place, 209 Ward Circle Zoning C-2 – Applicant:** *Dr. Raj Kaushal, GerAssist Concepts LLC, 209 Ward Circle, Brentwood, TN 37027*
6. **BPC2006-012 Hillside Protection Overlay Site Plan Review – Taramore Subdivision, Phase 12, Lot 189, 1918 New Bristol Lane, Zoning OSRD – Applicant:** *Mr. Joey Wilson, Wilson & Associates, 108 Beasley Drive, Franklin, TN 37024*

NOTE: All matters listed under the consent agenda are considered to be routine, and will be enacted upon one motion. There will be no separate discussion of these items unless a Planning Commission member so requests, in which case it will be removed from the Consent Agenda and considered separately. Additionally, any citizen or agenda applicant present may request that consideration be given by the Planning Commission to remove an item from the Consent Agenda so that discussion may be held on that item.

REGULAR AGENDA

1. **BPC2006-004 Final Plat – Broad Oaks Subdivision, Wilson Pike, Zoning R-2 – Applicant:** *Mr. Chris Mabery, Ragan Smith Associates, 100 East Vine Street, Suite 402, Murfreesboro, TN 37130*
2. **BPC2006-005 Revised Site Plan – 5301 Maryland Way, Surface Parking, Zoning C-1 – Applicant:** *Mr. John Rudolph, Gresham Smith & Partners, 222 2nd Ave. S., Suite 1400, Nashville, TN 37201*

OTHER BUSINESS

1. Monthly Security Report -- June 2020

ADMINISTRATIVE INFORMATION

1. Planning and Codes Monthly Report -- May 2020
2. City Calendar -- July 2020



Donald J. Dobson, Secretary

Anyone requesting accommodations due to disabilities, please contact Mr. Mike Worsham, ADA Coordinator, before the meeting at 615.371.0060.

**BRENTWOOD PLANNING
COMMISSION**

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

PROJECT DESCRIPTION

ZONING OF PROPERTY

APPLICANT NAME/ADDRESS

Attachments

Draft Minutes

MINUTES OF MEETING OF THE BRENTWOOD PLANNING COMMISSION

BRENTWOOD, TENNESSEE

The regular meeting of the Brentwood Planning Commission met on Monday, June 1, 2020 at 7:00 p.m. at Brentwood City Hall.

Electronically present at roll call were Chairman Janet Donahue, Commissioner Ken Travis, Preston Bain, Chris Clark, Carol Crigger, Michael Kaplan, John Magyar, Brandon Oliver, Stevan Pippin and Sonna Robinson. Staff present electronically were Jeff Dobson, Kirk Bednar, Jay Evans, Kristen Corn, Holly Earls, Mike Harris, Darek Baskin, Lori Lange, Todd Petrowski, and Allison Henry.

In the interest of the health, safety, and welfare of the public, this meeting was held electronically pursuant to Governor Lee's Executive Order No. 16. Physical presence of the public was limited, but the meeting was able to be viewed online at www.brentwoodtn.gov/livestream.

Mr. Pippin moved for approval of the minutes from the May 4, 2020 meeting as written; seconded by Commissioner Travis. Motion was approved unanimously.

PUBLIC HEARING

Proposed Revisions to the Brentwood Subdivision Regulations

A comprehensive review and update of the City's Subdivision Regulations was included as part of the non-routine work plan for Fiscal Year 2020 for both the Planning and Codes and Engineering Departments.

The effort constituted the first comprehensive review and re-write of the document since late 2009.

The proposed final document was better organized, and easier to read and understand. Additionally, its design better followed our established development process.

The significant proposed revisions to the Subdivision Regulations included:

1. Correction of grammatical, punctuation and syntax errors throughout the document.
2. Rearranged and revised existing language to better reflect the development process flow and staff actions.
3. Updated requirements for submittal of electronic drawings.
4. Included appropriate language that references the State Vesting requirements, in several sections as included in the zoning ordinance (Zoning Ordinance Section 78-43); also added the plat vesting note as in the zoning ordinance to the Subdivision Regulations;
5. Added Section 5.6 which deals with subdivision amenities and entrance features.
6. Added Section 6.7 which modifies sidewalk requirements.

7. Revised Section 6.13 regarding Historic Rural Development standards to require a project area of 25 acres instead of 50 acres (note that the only project that currently employs this standard is Liberty Farm Subdivision, which includes an area of 32 acres).
8. Added Section 6.14(4), dealing with substantial rebuild lots, which are lots where an existing structure is demolished and a new structure is constructed or an existing structure is expanded or partially rebuilt having an area of > 800 sf including residential, commercial, pools or remodels will require a grading permit designed by a TN licensed engineer or landscape architect.
9. Added Section 6.14(5) details the permitting requirements for substantial rebuild lots.
10. A definition of "Substantial Rebuild Lots" was also added in Appendix One.
11. Added Section 6.15 defining requirements for Flag Lots.
12. Added Section 7.4 regarding specifications for vertical and pre-split rock walls.
13. Completely re-wrote the performance agreement for subdivision improvements and added a new performance agreement for amenity improvements -- Appendices Five and Six.
14. Added a new Appendix Seven that codifies street addressing requirements.
15. The definitions in Appendix One have been reviewed to ensure that they are used in the text. Definitions that were not used were deleted. Several new ones were added.

State law provided for the approval of subdivision regulations by the Planning Commission.

If approved on June 1st, the effective date of the regulations would be July 1, 2020.

No one spoke for or against the proposed revisions to the Brentwood subdivision regulations; therefore, the public hearing was closed.

Mr. Pippin moved for approval of the proposed amendments to the Brentwood Subdivision Regulations with an effective date of July 1, 2020. Commissioner Travis seconded; motion was approved unanimously.

CONSENT AGENDA

Item 1: BPC2004-006 Minor Revisions to previously Approved Site Plan – Brentwood Doctor's Office, 343 Franklin Road, Zoning C-2

Batson & Associates requested approval to add 11 parking spaces to the project. The new parking spaces will be installed along the north side of the project, using pervious pavers.

Staff recommended approval of the proposed minor revisions to the previously approved site plan subject to the following conditions:

1. An as-built certification signed by a licensed engineer will be required. The certification shall verify the infiltration rate of the pavers including recommendations to the property owner for future maintenance.
2. A site plan shall be vested for a period of three years from the date of the original approval.

3. Add the following note to the site plan:

This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on June 1, 2023, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.

4. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
5. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
6. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
7. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
8. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
9. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood

Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.

10. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
11. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
12. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on June 1, 2020. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

Item 2: BPC2005-001 Revised Final Plat – 412 Wilson Pike, Zoning R-2

H & H Land Surveying, Inc., requested approval of a revised final plat that established setbacks, easements and dedicates 0.06 acres of right-of-way. Only one lot is proposed.

The proposed final plat approved by the Planning Commission on October 2, 2017 was never recorded. With the approval of this plat, the previous approval will be void.

The property included the historic Mayfield Cemetery, which will be restored and preserved as part of the property. Upon completion of construction permanent fencing will be installed around the cemetery.

The rock wall has already been moved outside of the right-of-way, except for a small portion south of the driveway.

Staff recommended approval of the proposed final plat subject to the following conditions:

1. All work within the Wilson Pike right-of-way for service line bores or modifications of the driveway or its location will require a TDOT permit.
2. The existing cemetery shall remain undisturbed per Plat Note 19. Any disturbance of the driveway near the cemetery would require an update to the archaeological study.
3. Approval of a final plat by the Planning Commission shall become effective upon the date of the last signature required on the plat for recording. The initial vesting period shall be for five years after approval.
4. Add the following note to all pages of the final plat:

This final plat is subject to a vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. Upon

expiration of the vesting period, development of the property shown on this plat may be subject to standards other than those that were applicable during the vesting period. The vesting period for this plat expires on _____, unless extended by the City of Brentwood. Persons relying on this plat after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.

(Planning and Codes Department staff will insert the expiration year for the plat at the time the plat is ready for recording and may also make changes to the wording of the above note as necessary to carry out the intent of Standard Requirements 1, 2 and 3 below.)

5. Provide the Planning staff with a digital copy of the proposed subdivision. This request is consistent with Article 2.3 of the Brentwood Subdivision Regulations. The file should be in AutoCAD .DWG or .DXF compatible format and CD-ROM. The file shall use the Tennessee State Plane coordinate system, FIPS Zone 4100, NAD 83 datum. The digital copies must be received before the plat may be recorded.
6. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
7. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
8. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
9. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
10. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on June 1, 2020. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

Item 3: BPC2005-002 Hillside Protection Overlay Site Plan Review - Stonehendge Subdivision, Section Three, Lot 84, 5120 Dogwood Point, Zoning OSRD

Smoky Mountain Builders requested approval of a Hillside Protection Overlay Site plan that added an addition having an area of 336 square feet onto the back of the home. The proposed addition will be painted a color to match the existing home.

Staff recommended approval of the proposed revised hillside protection overlay site plan subject to the following conditions:

1. A Hillside Protection site plan shall be vested for a period of three years from the date of the original approval.
2. Add the following note to the Hillside Protection Overlay site plan;

This hillside protection overlay site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on June 1, 2023, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.

3. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
4. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
5. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
6. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees.

7. Deviations from the approved plan/plat in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
8. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
9. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
10. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on June 1, 2020. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

The Consent Agenda was approved unanimously.

REGULAR AGENDA

Item 1: ORDINANCE 2020-01 - AN ORDINANCE REZONING PROPERTY LOCATED AT 9520 SPLIT LOG ROAD FROM R-2 (SUBURBAN RESIDENTIAL) TO OSRD (OPEN SPACE RESIDENTIAL DEVELOPMENT)

Ordinance 2020-01 requested the rezoning of approximately 28 acres of land located on the north side of Split Log Road, 0.35 miles west of its intersection with Ragsdale Road. Specifically, the property is located at 9520 Split Log Road.

The requested change is from R-2 to OSRD.

The subject property presently included rolling pastureland used for raising cattle. Tree cover is minimal. There was a 180-foot-wide Columbia Gulf Gas Transmission Line easement that encumbered the northwestern corner of the property.

The proposed subdivision design included the existing Allen residence, which will remain and be incorporated into the project. The house will sit on a 6.23-acre tract (Lot 18). The Allen's will continue to live on and own the property. According to the Williamson County Property Assessor, the house was built in 1991 and included an area of approximately 3,428 square feet. There are also several accessory structures on the tract.

The proposed rezoning plan was originally scheduled for first reading on February 10, 2020 but was deferred from consideration by the applicant to the March 9th meeting. The reason for the deferral primarily related to the size of the large lot and its potential to be further subdivided in the future once OSRD zoning was in place. Since the deferral, the developers' attorney has prepared restrictive covenants that would apply to the large lot.

On March 17, 2020 the developer was notified that staff recommended that the required community meeting be postponed due to the COVID-19 pandemic, which was originally scheduled for April 2nd. Postponement of the community meeting temporarily delayed the rezoning process.

The Allen's have agreed to sell their entire 28 +/- acre property to Turnberry Homes LLC. If the proposed Development Plan is approved, and at the time the final plat for the property is recorded, Turnberry will convey the 6.23-acre property, back to the Allen's, including the existing residential structure in the anticipated shape and configuration shown on the proposed plan. The proposed subdivision restrictive covenants will require that the lot on which the Allen residence is located shall not be further subdivided but shall remain as currently configured. The restrictive covenants will be recorded at the Williamson County Register of Deeds Office along with the final plat and will run with the land. The restriction would also be added as a note to the final plat.

Adjacent to the property to the north and west is the Glen Abbey subdivision, also zoned OSRD. To the east are two larger single-family tracts having approximate areas of nine to 11 acres, zoned R-2. Across Split Log Road to the south lies the Taramore and Morgan Farms subdivisions, which are almost completely developed and also zoned OSRD.

The developer provided an R-2 concept plan that envisioned how the property might be developed in accordance with the underlying zoning district. The plan estimated that a total of 20 lots could be obtained if a divided Lot 18 were used as part of the subdivision design, even though it is shown as one lot on the proposed development plan.

Access to the development is provided by a single street from Split Log Road that winds through the subdivision and connects to the north to Glenfiddich Trace in Section Two of Glen Abbey. A stub was provided to the property line in anticipation of this future connection. At the intersection with Split Log Road, the plan proposed a divided street with a median section separating the flow of traffic that aligned with Ivy Crest Drive in the Taramore Subdivision.

The plan also shown the proposed location of the Cluster Box Units (CBUs), required for mail delivery by the USPS in an area east of Borrow Lane and south of proposed Lot 17.

The specifics of the proposed development plan are shown in the following tables:

FEATURE	AREA (SF)	AREA (AC)
Average Lot Area	22,014	0.51
Smallest Lot area	17,600	0.40

Largest Lot area	271,276*	6.23
Open Space Required	138,573	3.18
Open Space Provided	495,137	8.19

*The calculation of the average lot size does not include the area of Lot 18 (6.23 acres) because the average areas of the smaller lots would be skewed showing larger areas.

ALLEN PROPERTY REZONING	
OPEN SPACE CALCULATIONS 2-26-2020	
Total Site Area (AC)	27.99
Less R.O.W. dedication -- Internal streets	1.80
TOTAL	26.19
Less Areas in 25% Slopes	0.15
Plus 25% of slopes over 25%	0.04
Less Area in Electrical & Gas Easements	3.51
Plus 25% of Area in Electrical & Gas Line Easements	0.88
Total Usable Land Area (AC)	23.45
Less area in lots >1 acre	5.23
TOTAL LAND AREA AVAILABLE	18.22
Total Land Area Required @ 1 DUPA (AC)	18
Land Area in Lots	14.82
Open Space Required	3.18
Open Space Provided	11.37
Excess Open Space	8.19

The plan provided the required arterial road buffer (150' wide). The buffer extended to the east across Lot 18. Plantings, within the buffer will consistent with those existing in the Glen Abbey, buffer. If the plan is approved, and upon submittal of the preliminary plan for Planning Commission review, the developer will request that 70 trees be permitted to relocated from the buffer to a planting strip between the sidewalk and the back of the curb to serve as street trees. The reason for this request is related to the encumbrance of a jurisdictional wetland area and overhead utility lines along Split Log Road. This request is consistent with Section 78-512(b)5c of the Municipal Code.

Finally, the plan showed a perpetual scenic easement, as permitted by Section 78-186(c)2 of the Municipal Code, around a jurisdictional wetland and a stream at the front of the subdivision. The perpetual scenic easement will be left undisturbed and in its natural state. The City becomes a party to the easement once it is recorded.

WATER AND SEWER

The proposed project lies within the Owl Creek Drainage Basin. However, because all lots will be required to provide grinder pump sewer, the effluent will be pumped over to a gravity line in Glen Abbey and through Northumberland, which is in the Little Harpeth River Drainage Basin. The subject property was originally included in the Little Harpeth River drainage basin for modeling and master planning purposes. The existing house will be required to tie to sewer via grinder pump. All lots will be required to participate in the City's Grinder Pump Maintenance Program and will be properly labeled as grinder pump lots. If the rezoning proposal is approved and before a final plat for the property can be recorded the developer will be required to pay a grinder pump installation fee of \$1,900.00 per lot (\$34,200).

SCHOOLS

Williamson County Schools (WCS) provided an assessment of the impact of the proposed development on the schools in the area.

Jordan Elementary -- 7 students -- (890 capacity/494 Students projected)
Sunset Middle -- 2 students -- (869 capacity/578 students projected)
Ravenwood High -- 2 students -- (1,649 capacity/1,635 students projected).

Capacity and enrollment numbers are for the 2019/2020 school year, as of April 2019.

The projected figures are for the first month of the 2019/2020 school year before the outbreak of the COVID-19 pandemic.

The community meeting was conducted on May 28th at the Library. A total of 12 citizens attended the meeting. Concerns expressed included:

- Drainage from Glen Abbey and the new development onto the neighboring properties -- 9510 & 9528 Split Log Road;
- The existing temporary dead end of Barrow in Glen Abbey -- residents not aware that the road would be extended;
- The new entrance aligning with Ivy Crest Drive in Taramore;
- Additional traffic on Split Log Road;
- Future subdivision of the 6.23 acre tract;
- The elevation of the stub road in Glen Abbey -- road cut through the hill and grading;
- Removal of the perimeter fence -- it will remain.
- Maintenance of the gas line easement -- which is open space and will be maintained by the future HOA

The public hearing before the Board of Commissioners is scheduled for June 8, 2020. Second and final reading is scheduled for June 22, 2020.

Citizen Comment

Larry Tomczak, 1761 Macallan Drive

Mr. Pippin moved to forward a recommendation of approval of Ordinance 2020-01 to the Board of Commissioners. Commissioner Travis seconded; motion was approved unanimously.

Item 2: BPC2005-003 Revised Preliminary Plan/Site Plan -- Brentwood Country Club, 5123 Country Club Drive, Zoning OSRD

Ingram Civil Engineering requested approval of a revised preliminary / site plan for the amenity area at the Brentwood Country Club. The proposed changes included:

1. Construction of a small splash pad located northeasterly of the existing kiddie pool, and
2. Replacement of approximately 400 feet of the existing chain link fence along the rear project boundary to the rear of the existing maintenance area with an eight foot tall wooden privacy fence

Because the proposal involved changes to the improvements within the permanent open space, the corresponding changes to the OSRD Development Plan must be approved by the Board of Commissioners.

Mr. Pippin moved for approval of the proposed revisions to the preliminary plan and to forward a recommendation of approval of the corresponding revisions of the OSRD Development Plan to the Board of Commissioners subject to the following conditions being met to the satisfaction of staff:

1. Since this is an improvement within the open space, the proposal will also require City Commission review and approval.
2. A preliminary site plan shall be vested for a period of three years from the date of the original approval.
3. Approval of the preliminary plan shall be contingent upon the approval of the corresponding modifications to the OSRD Development Plan by the Board of Commissioners.
4. Permits cannot be issued for the improvements until the Board of Commissioners approves the revised OSRD Development Plan.
5. Add the following note to the site plan:

This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for

this plan expires on December 2, 2022, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.

6. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
7. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
8. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
9. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
10. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
11. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
12. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
13. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on June 1, 2020. Any changes to

Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

Commissioner Travis seconded; motion was approved unanimously.

OTHER BUSINESS

Monthly Security Report

Mr. Pippin moved for approval of the monthly security report; seconded by Commissioner Travis. Approval was unanimous.

ADMINISTRATIVE INFORMATION

The Planning and Codes monthly report was presented to the Commissioners.

Being no further business, the meeting adjourned at 7:56 pm.

APPROVED: _____

Holly Earls
Holly Earls, City Recorder

**BRENTWOOD PLANNING
COMMISSION**

1.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-001

PROJECT DESCRIPTION

**Revised Hillside Protection Overlay Site Plan Review – Witherspoon Subdivision,
Section Four, Lot 47, 9252 Lehigh Drive**

Schumacher Homes, LLC requests approval of a revised Hillside Protection Overlay site plan.

WITHERSPOON, LOT 47 – 9252 LEHIGH DR.

<i>Lot Area (ac)</i>	<i>3.43</i>
<i>Total Area of Home (sf)</i>	<i>11,092</i>
<i>Heated Area (sf)</i>	<i>8,110</i>
<i>Impervious Area (sf)</i>	<i>20,386</i>
<i>Green Space Provided</i>	<i>86.34%</i>
<i>Green Space Required</i>	<i>40%</i>

The proposed house will be painted white brick with dark accents.

ZONING OF PROPERTY

Zoning OSRD

APPLICANT NAME/ADDRESS

*Mr. Keith Schumacher, Schumacher Homes, LLC, P.O. Box 2111, Brentwood, TN
37024-2111*

Attachments

Final Staff Report

Location Map

Transitional Lot Plan -- Lot 47

Elevations -- Lot 47

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

CONSENT AGENDA -- ITEM 1:

REQUEST: **REVISED HILLSIDE PROTECTION OVERLAY SITE PLAN
REVIEW – WITHERSPOON SUBDIVISION, SECTION
FOUR, LOT 47, 9252 LEHIGH DRIVE**

PROJECT NUMBER: **BPC2006-001**

CURRENT ZONING: **OSRD -- OPEN SPACE RESIDENTIAL DEVELOPMENT**

GENERAL INFORMATION:

Schumacher Homes, LLC requests approval of a revised Hillside Protection Overlay Site plan.

WITHERSPOON, LOT 47 – 9252 LEHIGH DR.	
Lot Area (ac)	3.43
Total Area of Home (sf)	11,092
Heated Area (sf)	8,110
Impervious Area (sf)	20,386
Green Space Provided (%)	86.34
Green Space Required (%)	40%

The proposed house will be painted white brick with dark accents.

PROJECT LOCATION:

The subject property is located at 9252 Lehigh Drive.

APPROVAL HISTORY:

At its June 3, 2019 meeting the Brentwood Planning Commission voted to approve a Hillside Protection Overlay site plan for the property located at 9252 Lehigh Drive. The approval included installation of a residential fire sprinkler system as required by Code. The site calculations are shown in the following table:

WITHERSPOON, LOT 47 – 9252 LEHIGH DR.	
Lot Area (ac)	3.43
Total Area of Home (sf)	10,421
Heated Area (sf)	10,421
Impervious Area (sf)	24,191
Green Space Provided (%)	83.79
Green Space Required (%)	40%

CONDITIONS OF APPROVAL:

Staff recommends that the following condition be attached to the approval of the request.

1. A Hillside Protection site plan shall be vested for a period of three years from the date of the original approval.

STANDARD REQUIREMENTS:

*Staff recommends that the following **12** standard requirements be attached to the approval of the request.*

1. The public water main shall maintain minimum 30" cover at driveway location or other grade change locations on lot.
2. The public water and sewer service lines including meter assembly and cleanout shall be located outside of driveway.
3. The Lot has been provided a 1" meter assembly. A water tap/capacity fee of \$7,000 will be required at time of building permit.
4. Add the following note to the Hillside Protection Overlay site plan;

*This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **June 3, 2022**, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.*

5. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
6. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.

7. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
8. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees.
9. Deviations from the approved plan/plat in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
10. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
11. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
12. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed revised hillside protection overlay site plan, subject to the requirements of the staff report.



General Notes:

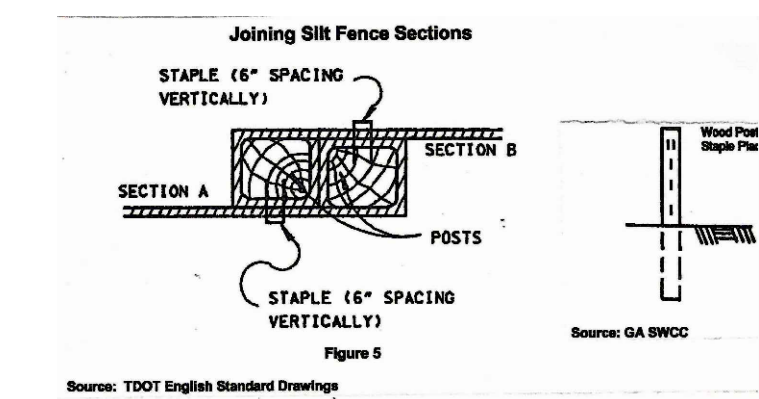
- 1- Architecture provided by Jack Herr Design Associates Ph(615)373-5322. It's the builder's responsibility to confirm the accuracy of the architecture.
- 2- Do not scale architecture from this plan.
- 3- Boundary and topography information provided by Homeland Surveying, Ph. (615)268-9658. Douglas N. Arnold makes no guarantee as to accuracy of survey information. It is the builder's responsibility to confirm all information prior to construction. (Survey Date:6/20/19)
- 4- Builder: Schumacher Homes, LLC (Keith Schumacher), Ph.(615)476-1595.
- 5- Builder is responsible for compliance with all applicable codes and ordinances.
- 6- All items shown on these plans must be field located by a licensed land surveyor prior to grading and construction.
- 7- Builder is responsible for structural integrity of all elements.
- 8- Utilities shown are approximate in location. A minimum of 72 hours prior to beginning any work, each individual contractor scheduled to perform excavation must notify TN One Call service (1-800-351-1111).
- 9- Building and waste materials, and non-storm water discharges, such as concrete or paint wastewater, must be managed to prevent them from fronting the storm water waste system or nearby waterbody.
- 10- Topsoil should be stripped from all cut and fill areas, stockpiled and redistributed over graded areas to a minimum depth of 6 inches. A sediment barrier must be installed around the base of the stockpile to prevent erosion.
- 11- Stabilization measures must be performed within seven (7) days in portions of the site where construction activities have temporarily or permanently ceased, and within fifteen (15) days after final grading. (Stabilization practices may include: temporary seeding, mulching, matting, and soil stabilization.)
- 12- Inspections of all control measures and disturbed areas must be performed at least once every seven (7) days. Inspections must be documented and include the date of the inspection and major observations.
- 13- Based on the results of inspections, any inadequate control measures or control measures in disrepair must be replaced or modified, or repaired as necessary, within seven (7) days after the need is identified.
- 14- Sediment must be removed from sediment barriers and other sediment controls when design capacity has been reduced by 50%.
- 15- Sediment that has escaped the construction site and has collected in the street or drainage structures must immediately be physically removed.
- 16- All damage to existing pavement, drainage structures and curbs resulting from new construction must be repaired or replaced by like materials at the builder's expense.
- 17- Drainage plans for the crawl space and foundation are not a part of this drawing. Builder is responsible for proper slope and drainage of crawl space and proper drainage of foundation.
- 18- Builder to call the Brentwood Engineering Department (615) 371-0080 for initial erosion control inspection prior to issuance of a permit.
- 19- All retaining walls greater than 4' Ht must be designed and inspected by a licensed professional engineer and certified in writing prior to issuance of a certificate of occupancy.
- 20- All retaining walls in excess of 30' Ht require a guardrail.
- 21- A temporary certificate of occupancy will not be given for grading and drainage related issues.
- 22- All driveways with 15% or greater slopes must be profiled by Registered Land Surveyor and approved by the City Engineer prior to issuance of a certificate of occupancy.
- 23- Any discrepancies between this drawing and actual field conditions or architecture must be reported to Douglas N. Arnold, R.L.A., If discrepancies are found, continuation of construction in the affected area will be at the builders risk until necessary modifications are made to this drawing.
- 24- Builder is responsible for confirmation of all topography prior to grading.
- 25- Builder is responsible for confirmation of all property lines and building setbacks lines prior to grading.
- 26- All dimensions are from face of brick to property line.
- 27- Required soil stabilization measures and locations must be specified by a civil or geotechnical engineer prior to construction. It's the builder's responsibility to implement all recommendations of the engineer.
- 28- Soil bearing capacity and stability must be reviewed by a geotechnical engineer prior to construction. It's the builder responsibility to implement all recommendations of the engineer.
- 29- Maximum driveway slope is 20% longitudinal and 5% across.
- 30- This site plan is subject to a three year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The initial vesting period for this plan expires on November 4, 2022, unless extended by the City of Brentwood to determine if development may continue as depicted on the plan.
- 31- When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
- 32- If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
- 33- If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
- 34- The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
- 35- Note that pending HP approval by Planning Commission, a Grading Permit and Building Permit will be required prior to construction. An NOI and SWPPP will be required prior to these permit approvals.
- 36- From TDEC Guidelines regarding who needs an NPDES Stormwater Construction Permit: "Operators of construction sites involving clearing, grading or excavation that result in an area of disturbance of one or more acres, and activities that result in the disturbance of one or more acres, and activities that result in the disturbance of less than one acre if it is part of a larger common plan of development or sale."
- 37- Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plans or other project approvals.
- 38- Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
- 39- Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
- 40- Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on July 6, 2020. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.
- 41- Use of this plan, for any purpose, constitutes agreement with all notes and conditions set forth above.
- 42- Signature below indicates builder agrees to all notes and conditions set forth above.

CITY OF BRENTWOOD PUBLIC WORKS DEPARTMENT

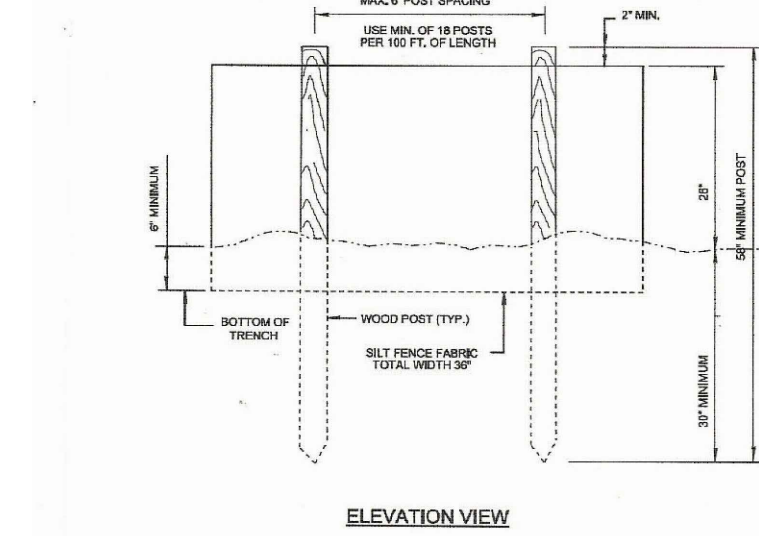
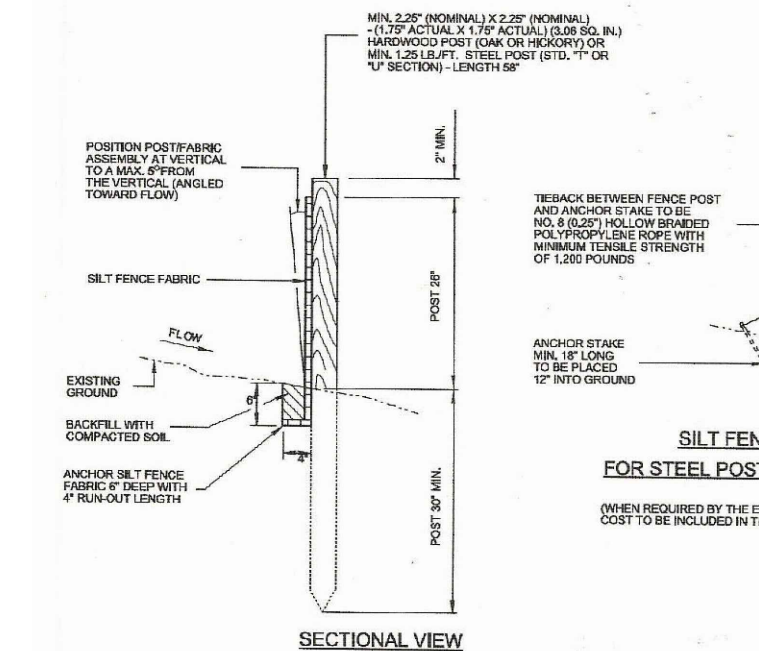
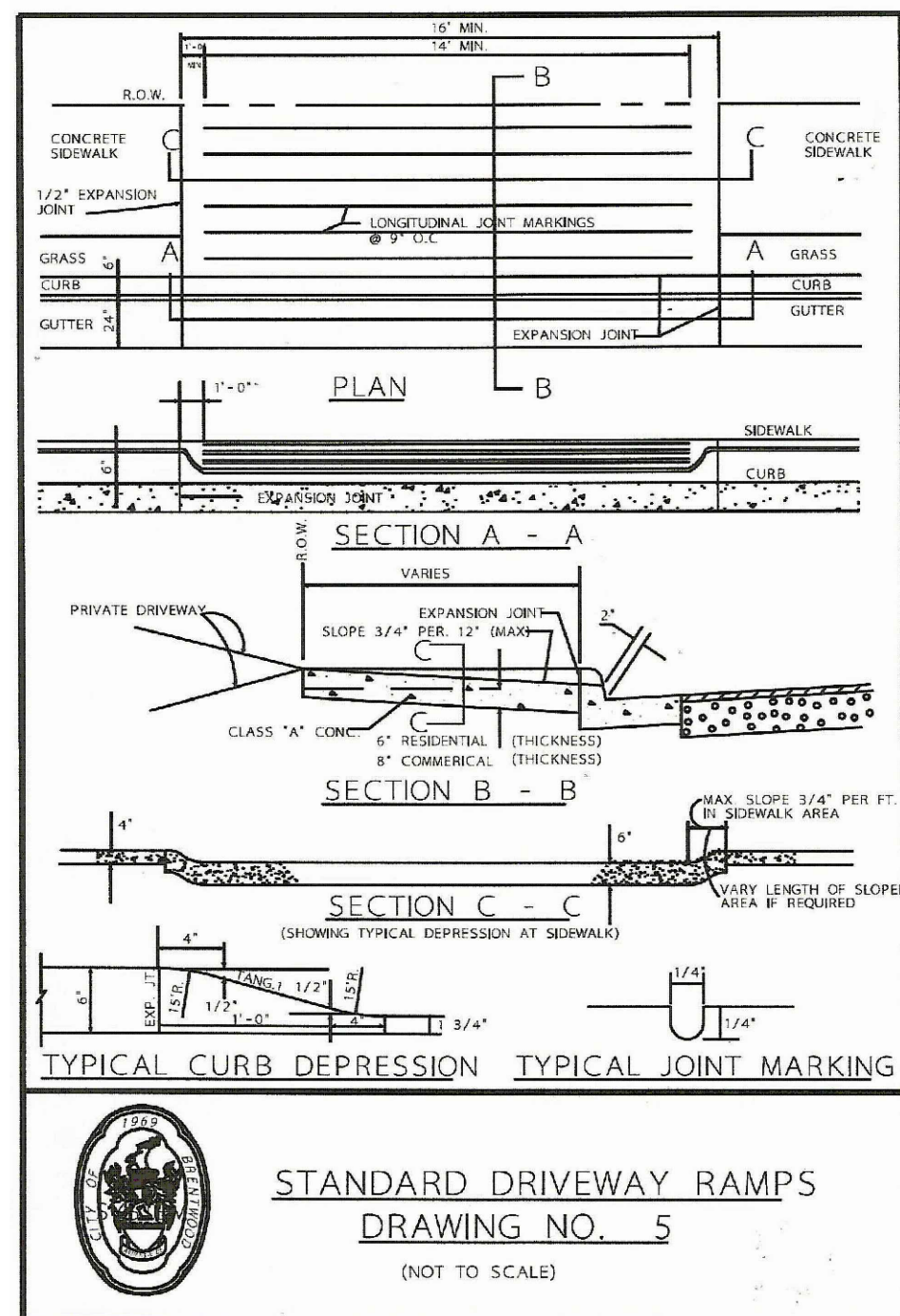
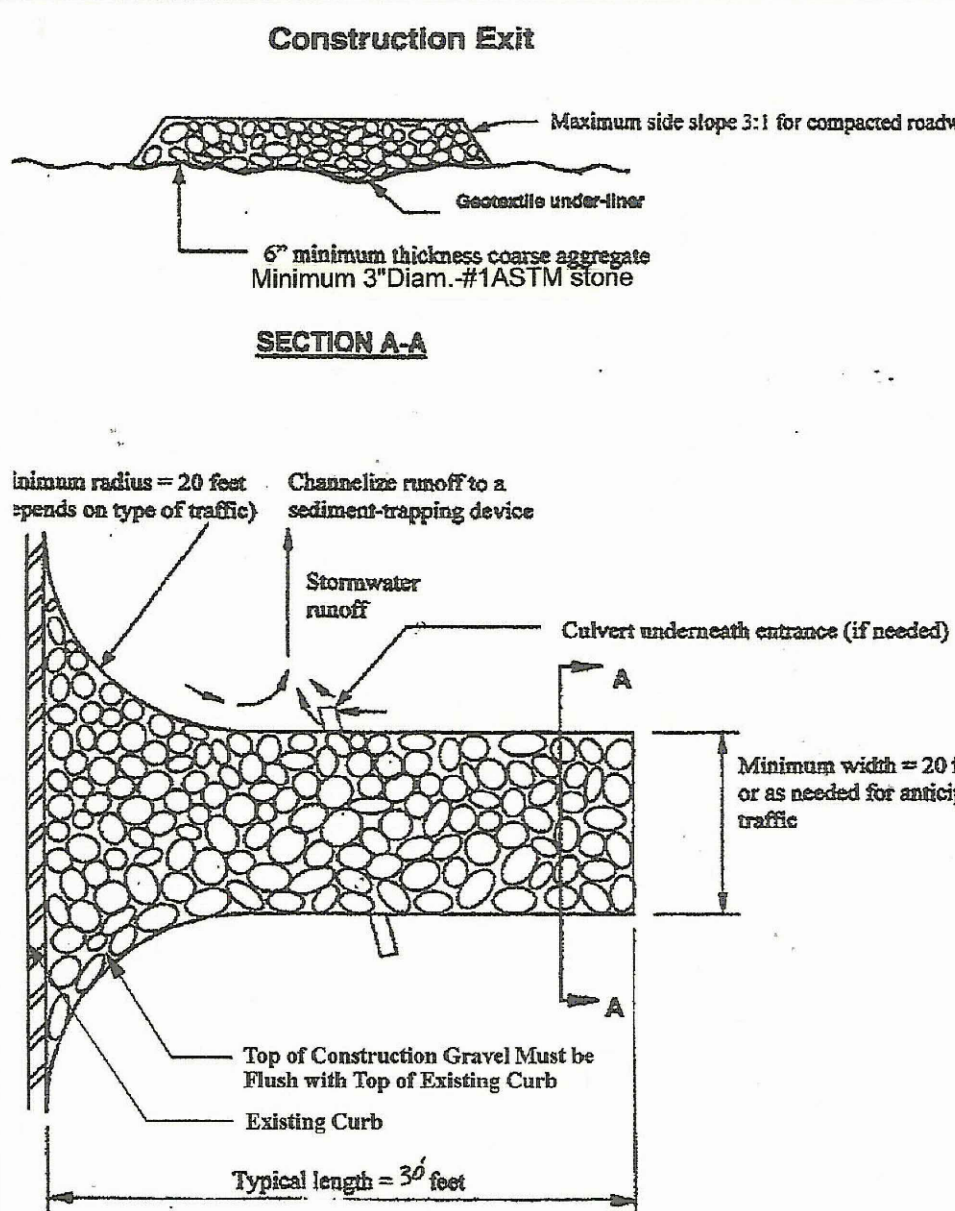
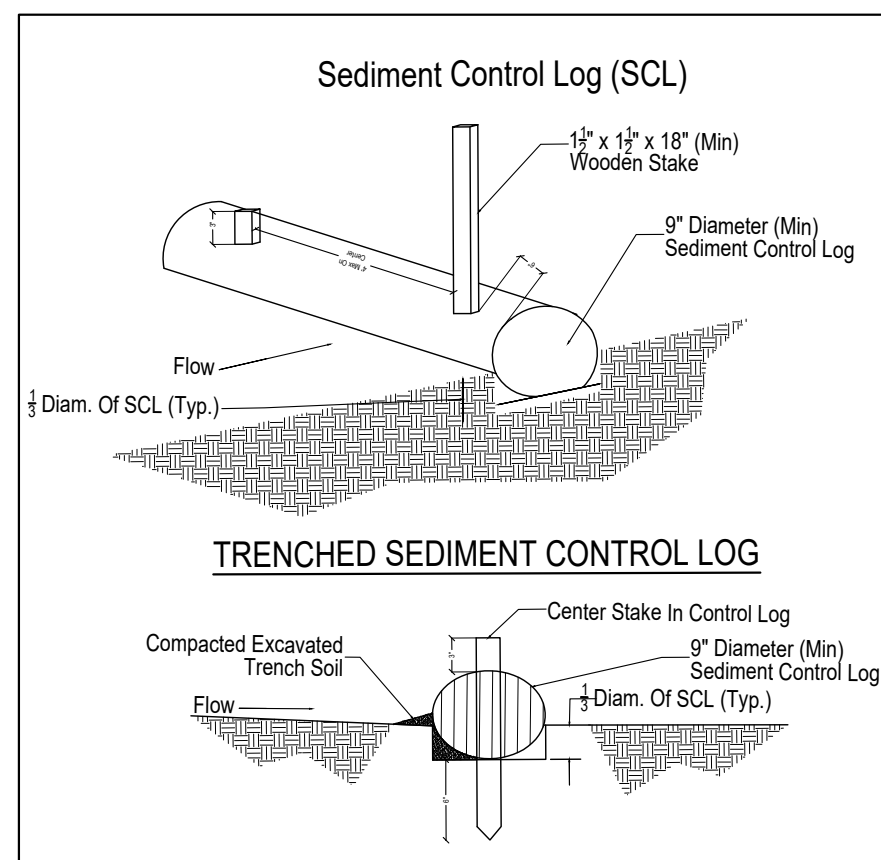
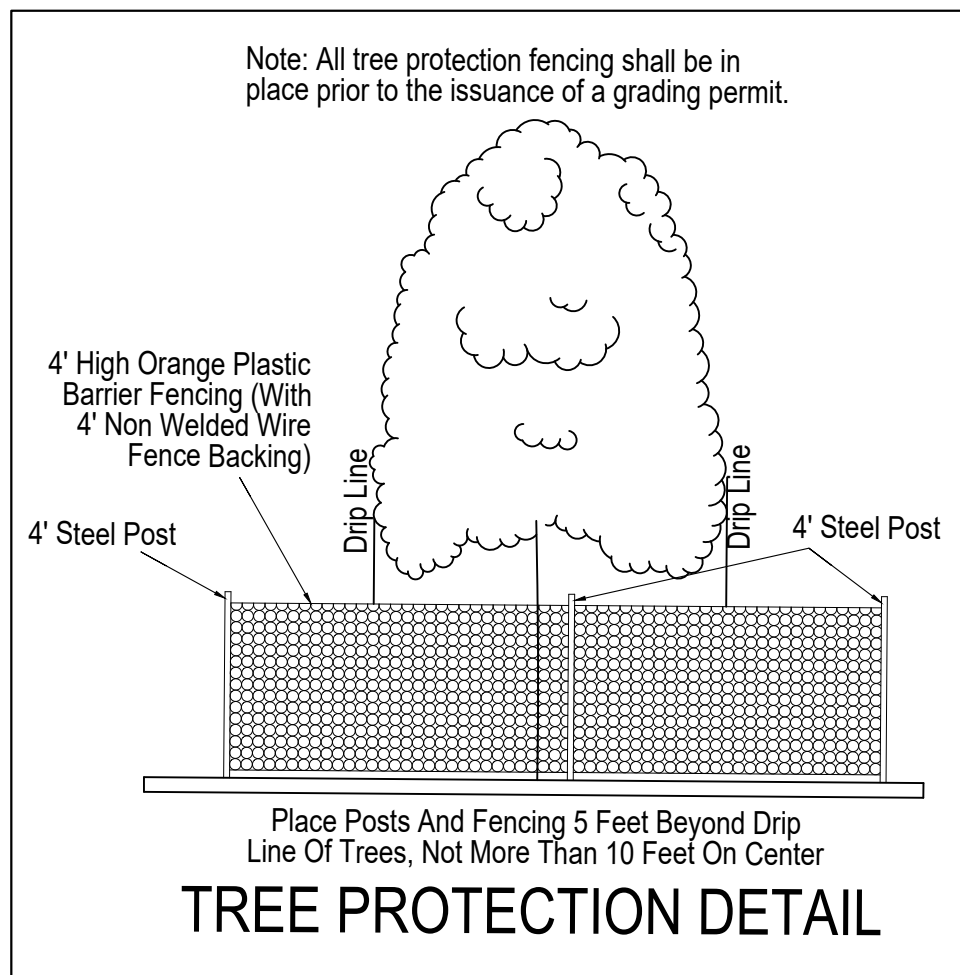
1. I ACKNOWLEDGE THAT THE CITY ENGINEER MUST APPROVE ANY DEVIATIONS FROM APPROVED SITE PLAN. ANY CHANGES MUST BE SUBMITTED ON REVISED SITE PLAN. VERBAL APPROVAL WILL NOT BE GIVEN.
2. I ACKNOWLEDGE THAT ALL GRADING AND DRAINAGE, AS PER APPROVED SITE PLAN, MUST BE 100% COMPLETE PRIOR TO FINAL INSPECTION. CERTIFICATE OF OCCUPANCY WILL NOT BE GIVEN UNTIL 100% COMPLETION IS ACHIEVED.

I HAVE READ AND REVIEWED SITE PLAN.

DATE:



Source: 1901 English Standard Drawings

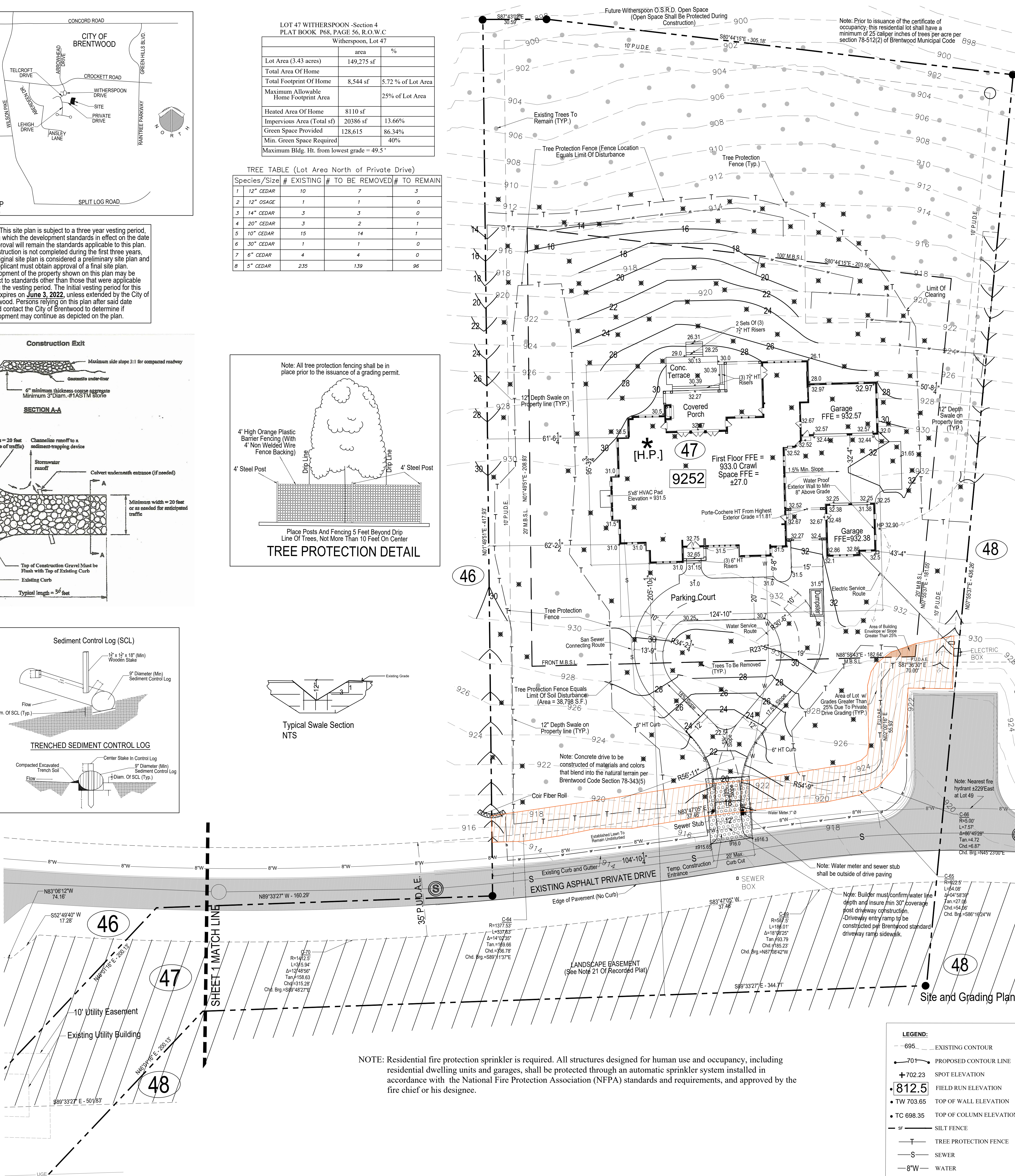


Note: All tree protection fencing shall be in place prior to the issuance of a grading permit.

Place Posts And Fencing 5 Feet Beyond Drip Line Of Trees, Not More Than 10 Feet On Center

TREE PROTECTION DETAIL

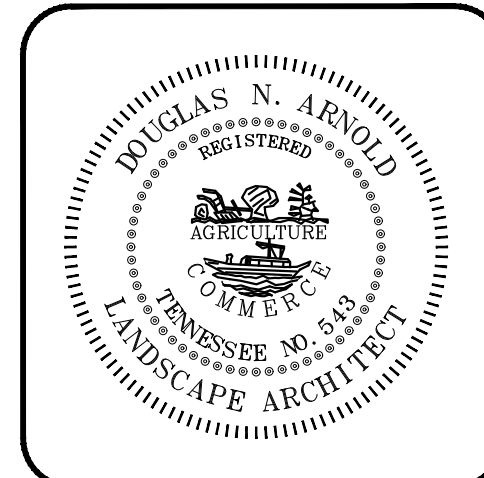
Typical Swale Section NTS



NOTE: Residential fire protection sprinkler is required. All structures designed for human use and occupancy, including residential dwelling units and garages, shall be protected through an automatic sprinkler system installed in accordance with the National Fire Protection Association (NFPA) standards and requirements, and approved by the fire chief or his designee.

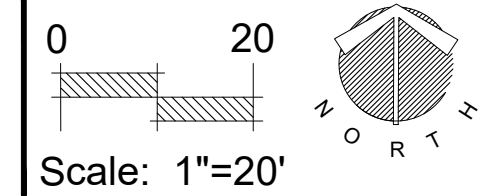
- LEGEND:
- 695 — EXISTING CONTOUR
 - 701 — PROPOSED CONTOUR LINE
 - + 702.23 SPOT ELEVATION
 - + 812.5 FIELD RUN ELEVATION
 - + TW 703.65 TOP OF WALL ELEVATION
 - + TC 698.35 TOP OF COLUMN ELEVATION
 - SF — SILT FENCE
 - T — TREE PROTECTION FENCE
 - S — SEWER
 - W — WATER
 - UGE — UNDERGROUND ELECTRIC

DATE	REVISIONS



Transitional Lot Site and Grading Plan
Lot 47 - 9252 Leigh Dr.
Witherspoon Section 4 O.S.R.D. - H.P.
Plat Book P68, Pg. 56; R.O.W.C.
Brentwood, Williamson County, TN

Douglas N. Arnold, R.L.A.
Land Planning Landscape Architecture
618 Watson Branch Drive
Franklin, TN 37064
(615) 218-9310
darnold@bellsouth.net



Scale: 1"=20'

NOTES:
This Drawing And/or CADD File From Which it was generated is a Document of Service and Shall Remain the Property of Douglas N. Arnold A.S.L.A. Any use of These Documents For purposes Other Than Those Associated with This project is Prohibited. This Drawing shall not be Reproduced, Published or used in any way without the express written consent of Douglas N. Arnold A.S.L.A.

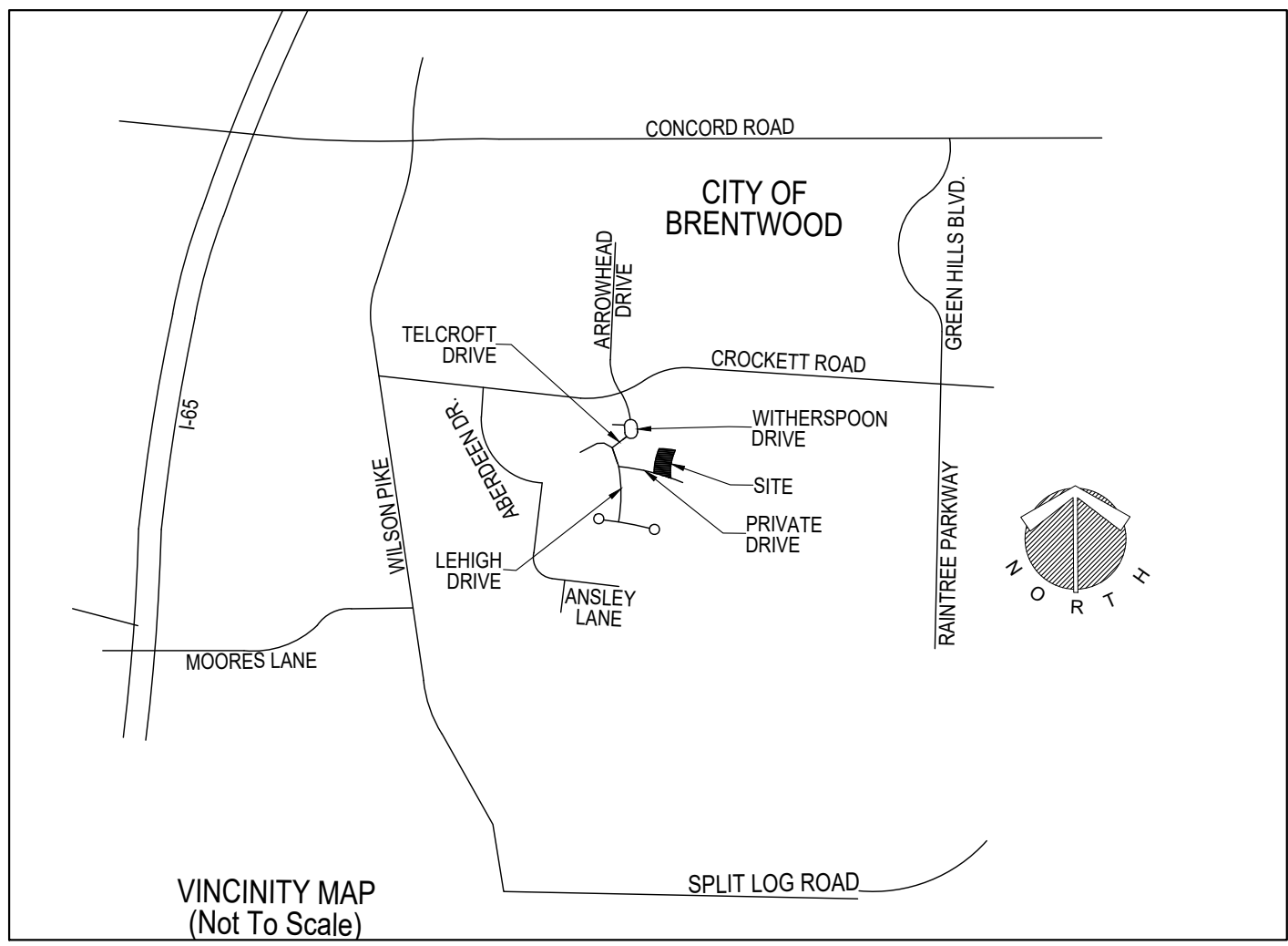
It is the responsibility of the purchaser of this plan to perform the following prior to implementation.
1.) Review with the builder or contractor all applicable codes, ordinances, Federal and State laws, and All Notes Provided on These plans prior to construction.
2.) Confirm that contractor or builder has verified all grades and dimensions shown prior to commencement of construction.

Note: Modification of this plan Must Only be performed by a qualified Architect, Engineer, or Landscape Architect.

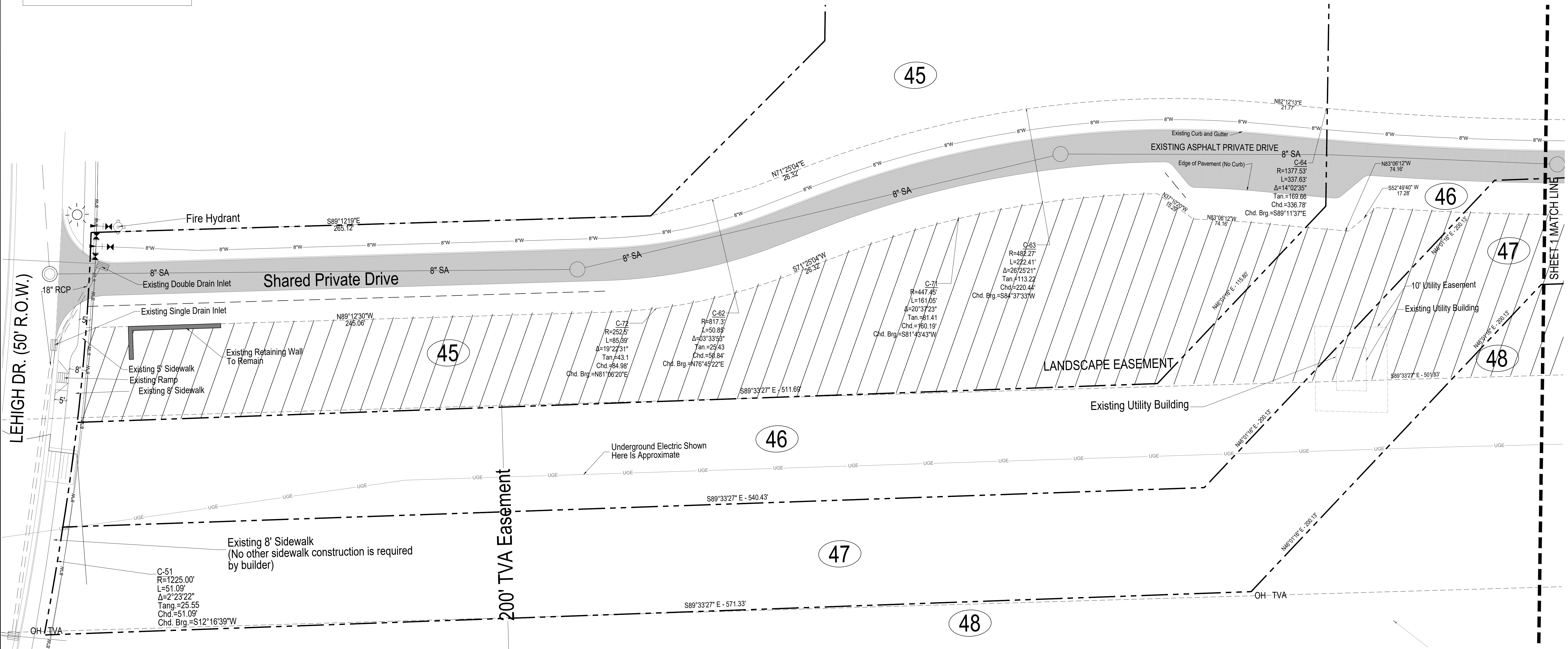
JOB NO. W547

S-1 of 2

DATE: 06.15.2020



- LEGEND:**
- 695 — EXISTING CONTOUR
 - 701 — PROPOSED CONTOUR LINE
 - + 702.23 SPOT ELEVATION
 - 812.5 FIELD RUN ELEVATION
 - TW 703.65 TOP OF WALL ELEVATION
 - TC 698.35 TOP OF COLUMN ELEVATION
 - 5' — SILT FENCE
 - T — TREE PROTECTION FENCE
 - S — SEWER
 - 8"W — WATER
 - UGE — UNDERGROUND ELECTRIC

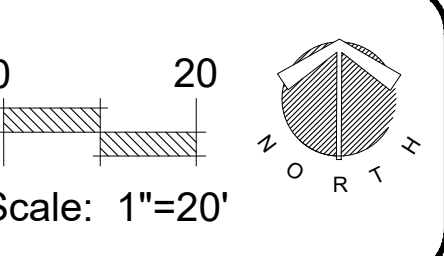


DATE	REVISIONS



Transitional Lot Site and Grading Plan
Lot 47 - 9252 Lehigh Dr.
Witherspoon Section 4 O.S.R.D. - H.P.
Plat Book P68, Pg. 56 - R.O.W.C.
Brentwood, Williamson County, TN

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Land Planning Landscape Architecture
618 Watson Branch Drive
Franklin, TN 37064
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dnadesigns@bellsouth.net



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2.) Confirm that contractor or builder has verified all grades and dimensions shown prior to commencement of construction.
Note: Modification of this plan Must Only be performed by a qualified Architect, Engineer, or Landscape Architect.



RIGHT ELEVATION
SCALE: 3/16" = 1'-0"

Don Johnson



LEFT ELEVATION
SCALE: 3/16" = 1'-0"

Bon Johnson



RIGHT ELEVATION
SCALE: 3/16" = 1'-0"

Bon Johnson

NOTE: ROOM SIZES ARE APPROXIMATE.

COPYRIGHT 2015 BY J



FRONT ELEVATION
SCALE: 3/16" = 1'-0"

Bon Johnson

COPYRIGHT 2020 BY JACK HERR DESIGN ASSOCIATES, INC.



REAR ELEVATION
SCALE: 3/16" = 1'-0"

Bon Johnson



FRONT ELEVATION
SCALE: 3/16" = 1'-0"

Bon Johnson



LEFT ELEVATION
SCALE: 3/16" = 1'-0"

Ben Johnson



REAR ELEVATION
SCALE: 3/16" = 1'-0"

Don Johnson

**BRENTWOOD PLANNING
COMMISSION**

2.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-003

PROJECT DESCRIPTION

**Minor Site Plan Alteration, Monument Sign – Brentwood Church of Christ, 208
Granny White Pike**

Harber Architecture, Inc., requests approval to construct a new monument sign at the Brentwood Church of Christ. The sign will be located along the property's Granny White Pike frontage.

The new sign will be constructed of stone veneer and brick to match the building. Black aluminum dimensional letters will be included. The sign will be externally illuminated using two flood lights. The existing monument sign will be removed.

Additionally, one new stone pedestal, also matching the sign and building fitted with a decorative solar lantern will be placed at each driveway.

ZONING OF PROPERTY

Zoning SI-1

APPLICANT NAME/ADDRESS

*Mr. Norm Harber, Harber Architecture, Inc., 303 Springfield Highway, Goodlettsville,
TN 37072*

Attachments

Final Staff Report
Location Map
Proposed Site Plan
Building Materials

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

CONSENT AGENDA -- ITEM 2:

REQUEST: **MINOR REVISIONS TO PREVIOUSLY APPROVED SITE PLAN – BRENTWOOD CHURCH OF CHRIST, 208 GRANNY WHITE PIKE**

PROJECT NUMBER: **BPC2006-003**

CURRENT ZONING: **SI-1 -- SERVICE INSTITUTION -- (RELIGIOUS)**

GENERAL INFORMATION:

Harber Architecture, Inc., requests approval to construct a new monument sign at the Brentwood Church of Christ. The sign will be located along the property's Granny White Pike frontage.

The new sign will be constructed of stone veneer and brick to match the building. Black aluminum dimensional letters will be included. The sign will be externally illuminated using two flood lights. The existing monument sign will be removed.

Additionally, one new stone pedestal, also matching the sign and building fitted with a decorative solar lantern will be placed at each driveway.

PROJECT LOCATION:

The subject property is located at 208 Granny White Pike.

APPROVAL HISTORY:

At its May 4, 2020 regular meeting, the Brentwood Planning Commission voted to approve revised exterior elevations for the Brentwood Church of Christ, located at 208 Granny White Pike. The proposed changes include the following:

- 1. All existing "mansard" roof elements will remain, the shingles will be replaced,*
- 2. All existing brick will be painted a gray color;*
- 3. A stone veneer shall be added at the base of the wall, and*
- 4. All metal panels as proposed on the upper portions of the elevations as part of the previous Planning Commission approval have been eliminated.*

On March 4, 2019 the Planning Commission approved revised building elevations for the Brentwood Church of Christ, located at 208 Granny White Pike. The proposed changes included the following:

1. The addition of smooth metal panels, in a charcoal gray color;
2. The addition of corrugated metal panels, in a slate gray color;
3. Removal of the existing mansard roof;
4. Painting the existing brick, a shade of gray, and
5. Adding a stone veneer at base of building.

CONDITIONS OF APPROVAL

Staff recommends that the following condition be attached to the approval of the request.

1. A site plan shall be vested for a period of three years from the date of the original approval.

STANDARD REQUIREMENTS:

Staff recommends that the following **ten** standard requirements be attached to the approval of the request.

1. Add the following note to the site plan;

*This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **March 4, 2022**, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.*

2. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
3. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.

4. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
5. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
6. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
7. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
8. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
9. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
10. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

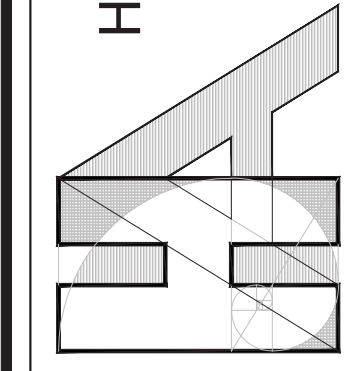
RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed minor site plan revisions, subject to the requirements of the staff report.





Harber Architecture, Inc.
1303 Springfield Hwy, Goodlettsville, TN 37072
Phone: 615-497-5043 Email: normharber@gmail.com

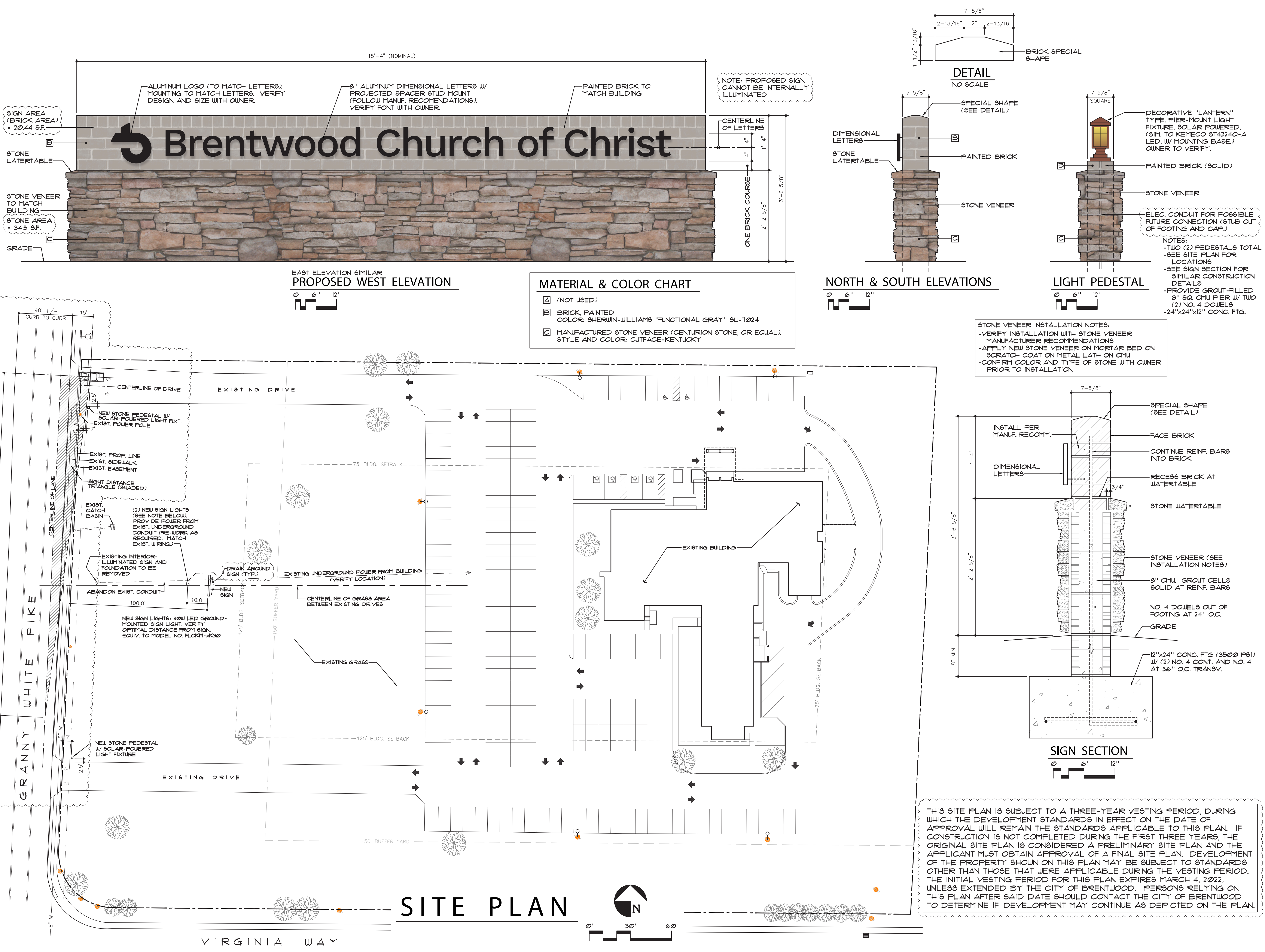


ISSUE DATE:
5 / 22 / 20

REVISIONS:
6 / 12 / 20

NEW EXTERIOR SIGN FOR:
BRENTWOOD CHURCH OF CHRIST
208 GRANNY WHITE PIKE BRENTWOOD, TENNESSEE 37027

SHEET NUMBER
A-1



Brentwood Church of Christ – BPC 2004-005 – Exterior Building Materials & Colors



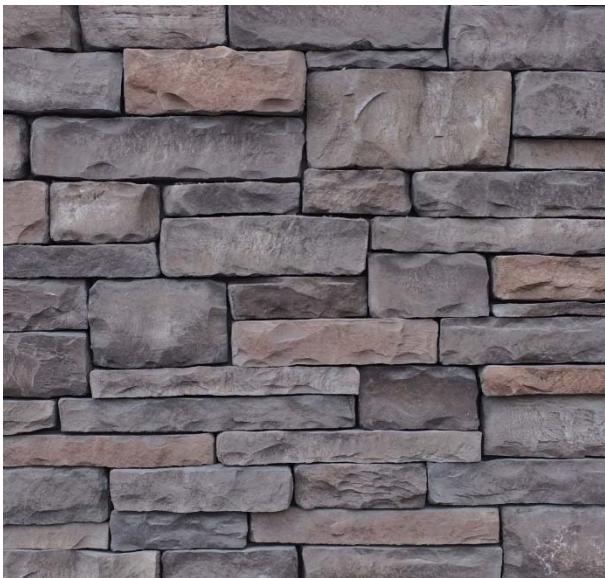
Roof shingles: GAF Timberline Charcoal Shingle (or approved equal).



Existing brick, painted: Sherwin-Williams
"Functional Gray" SW-7024

SW 7024
Functional Gray

241-C3



Manufactured stone veneer: Centurion
Stone, Cutface Kentucky (or approved
equal).

**BRENTWOOD PLANNING
COMMISSION**

3.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-006

PROJECT DESCRIPTION

Hillside Protection Overlay Site Plan Review – Stonehenge Subdivision, Section Three, Lot 117, 1324 Robert E. Lee Lane

Mr. Mark Miller requests approval of a Hillside Protection Overlay Site plan that completely modifies the exterior of the existing home.

The applicant is requesting to add approximately 1,929 sf to the home. The changes to the plan include:

- 1. Addition of a second story with 10 ft. high ceilings;*
- 2. Addition of a 4' x 26' rear addition;*
- 3. Paint the existing brick Shoji white;*
- 4. Install new brick, all exterior never-rot trim;*
- 5. Install 6" gutters and downspouts;*
- 6. Install front door gas lights, and up lighting;*
- 7. Accent hardy board areas, and*
- 8. New architectural roof shingles per elevation rendering.*

The new area of the home will be approximately 4,633 sf (Basement-1,125 sf, First floor-1,797 sf, Second floor-1,711 sf).

ZONING OF PROPERTY

Zoning OSRD

APPLICANT NAME/ADDRESS

Mr. Mark Miller, 5116 Prince Phillip Cove, Brentwood, TN 37027

Attachments

Final Staff Report
Location Map

Site Plan

Front Elevations -- Before & after

All Elevations

Boundary & Topo

Sherwin Williams -- Exterior paint Color Samples

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

CONSENT AGENDA -- ITEM 3:

REQUEST: **REVISED HILLSIDE PROTECTION OVERLAY SITE PLAN
REVIEW – STONEHENGE SUBDIVISION, SECTION TWO,
LOT 117, 1324 ROBERT E. LEE LANE**

PROJECT NUMBER: **BPC2006-006**

CURRENT ZONING: **OSRD -- OPEN SPACE RESIDENTIAL DEVELOPMENT**

GENERAL INFORMATION:

Mr. Mark Miller requests approval of a Hillside Protection Overlay Site plan that completely modifies the exterior of the existing home.

The applicant is requesting to add approximately 1,929 sf to the home. The changes to the plan include:

- 1. Addition of a second story with 10 ft. high ceilings;*
- 2. Addition of a 4' x 26' rear addition;*
- 3. Paint the existing brick Shoji white;*
- 4. Install new brick, all exterior never-rot trim;*
- 5. Install 6" gutters and downspouts;*
- 6. Install front door gas lights, and up lighting;*
- 7. Accent hardy board areas, and*
- 8. New architectural roof shingles per elevation rendering.*

The new area of the home will be approximately 4,633 sf (Basement-1,125 sf, First floor-1,797 sf, Second floor-1,711 sf).

PROJECT LOCATION:

The subject property is located at 1324 Robert E. Lee.

APPROVAL HISTORY:

There has been no recent Planning Commission action related to the subject property.

CONDITIONS OF APPROVAL:

Staff recommends that the following **three** conditions be attached to the approval of the request.

1. The front yard does not drain away from the home as required. The elevation of the front yard in some areas is higher than the finished floor elevation. Additional grading will be required.
2. Any modifications or repairs to the driveway as a result of its use during construction shall be completed in accordance to current codes.
3. A Hillside Protection site plan shall be vested for a period of three years from the date of the original approval.

STANDARD REQUIREMENTS:

Staff recommends that the following **13** standard requirements be attached to the approval of the request.

1. Add the following note to the Hillside Protection Overlay site plan;

*This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **July 6, 2023**, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.*

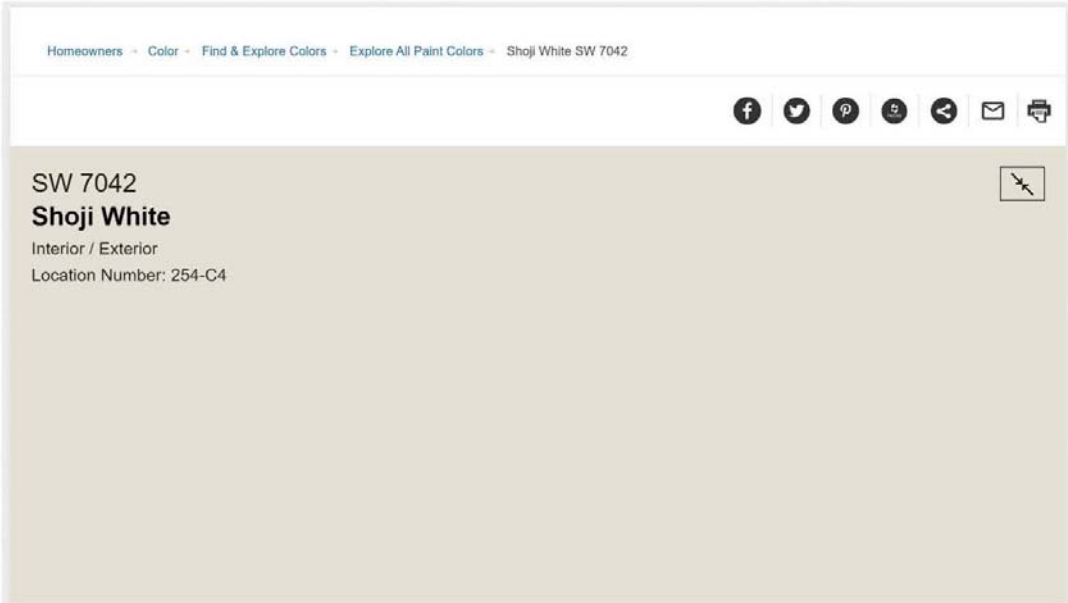
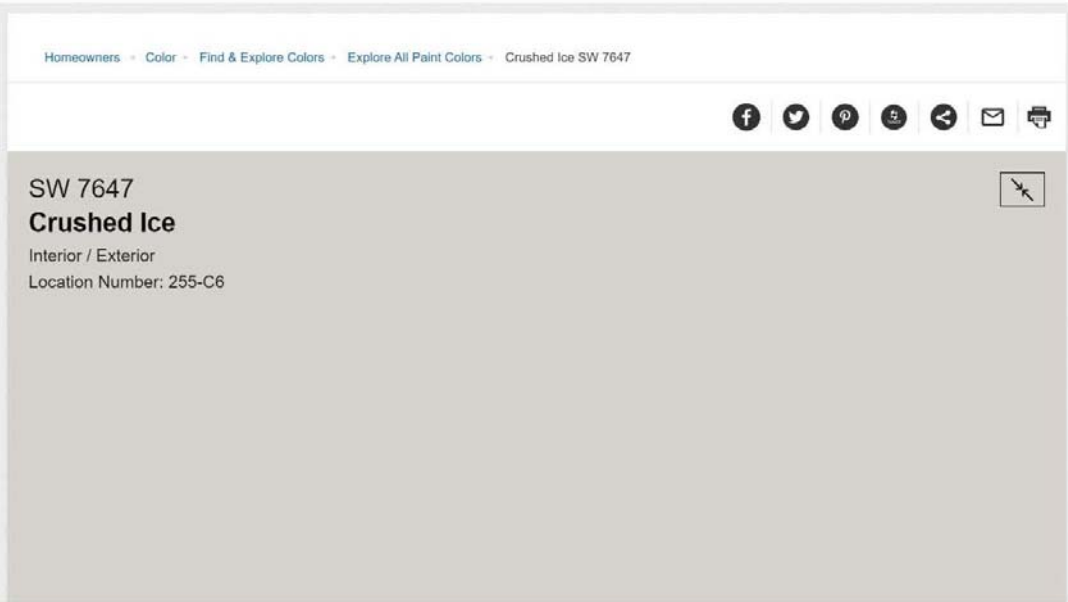
2. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
3. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.

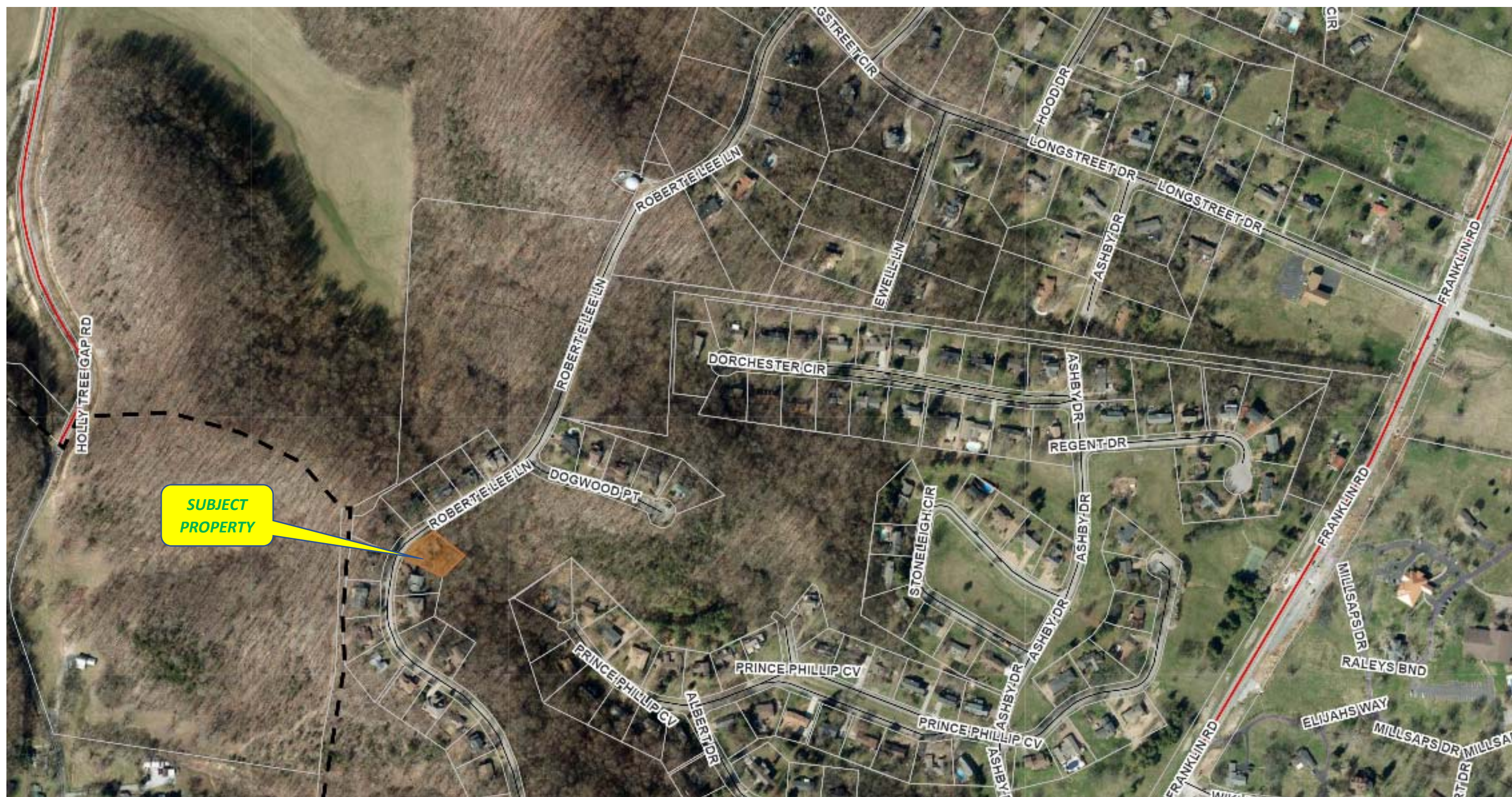
4. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
5. Add the following note to the plan: "All structures designed for human use and occupancy, including residential dwelling units and garages, shall be protected through an automatic sprinkler system installed in accordance with National Fire Protection Association (NFPA) standards and requirements and approved by the fire chief or his designee."
6. Following approval by the Planning Commission of the Hillside Protection site plan, a grading permit will be required. The site plan shall be reviewed as a Transitional Lot.
7. All existing trees shall be preserved and protected during construction.
8. Approval of this plan does not constitute approval of the existing drive and garage apron being on adjacent property. Also, current code states that drives must be 5' from the property line. Any work on the existing drive would require the drive to be brought into compliance.
9. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees.
10. Deviations from the approved plan/plat in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
11. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
12. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
13. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed revised hillside protection overlay site plan, subject to the requirements of the staff report.

SHERWIN WILLIAMS EXTERIOR PAINT COLOR SAMPLES
1324 ROBERT E. LEE LANE





GENERAL NOTES

- THE FOLLOWING NOTES ARE APPLICABLE TO ALL CIVIL DOCUMENTS.
- THE CONTRACTOR SHALL USE MATERIALS AND EMPLOY CONSTRUCTION METHODS IN ORDER TO COMPLY WITH THE DRAWINGS AND SPECIFICATIONS. WHERE A CONFLICT OCCURS, THE STRICTEST DESIGN SHALL GOVERN. ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC. DOES NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL INFORM THE OWNER AND ENGINEER IN WRITING OF ANY SPECIFIC DEVIATIONS AND OBTAIN OWNER'S AND ENGINEER'S WRITTEN APPROVAL OF THE SPECIFIC DEVIATION.
- THE CONTRACTOR SHALL CONFORM TO ALL LOCAL CODES AND OBTAIN ALL PERMITS AND BOND, IF REQUIRED, PRIOR TO BEGINNING WORK.
- BASE SURVEY PROVIDED BY HOMELAND SURVEYING AND MAPPING, LLC. DATED MAY 06, 2020.
- DO NOT SCALE DRAWING AS THEY ARE REPRODUCTION AND SUBJECT TO DISTORTION.
- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE STARTING ANY WORK. DAMAGES TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED ACCORDING TO LOCAL STANDARDS AND SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
- THE CONTRACTOR IS RESPONSIBLE FOR NOTIFICATIONS AND LIAISON WITH UTILITY COMPANIES IN THE PROCESS OF LOCATING, RELOCATION AND TIE-IN TO PUBLIC UTILITIES. ALSO, CONTRACTOR IS RESPONSIBLE FOR NOTIFYING ALL INSPECTORS A MINIMUM 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES. VERIFY WITH GOVERNING AGENCY.
- ALL DAMAGE TO EXISTING ASPHALT PAVEMENT TO REMAIN, WHICH RESULTS FROM NEW CONSTRUCTION, SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE.
- THESE PLANS, PREPARED BY COLLIER ENGINEERING INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF COLLIER'S REGISTERED PROFESSIONAL ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
- HOUSE PLACEMENT PRE-DATES CURRENT MINIMUM BUILDING SETBACK LIMITS.
- All structures designed for human use and occupancy, including residential dwelling units and garages, shall be protected through an automatic sprinkler system installed in accordance with National Fire Protection Association (NFPA) standards and requirements and approved by the fire chief or his designee.
- This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The initial vesting period for this plan expires on July 6, 2023, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.
- THE ENTIRE TRACT IS LOCATED WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 500 YR FLOOD) REFERENCE FEMA FIRM COMMUNITY PANEL 47187C0205F, effective 08/09/2006

GRADING

- NO TREES ARE TO BE REMOVED AND/OR VEGETATION DISTURBED EXCEPT AS NECESSARY FOR PURPOSE OF PROPOSED ADDITION.
- ALL TOPSOIL, FILL MATERIAL, EXISTING FOUNDATIONS, UTILITIES, UNDER GROUND TANKS, PAVEMENT, BASE AND ANY OTHER DELETERIOUS MATERIALS SHALL BE COMPLETELY REMOVED FROM WITHIN THE BEARING ZONE BELOW THE STRUCTURE.
- PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS / ACCESSORY STRUCTURES FOR ALL NATURAL AND PAVED AREAS. NOTIFY ENGINEER OF SUBGRADE SOFTENED BY PERCHED WATER IN FOUNDATIONS AND PAVEMENT AREAS.
- ALL GRADED AREAS, INCLUDING SLOPES, ARE TO BE MULCHED AND SEEDS AS SOON AS POSSIBLE AFTER GRADING IS COMPLETED.
- CONSTRUCT EROSION CONTROL AS SHOWN ON DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
- ALL DIMENSIONS AND LOCATIONS OF TEMPORARY EROSION AND WATER POLLUTION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DESIGNER'S REPRESENTATIVE.
- WHEN THE TEMPORARY SOIL EROSION AND WATER POLLUTION DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE IN THE OPINION OF THE OWNER'S REPRESENTATIVE THEY SHALL BE REMOVED.
- CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS PRIOR TO BEGINNING WORK.
- CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED ENGINEERING GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE AND MOVEMENT OF MATERIALS. THE CONTRACTOR SHALL VERIFY WITH TOPOGRAPHY SURVEY. SHOULD THE CONTRACTOR HAVE ANY QUESTION OF THE INTENT OR ANY PROBLEMS WITH CONTINUITY OF GRADES, THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY PRIOR TO BEGINNING WORK.
- PROVIDE TEMPORARY CONSTRUCTION ACCESS AT THE POINT WHERE CONSTRUCTION VEHICLES EXIT THE CONSTRUCTION AREA. ANY MUD/CONSTRUCTION DEBRIS THAT MAY BE TRANSPORTED ONTO SURROUNDING ROADS OR PARKING AREAS SHALL BE SWEEPED AND CLEANED IMMEDIATELY.
- EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT (1' FOOT).
- THIS GRADING AND DRAINAGE PLAN IS NOT A DETERMINATION OR GUARANTEE OF THE SUITABILITY OF SURFACE CONDITIONS FOR THE WORK INDICATED. DETERMINATION OF THE SUBSURFACE CONDITIONS FOR THE WORK INDICATED IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

City of Brentwood STD NOTES:

- BUILDER TO CALL BRENTWOOD ENGINEERING DEPARTMENT FOR INITIAL EROSION CONTROL INSPECTION (615-371-0080) PRIOR TO ISSUANCE OF A PERMIT.
- ALL RETAINING WALLS ABOVE 4 FT SHOULD BE DESIGNED AND INSPECTED BY A LICENSED PROFESSION ENGINEER AND CERTIFIED IN WRITING PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- A TEMPORARY CERTIFICATE OF OCCUPANCY WILL NOT BE GIVEN FOR GRADING AND DRAINAGE RELATED ISSUES.
- ALL RETAINING WALLS IN EXCESS OF 30" REQUIRE SAFETY RAIL OR BARRIER AS PER BRENTWOOD CODE.

PROPERTY DATA

- PARCEL ID 036C D 02900 00015036C
- BASE ZONING OSRD (OPEN SPACE RESIDENTIAL DEVELOPMENT)
- SUBDIVISION STONEHENGE
- PLAT REFERENCE STONEHENGE, SECTION 3, LOT 117 PB 7, PG 89 R.O.W.C.
- GROSS AREA (PER PLAT) 0.415 AC (18,077 SQ. FT.)
- OWNER MARK AND PAMELA MILLER
- ADDRESS 1324 ROBERT E LEE LANE, BRENTWOOD, TN
- EXISTING HOUSE FOOT PRINT 1598 SF
- NUMBER OF STORIES 2 STORIES W/ BASEMENT
- TOTAL CONDITIONED AREA 4700 SF
- PROPOSED ADDITION 103 SF
- TOTAL HT FROM LOWEST FLR 40 FT ±
- PERCENT BUILDING COVERAGE 9.4%
- CONCRETE DRIVEWAY 1569 SF
- TOTAL IMPERVIOUS AREA 3270 SF
- IMPERVIOUS SURFACE RATIO (ISR) 18.1%
- PERCENT GREEN SPACE 81.9 % (40% min req)
- BASEMENT COVERAGE ELEVATION AT HALF BASEMENT HEIGHT = 1127' HOUSE PERIMETER - 207 LF
- GRADE AT PERIMETER OF HOUSE ABOVE 1127' = 98 LF (48.5%)*
- GRADE AT PERIMETER OF HOUSE BELOW 1127' = 109 LF (51.5%)*
- *Home pre-dates current ordinance

SITE PLAN ACKNOWLEDGEMENT

SUBDIVISION: Stonehenge
LOT NUMBER(S): 117
PERMIT HOLDER ACKNOWLEDGMENT

I ACKNOWLEDGE THAT THE CITY ENGINEER MUST APPROVE ANY DEVIATION FROM THE APPROVED SITE PLAN. THE CHANGES SHALL BE SUBMITTED ON A REVISED SITE PLAN. VERBAL APPROVAL MAY NOT BE GIVEN.

I ACKNOWLEDGE THAT ALL THE GRADING AND DRAINAGE AS PER APPROVED SITE PLAN SHALL BE 100% COMPLETE UPON FINAL INSPECTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL 100% COMPLETION IS ACHIEVED.

I, Mark Miller, HAVE READ AND REVIEWED THIS SITE PLAN

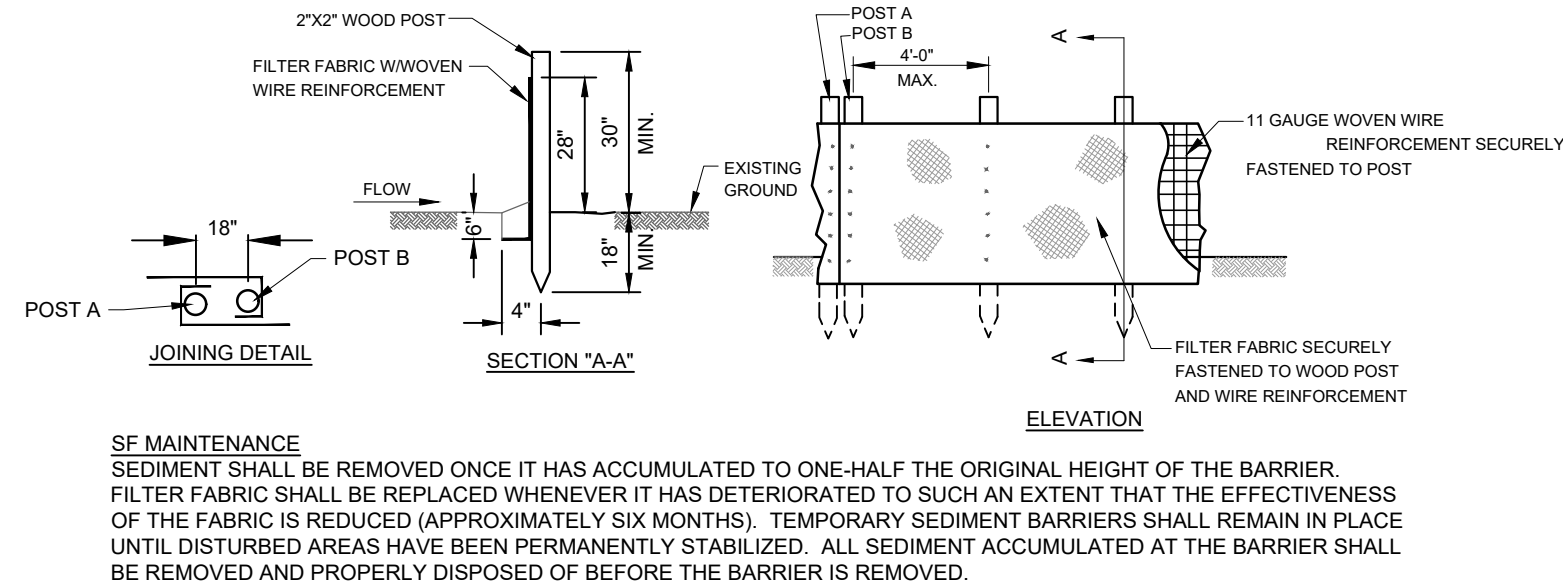
Mark Miller May 12th, 2020

HOMELAND SURVEYING & MAPPING, LLC
PROFESSIONAL LAND SURVEYING
(615) 268-9658
Jake@HomelandTN.com
www.HomelandTN.com
SURVEY DATE: MAY 06, 2020

PROJECT CONTACTS

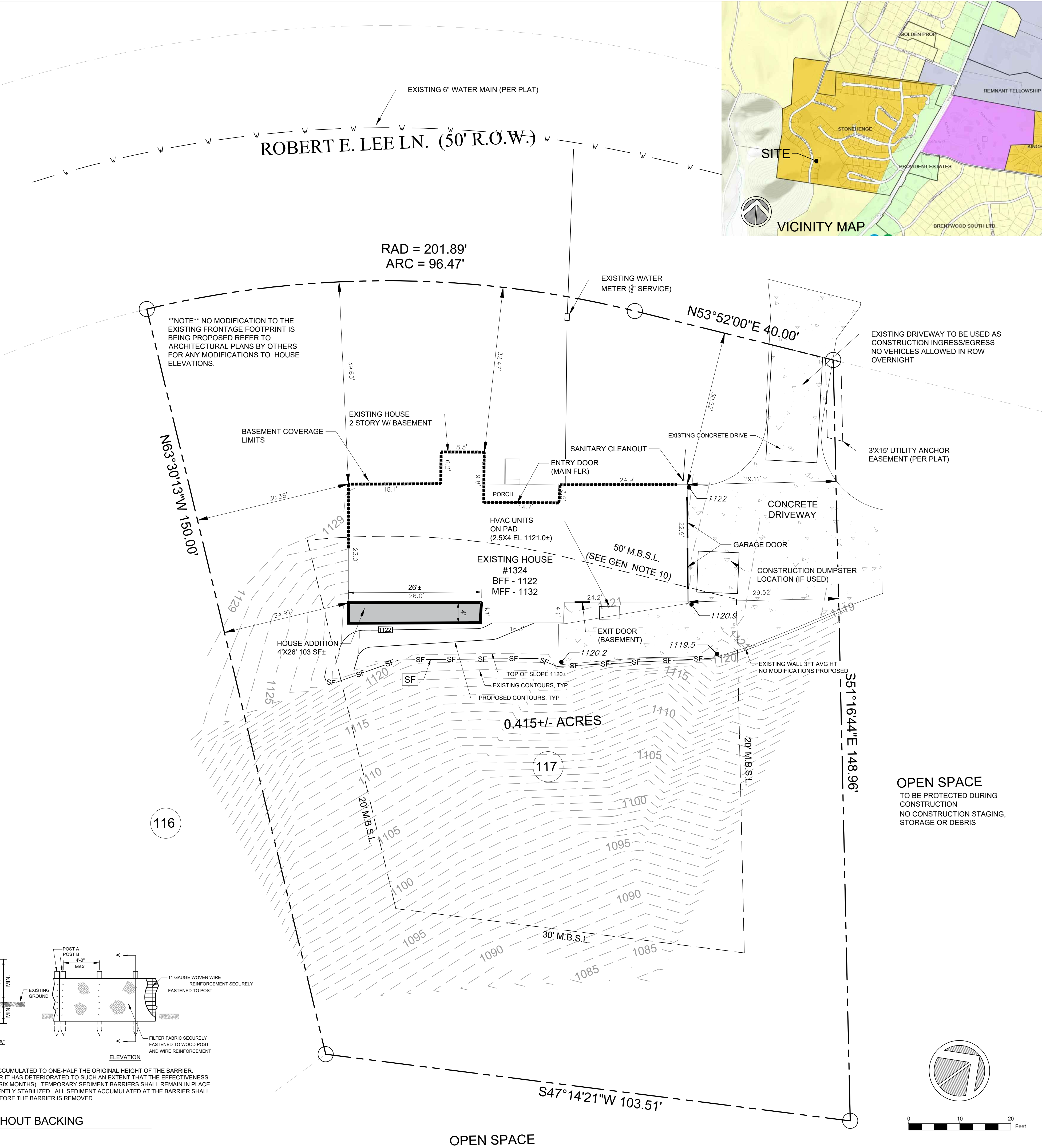
OWNER/CONTRACTOR/APPLICANT:
Mark Miller
1324 Robert E Lee Lane
Brentwood, TN
PH : 615.500.7049
email : marksmiller1@comcast.net

ENGINEER:
COLLIER ENGINEERING, INC
2949 NOLENSVILLE PIKE
NASHVILLE, TN 37211
PH- (615) 390-7098



SF MAINTENANCE
SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED (APPROXIMATELY SIX MONTHS). TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.

SILT FENCE WITHOUT BACKING
NTS



REVISIONS	
NO.	DATE BY DESCRIPTION

COLLIER ENGINEERING CO., INC.
CONSULTING • DESIGN • CONSTRUCTION

2949 NOLENSVILLE PIKE, NASHVILLE TN., 37211
PHONE: (615) 331-1441 FAX: (615) 331-1050

TRANSITIONAL LOT SITE PLAN
STONEHENGE, SECTION 3, LOT 117
1324 ROBERT E LEE LANE
BRENTWOOD, TN 37027

WILLIAM JASON
REGISTERED PROFESSIONAL ENGINEER
05/12/2020
CONTRACT NO. 105334
STATE OF TENNESSEE

DATE: 04/30/2020

SITE PLAN

SHEET NO:



BEFORE



AFTER



1324 ROBERT E LEE



FRONT



RIGHT SIDE



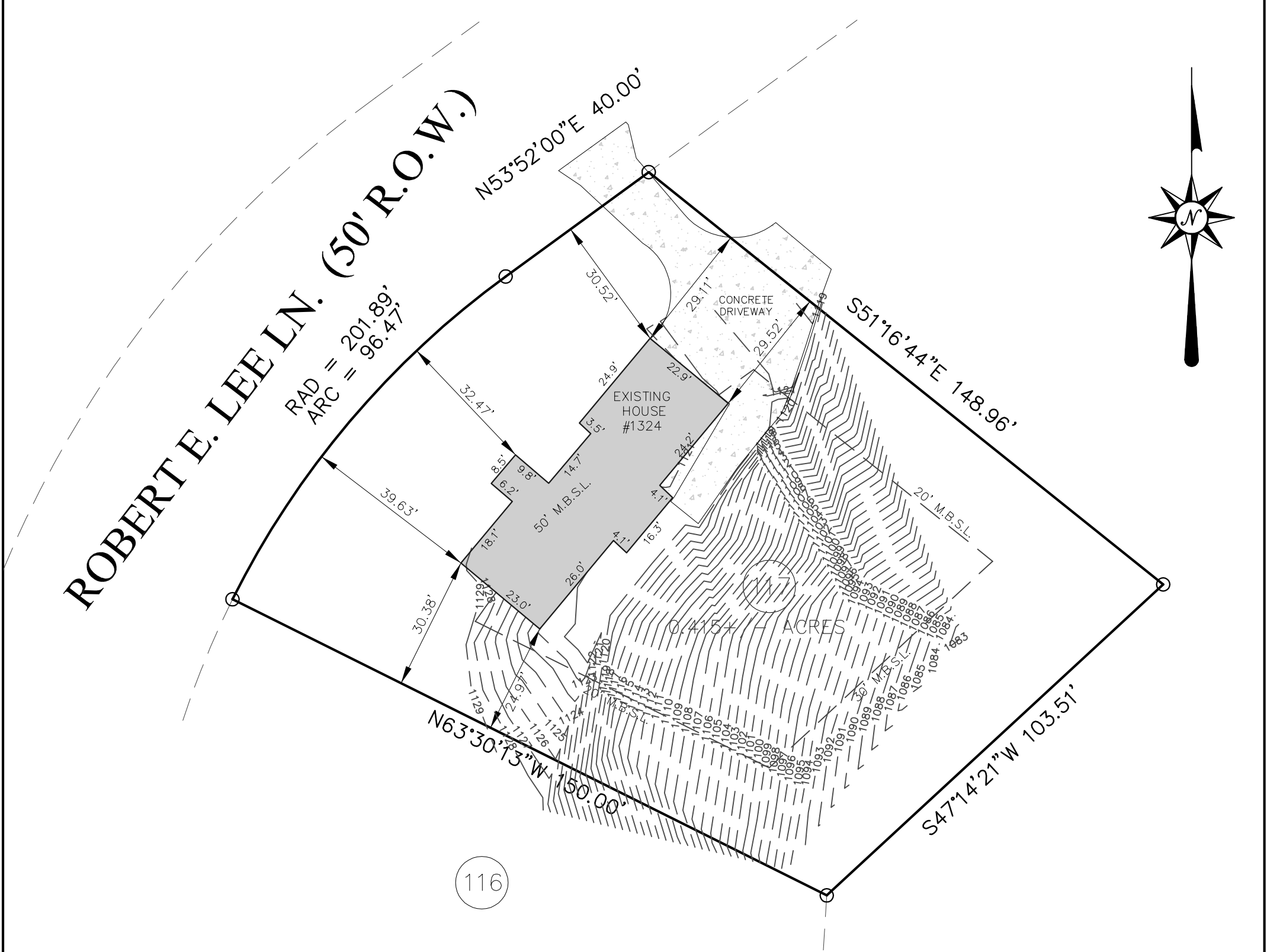
LEFT SIDE



BACK

PICTURED COLOR: SHERWIN WILLIAMS CRUSHED ICE

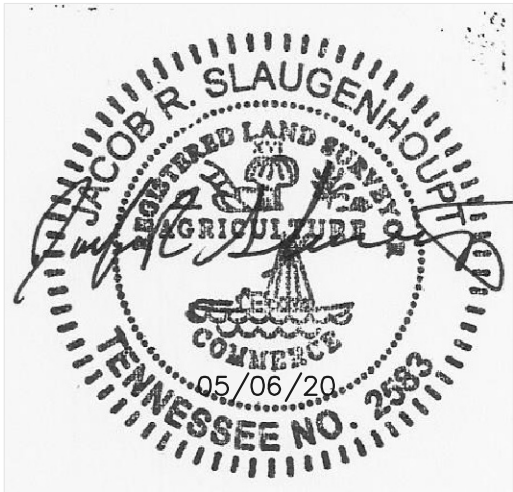
(Respectfully request to paint brick
Shoji White instead.
Many homes in neighborhood
are being painted white.)



GENERAL NOTES:

- 1. BEARINGS SHOWN HEREON ARE BASED ON RECORD PLAT OF STONEHENGE, SECTION 3, OF RECORD IN PLAT BOOK 7, PAGE 89, R.O.W.C., TN.
- 2. ALL DISTANCES WERE MEASURED WITH EDM EQUIPMENT AND HAVE BEEN ADJUSTED FOR TEMPERATURE.
- 3. PROPERTY IS PARCEL 029.00 AS SHOWN ON WILLIAMSON COUNTY PROPERTY MAP 036C, GROUP D, AND HAS A STREET ADDRESS OF 1324 ROBERT E. LEE LANE, BRENTWOOD, TN. 37027..
- 4. UTILITIES ARE NOT SHOWN AS PART OF THIS SURVEY.

I HEREBY CERTIFY THAT THIS IS A CATEGORY I SURVEY AND THE RATIO OF PRECISION OF THE UNADJUSTED SURVEY IS GREATER THAN 1:10,000 AS SHOWN HEREON.



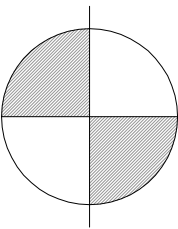
JACOB R. SLAUGENHOUP, RLS DATE

LEGEND:

- M.B.S.L. MINIMUM BUILDING SETBACK LINE
- R.O.W. RIGHT-OF-WAY
- RAD RADIUS
- ARC ARC DISTANCE

BOUNDARY SURVEY
& PARTIAL TOPOGRAPHIC SURVEY
OF
1324 ROBERT E. LEE LANE
BRENTWOOD, TN 37027

OWNED BY WARDEN, DON & ANN
DEED BOOK 800, PAGE 475, R.O.W.C., TN.
LOT NO. 117, STONEHENGE, SECTION 3..
PLAT BOOK 7 PAGE 89, R.O.W.C., TN.
BRENTWOOD, WILLIAMSON COUNTY, TN.
TAX PARCEL: 036C - D - 029.00



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& MAPPING, LLC

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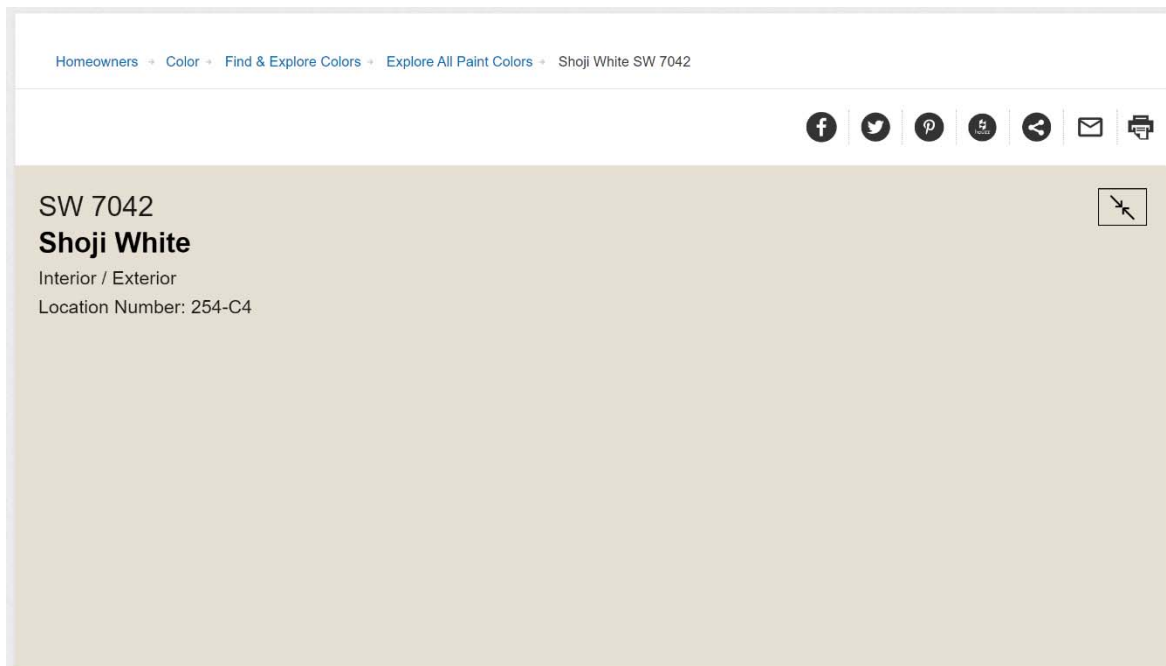
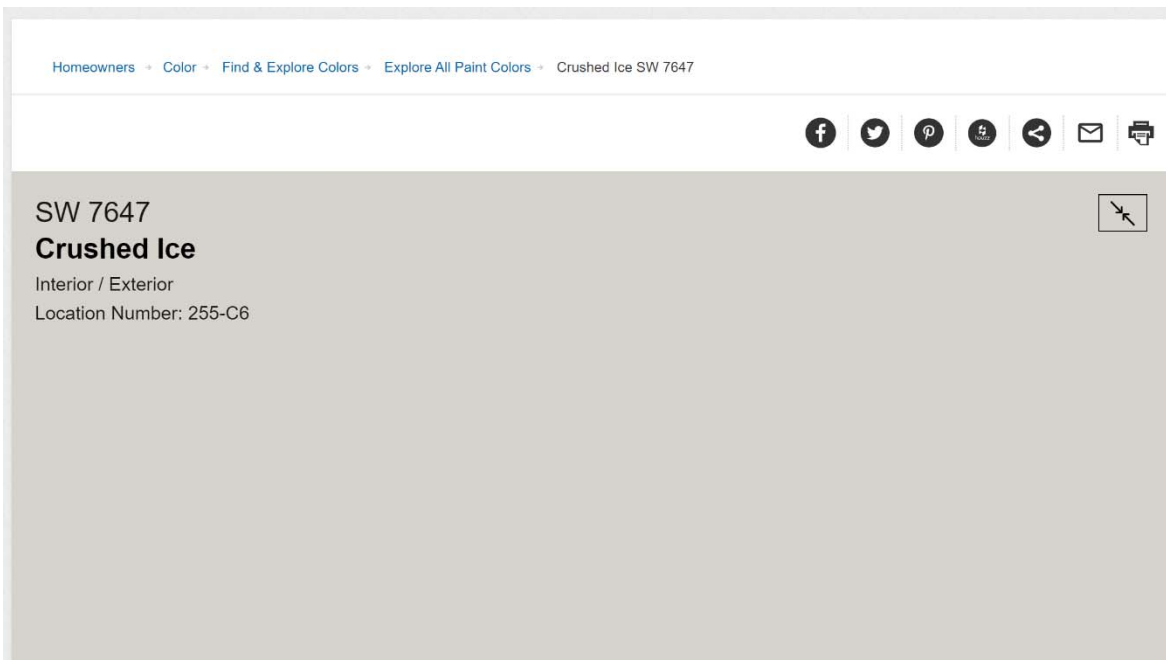
MAY 06, 2020



0 30

SHERWIN WILLIAMS EXTERIOR PAINT COLOR SAMPLES

1324 ROBERT E. LEE LANE



**BRENTWOOD PLANNING
COMMISSION**

4.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-007

PROJECT DESCRIPTION

Revised Site Plan – AC Marriott Brentwood, Hill Center Brentwood

Goodwyn, Mills & Cawood (GMC) requests approval of a revised site plan that adds a generator and enclosure to the site.

The proposed generator will be a six-cylinder diesel engine with a fuel capacity of 300 gallons. The generator, without the sub-base tank measures 152" x 60" x 71" (12.7' x 5' x 6') The enclosure will be constructed of masonry materials to match the building.

The generator will operate approximately 10 hours with the specified tank capacity. Noise levels are in the 85 dB(A) range when running.

A metal slat screen wall will extend beyond the masonry enclosure. A metal slat gate is also included as part of the proposal. The screen wall and the gate will be painted to match the metal used on the building.

No additional improvements to the building, which is under construction are included as part of the proposal.

ZONING OF PROPERTY

Zoning C-2

APPLICANT NAME/ADDRESS

Mr. Brantley Beeler, GMC, 3310 West End Ave., Suite 420 Nashville, TN 37203

Attachments

Final Staff Report

Site Plan

New Generator Specs

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

CONSENT AGENDA -- ITEM 4:

REQUEST: **REVISED SITE PLAN – AC MARRIOTT BRENTWOOD,
HILL CENTER BRENTWOOD**

PROJECT NUMBER: **BPC2006-007**

CURRENT ZONING: **C-2 -- COMMERCIAL RETAIL**

GENERAL INFORMATION:

Goodwyn, Mills & Cawood (GMC) requests approval of a revised site plan that adds a generator and generator enclosure to the site.

The proposed generator will be a six-cylinder diesel engine with a fuel capacity of 300 gallons. The generator, without the sub-base tank measures 152" x 60" x 71" (12.7' x 5' x 6') The enclosure will be constructed of masonry materials to match the building.

The generator will operate approximately 10 hours with the specified tank capacity. Noise levels are in the 85 dB(A) range when running.

A metal slat screen wall will extend beyond the masonry enclosure. A metal slat gate is also included as part of the proposal. The screen wall and the gate will be painted to match the metal used on the building.

No additional improvements to the building, which is under construction are included as part of the proposal.

PROJECT LOCATION:

The subject property is located at 5007 Maryland Way.

APPROVAL HISTORY:

At its March 8, 2019 meeting, the Brentwood Planning Commission voted to approve a revised site plan for the AC Marriott Hotel at the Hill Center Brentwood. The proposed changes include:

- 1) The addition of seven rooms for a total of 148;*
- 2) A slight reduction in the building footprint, and*
- 3) A sight modification to the exterior façade.*

The additional seven rooms are gained due to the elimination of a previously proposed ground floor meeting room. The overall area of the building remains unchanged.

At its January 2, 2018 regular meeting the Planning Commission approved a revised preliminary plan for the Hill Center Brentwood project. The revisions add a Phase 2 to the project.

The building areas for Phase II are as follows.

BUILDING NAME	PROPOSED USE	AREA
<i>Building D1</i>	<i>Retail Liner</i>	<i>9,606</i>
<i>Building E</i>	<i>Parking Garage – Two Levels -- 315 spaces</i>	
<i>Building E1</i>	<i>Retail Liner</i>	<i>10,000</i>
<i>Building H1</i>	<i>Hotel – 141 Rooms</i>	<i>92,952</i>
<i>Building H2</i>	<i>Office</i>	<i>84,375</i>
TOTAL		196,933

Ordinance 2014-11 permitted the substitution of one of the office buildings with a hotel that would not exceed 150 rooms.

The total area of the development is not to exceed 600,000 square feet.

As part of the review the applicant is requesting a reduction in the distance between Building D1 and the adjacent access. Section 78-226(f) allows the Planning Commission to reduce this distance for buildings having no more than 10,000 square feet in area.

CONDITIONS OF APPROVAL

*Staff recommends that the following **three** conditions be attached to the approval of the request.*

- 1. A revised final plat to correct the PUDE encroachment shall be approved and recorded before a final CO/TCO will be issued for the building.*
- 2. The enclosure must completely screen the view of the generator from all sides.*
- 3. A site plan shall be vested for a period of three years from the date of the original approval.*

STANDARD REQUIREMENTS:

*Staff recommends that the following **nine** standard requirements be attached to the approval of the request.*

- 1. Add the following note to the site plan;*

This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site

*plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **March 8, 2022**, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.*

2. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
3. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
4. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
5. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
6. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
7. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
8. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.

9. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed revised site plan, subject to the requirements of the staff report.



AC MARRIOTT BRENTWOOD

AC MARRIOTT HOTELS / BRENTWOOD, TENNESSEE

PLANNING & ZONING RESUBMITTAL SET

GOODWYN MILLS & CAWOOD, INC
TUCKER JONES ENGINEERS ASSOCIATED, P.C.
EDMONDS ENGINEERING, INC.
BARGE CAUTHEN & ASSOCIATES
DESIGN FORCE CORPORATION
DRS FOODSERVICE DESIGN

ARCHITECTURE

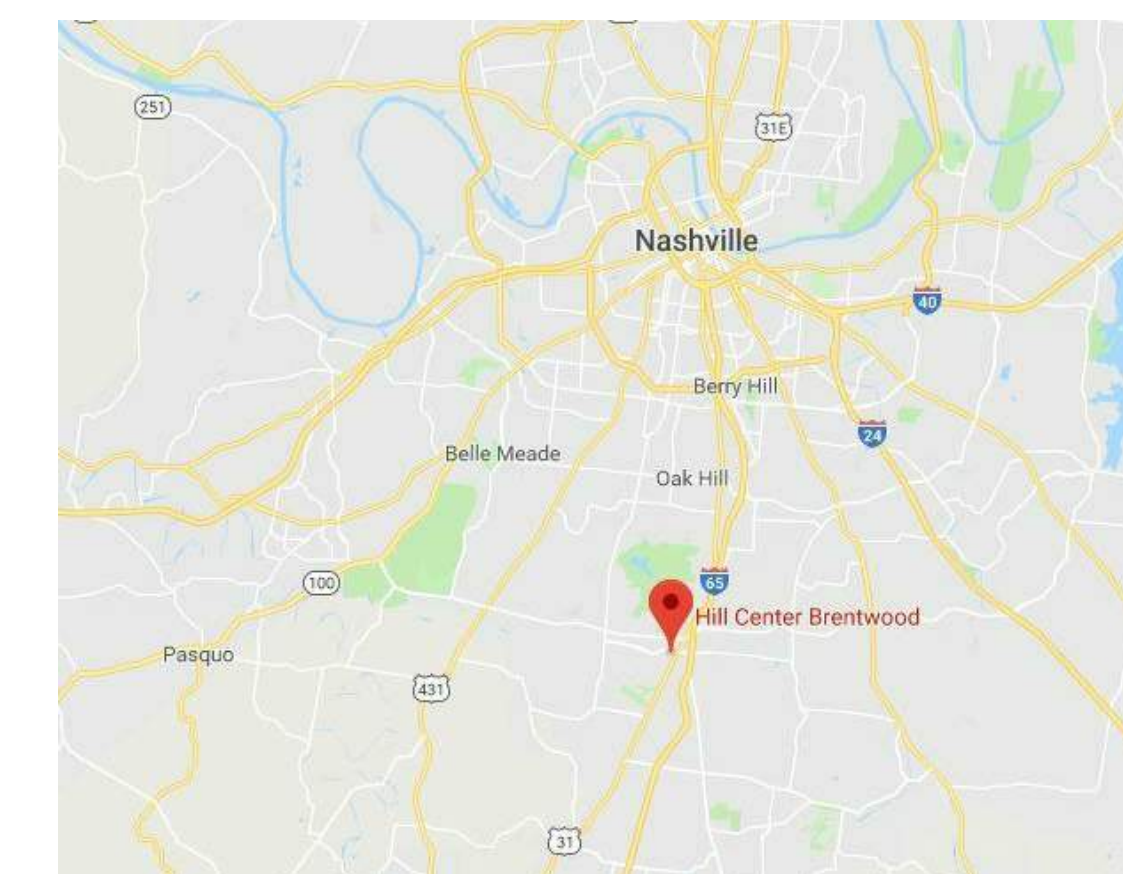
STRUCTURAL ENGINEERING

MECHANICAL, ELECTRICAL & PLUMBING ENGINEERING

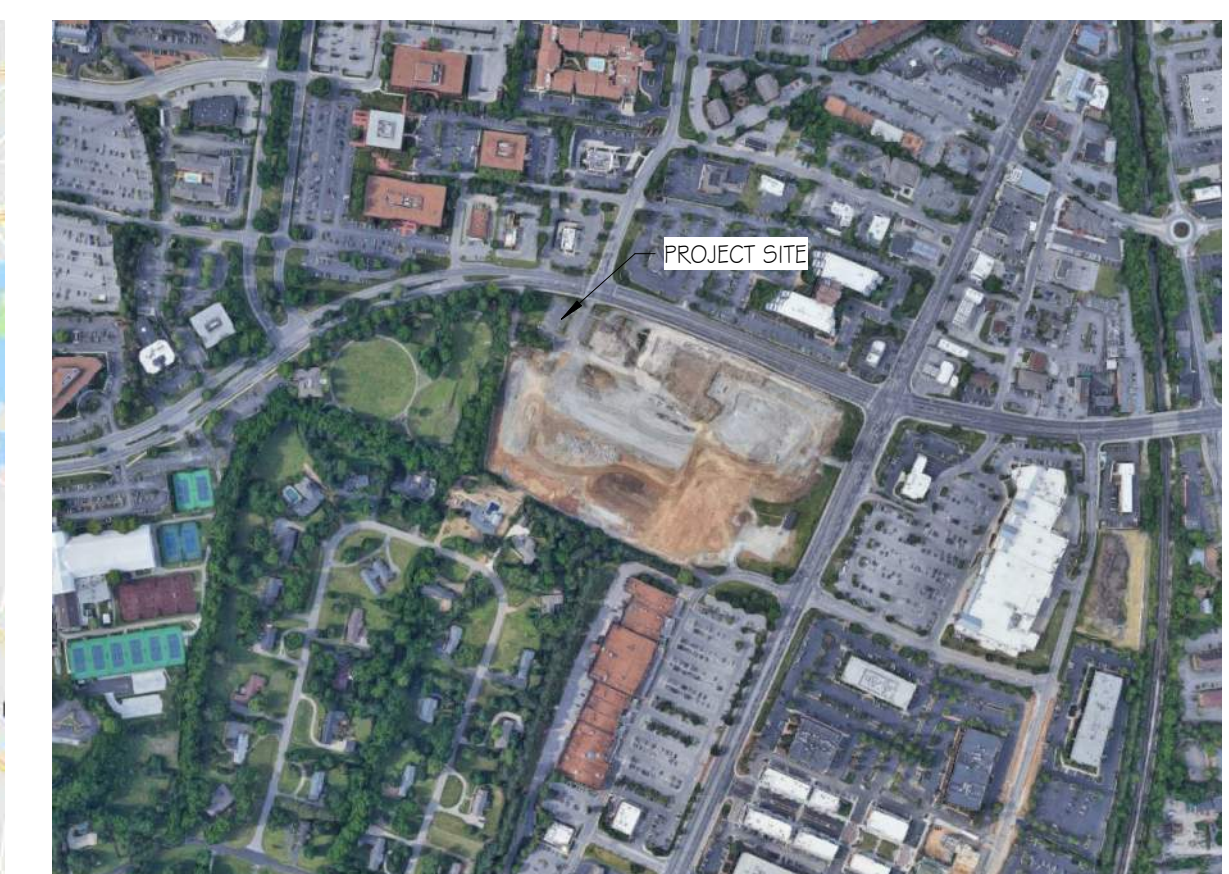
CIVIL ENGINEERING

INTERIOR DESIGN

FOODSERVICE DESIGN

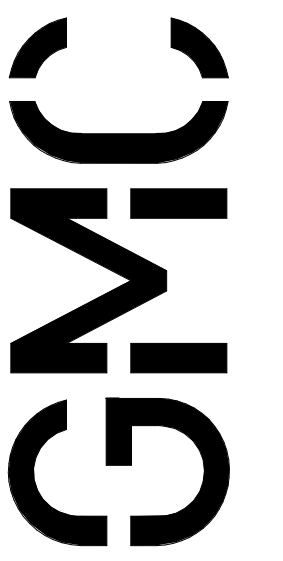


LOCATION MAP



VICINITY MAP

RESUBMITTAL DRAWING INDEX		RESUBMITTAL SCOPE: THE SCOPE OF THE PLANNING & ZONING RESUBMITTAL INCLUDES A PAD-MOUNTED GENERATOR AT THE NORTHWEST AREA OF THE SITE ADJACENT TO THE HOTEL BUILDING. ADDITIONALLY, A MASONRY AND METAL SLAT ENCLOSURE TO MATCH THE MAIN BUILDING IS PROPOSED TO SCREEN THE GENERATOR FROM VIEW.
PZT1	TITLE SHEET	
C1	SITE LAYOUT	
C2	SITE UTILITY LAYOUT	
C3	SITE GRADING AND DRAINAGE	
C4	CIVIL DETAILS	
PZ1.01	GENERATOR SURROUND	



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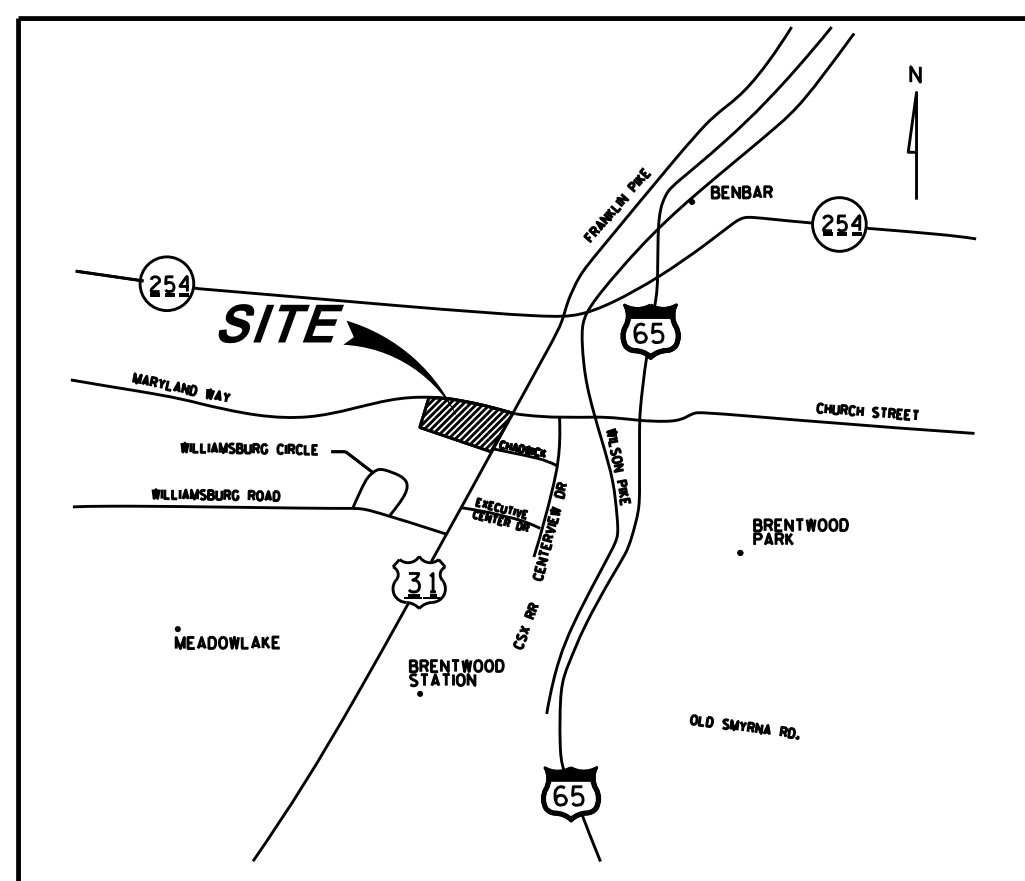
AC MARRIOTT BRENTWOOD

BRENTWOOD, TENNESSEE

GMC # ANAS160036

PLANNING & ZONING TITLE SHEET

PZT1
sheet of _____



VICINTY MAP

N.T.S.

MAP 11G GROUP "C"

PARCEL 4.00
ZONED: C-2

SITE AND GRADING ENGINEER

BARGE CAUTHEN AND ASSOCIATES
6806 CHARLOTTE PIKE, SUITE 210
NASHVILLE, TENNESSEE 37209

SURVEYOR

CHERRY LAND SURVEYING, INC.
622 WEST IRIS DRIVE
NASHVILLE, TENNESSEE 37204

GENERAL NOTES: UTILITY SYSTEMS

- 1 ALL WATER LINE AND SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS OF CITY OF BRENTWOOD WATER AND SEWER DEPARTMENT (BWSO) OR THE STATE OF TENNESSEE, WHICHEVER IS MORE STRINGENT.
- 2 BEFORE ANY WATER LINE OR SANITARY SEWER WORK IS INITIATED ON THIS PROJECT, THE CONTRACTOR SHOULD CONTACT BWSO AND SATISFY ALL REQUIREMENTS OF BWSO.
- 3 ANY AND ALL FEES, LICENSES AND PERMITS NECESSARY FOR THIS CONSTRUCTION ARE TO BE OBTAINED AND PAID PRIOR TO THE INITIATION OF CONSTRUCTION AND THE COST THEREOF WILL BE BORNE BY THE CONTRACTOR.
- 4 THE CONTRACTOR IS RESPONSIBLE FOR THE COST AND COORDINATION OF ANY AND ALL INSPECTION SERVICES AS MANDATED BY BWSO OR THE STATE OF TENNESSEE.
- 5 THE CONTRACTOR SHALL VERIFY LOCATION AND INVERTS OF ALL EXISTING UTILITIES (INCLUDING STORM DRAINAGE) PRIOR TO STRUCTURES BEFORE COMMENCEMENT OF CONSTRUCTION. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR CONTRACTOR CAUSED DAMAGE ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
- 6 UPON COMPLETION OF CONSTRUCTION OF WATER AND/OR SEWER IMPROVEMENTS, THE CONTRACTOR SHALL PROVIDE THE OWNER A COMPLETE SET OF AS-BUILT PLANS. AS-BUILT PLANS SHALL BE SEALED BY A LICENSED PROFESSIONAL ENGINEER OR A REGISTERED LAND SURVEYOR.
- 7 ALL BENDS, TEES, CROSSED, PLUGS AND PRESSURE CONNECTIONS, ETC. SHALL BE BACKED UP AND ANCHORED WITH 30" CONCRETE BLOCKING AS REQUIRED BY BWSO.
- 8 A MINIMUM COVER OF 36" SHALL BE MAINTAINED OVER ALL WATER LINES.
- 9 ALL CONNECTIONS TO EXISTING MANHOLE(S) SHALL BE CORING AND RESILIENT CONNECTOR METHOD.
- 10 ALL MANHOLES SHALL HAVE A 24" CLEAR OPENING.
- 11 ALL PAVED AREAS SHALL BE CONSTRUCTED TO SUBGRADE AND ALL PROPOSED FILLS SHALL BE BASED AND COMPACTED PRIOR TO CONSTRUCTION OF UTILITIES.
- 12 CONTRACTOR IS RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL BENDS, JOINTS AND FITTINGS TO CONSTRUCT UTILITIES.
- 13 A MINIMUM OF 36" GROUND COVER SHALL BE MAINTAINED OVER ALL PROPOSED SANITARY SEWER LINES.
- 14 THE CONTRACTOR SHALL CONSTRUCT TOP OF CASTINGS OF MANHOLES AND TOP OF CLEANDUTS FLUSH WITH FINISH GRADES.
- 15 ALL UTILITY AND STORM DRAINAGE EXCAVATIONS UNDER PAVED AREAS SHALL BE BACKFILLED FULL DEPTH WITH CRUSHED STONE.
- 16 CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD ELECTRICAL WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK, THE CONTRACTOR IS NOT SURE OF THE LOCATION OF THE ABOVE NOTED WIRES, THE ELECTRICAL COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN.
- 17 CONTRACTOR SHALL COORDINATE ANY INTERRUPTION OF WATER SERVICE WITH THE OWNER AND ALL AFFECTED GOVERNMENT AGENCIES.
- 18 CONTRACTOR SHALL NOT CONNECT TO EXISTING WATER LINES UNTIL NEW LINES HAVE BEEN CLEANED, TESTED, INSPECTED AND OWNER APPROVED.
- 19 CONTRACTOR SHALL CHECK ALL FINISHED GRADES AND DIMENSIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
- 20 ALL DAMAGE TO EXISTING ASPHALT PAVEMENT TO REMAIN SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE.
- 21 CONTRACTOR SHALL PROTECT AND RESTORE PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION EXCEPT AS NOTED.
- 22 THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY AGC OF AMERICA, INC. AND THE "SAFETY AND HEALTH MANUAL FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
- 23 WATER LINE AND SANITARY SEWER CONSTRUCTION SHALL BE SUBJECT TO THE INSPECTION AND FINAL ACCEPTANCE OF BWSO.

NOTE:

ALL WATER AND SANITARY SEWER SERVICES IS NOT TO BE
CONSTRUCTED WITHOUT FULL APPROVAL OF THE BRENTWOOD
WATER AND SEWER DEPARTMENT

FIBER OPTIC NOTE:

CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION OF EXISTING FIBER OPTIC LINE ALONG MARYLAND WAY AND FRANKLIN PIKE. FIBER OPTIC LINE MUST BE PROTECTED DURING CONSTRUCTION.

FEMA NOTE:

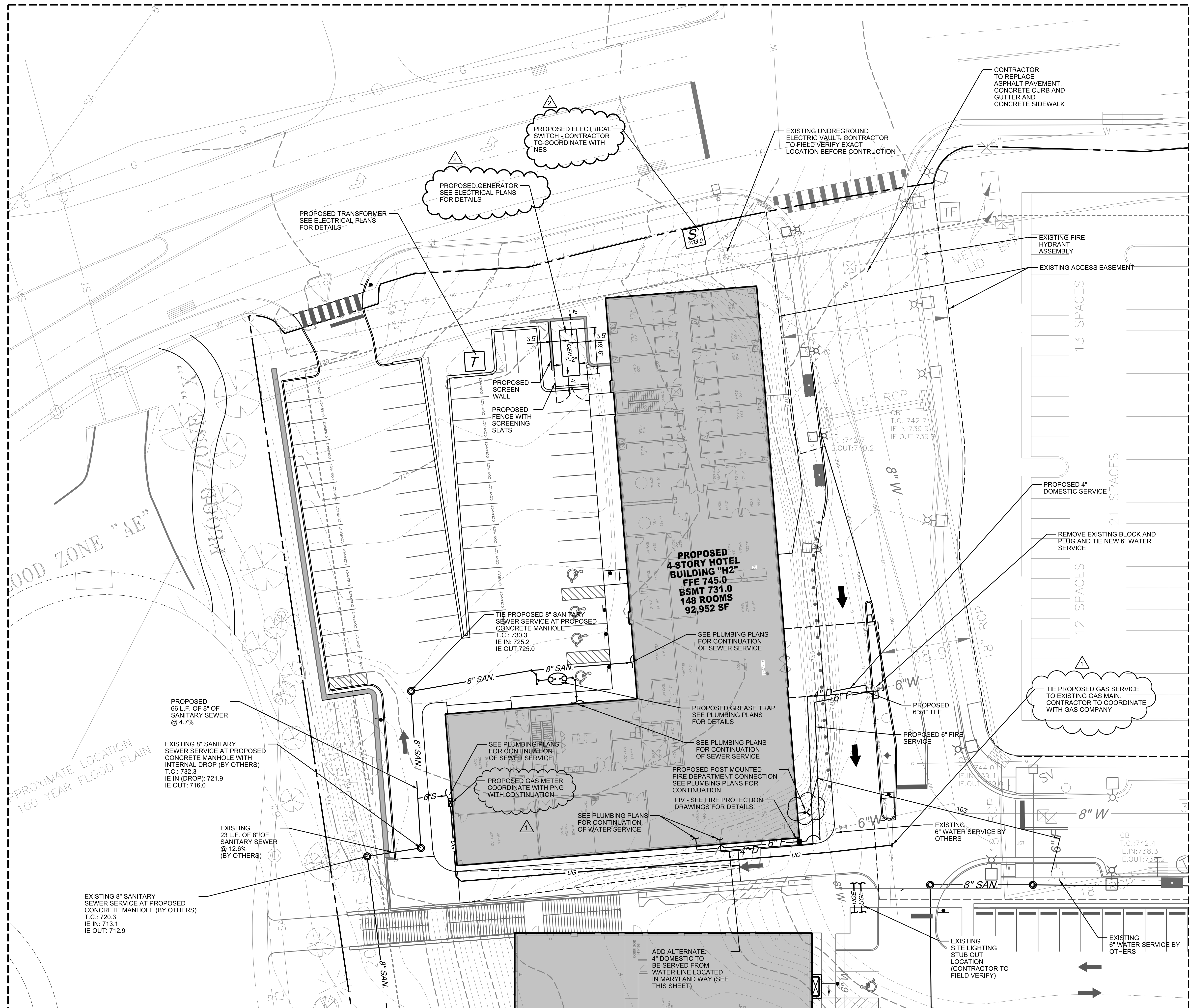
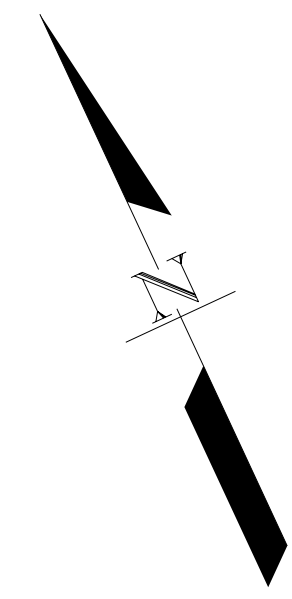
THE PROPERTY DESCRIBED IN THIS PLAN DOES NOT LIE WITHIN AN AREA OF SPECIAL FLOOD HAZARD AS DELINEATED ON THE CURRENT FLOOD INSURANCE RATE MAP, PREPARED BY EMERGENCY MANAGEMENT AGENCY, FEMA COMMUNITY MAP 47187C0093G, DATED DECEMBER 22, 2016.

GENERAL NOTES: UTILITY CONFLICTS

SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.

WHERE SEWER LINES PASS OVER OR WITHIN 2.5 FEET OF WATER MAINS, THE SEWER SHALL BE ENCASED IN CONCRETE.

IN INSTANCES OF POTENTIAL CONFLICT BETWEEN PRESSURIZED UTILITY SERVICES (GAS AND WATER DISTRIBUTION SYSTEMS) AND GRAVITY UTILITY SERVICES (SANITARY AND SEWER SYSTEMS) REQUIRED SEPARATION DISTANCES AS NOTED ABOVE MUST BE MAINTAINED. IN CASES OF CONFLICT IN ELEVATION, THE PRESSURIZED UTILITY SERVICE WILL YIELD IN ELEVATION TO THE GRAVITY SYSTEM, AND THE PRESSURIZED SYSTEM WILL BE RAISED OR LOWERED TO ALLEVIATE THE CONFLICT. AT NO TIME SHALL THE MINIMUM DEPTH OF COVER REQUIRED FOR THE PRESSURIZED UTILITIES BE REDUCED TO AVOID CONFLICT.



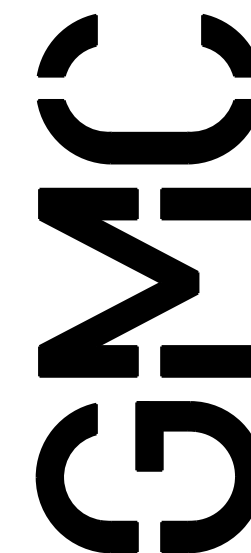
GRAPHIC SCALE



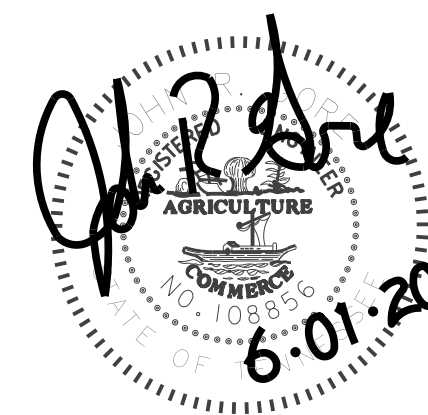
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PERMIT SET	10/11/2019
RFP #001	11/25/2019
RFP #002	03/26/2020
DRAWN BY:	BM

DRAWN BY:	BM
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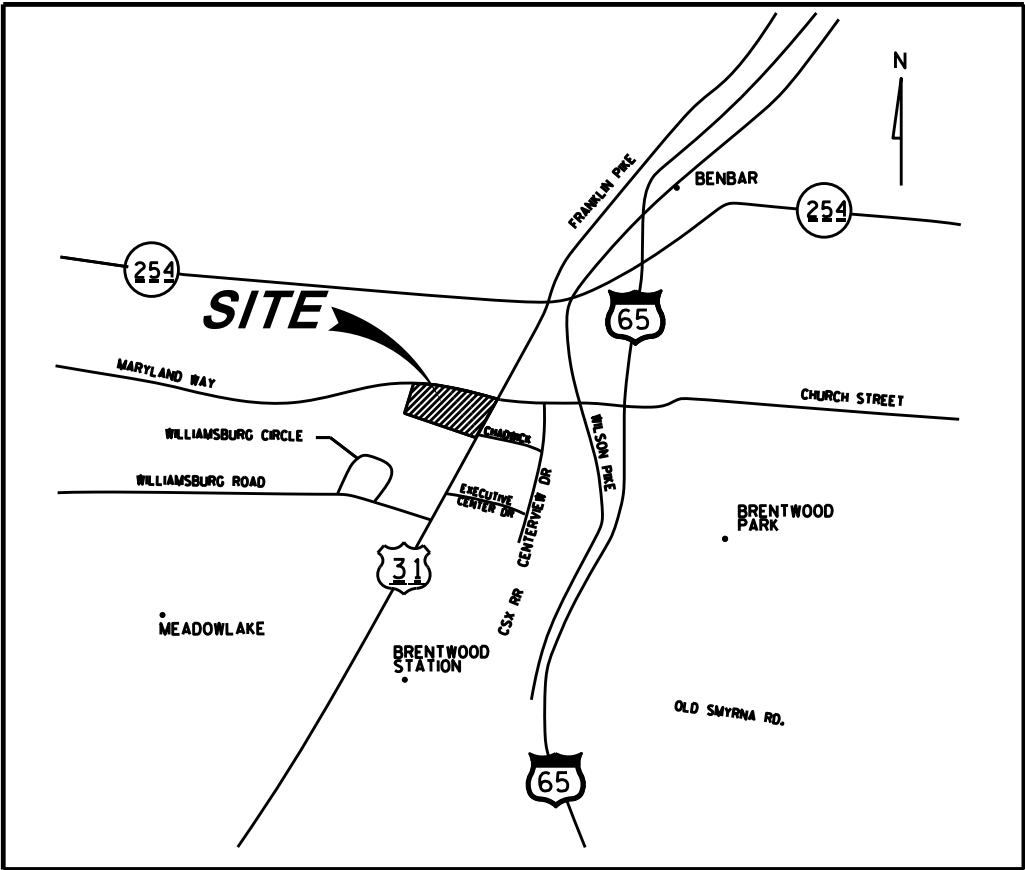
AC MARRIOTT BRENTWOOD

BRENTWOOD, TENNESSEE

GMC # ANAS160036

SITE UTILITY LAYOUT

C2
sheet 2 of



VICINITY MAP
N.T.S.

MAP 11G GROUP "C"
PARCEL 4.00
ZONED: C-2

SITE AND GRADING ENGINEER
BARGE CAUTHEN AND ASSOCIATES
6606 CHARLOTTE PIKE, SUITE 210
NASHVILLE, TENNESSEE 37209

SURVEYOR
CHERRY LAND SURVEYING, INC.
622 WEST IRIS DRIVE
NASHVILLE, TENNESSEE 37204

FEMA NOTE:
THE PROPERTY DESCRIBED IN THIS PLAN DOES NOT LIE
WITHIN AN AREA OF SPECIAL FLOOD HAZARD AS DELINEATED
ON THE CURRENT FLOOD INSURANCE RATE MAP, PREPARED
BY EMERGENCY MANAGEMENT AGENCY, FEMA COMMUNITY
MAP 47187C0003G, DATED DECEMBER 22, 2016.

STRUCTURE TABLE

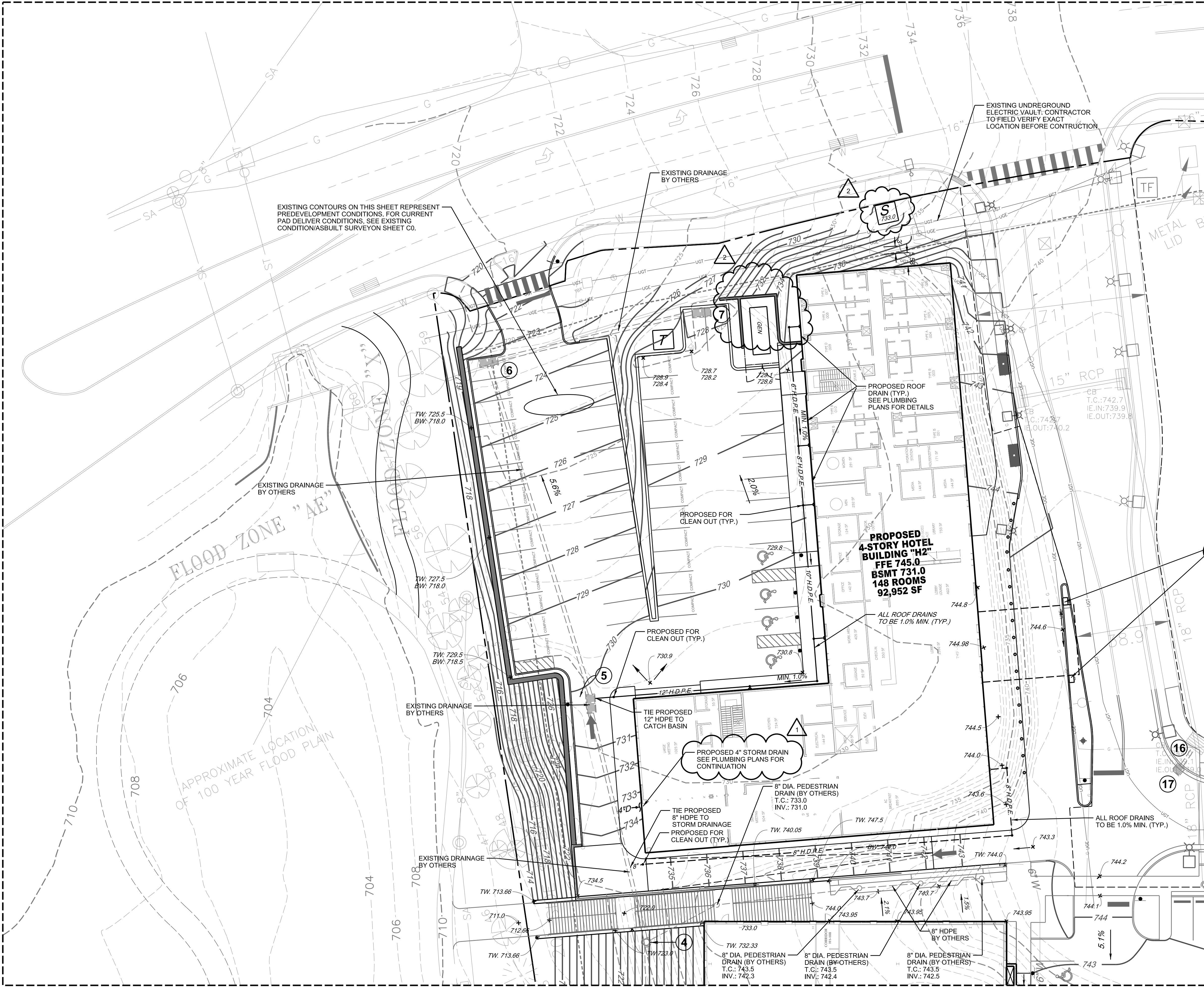
STRUCTURE NO.	TYPE	T.C.	INVERT IN	INVERT OUT
1	HEADWALL	-----	-----	715.0
2	STORM MANHOLE	724.0	715.4	715.4
3	STORM MANHOLE	722.8	715.98	715.98
4	STORM MANHOLE	725.0	718.26	718.26
5	DOUBLE AREA DRAIN	730.1	719.22	719.22
6	DOUBLE CURB INLET	723.2	720.7	720.7
7	DOUBLE CURB INLET	727.5	-----	722.3
8	HEADWALL	-----	-----	716.0
9	24"x10"W TRENCHDRAIN	733.95	733.0	732.75
10	24"x10"W TRENCHDRAIN	733.95	733.0	732.75
11	24"x10"W TRENCHDRAIN	733.95	733.0	732.75
12	DAYLIGHT PIPE AT GRADE	-----	-----	720.0
13	24"x10"W TRENCHDRAIN	733.5	732.5	732.25
14	DOUBLE CURB INLET	742.3	738.4	738.3
15	EXIST. INLET	742.4	738.3	738.2
16	EXIST. INLET	744.0	739.1	739.0
17	SINGLE INLET	744.1	-----	739.5

PIPE SCHEDULE

PIPE	L.F.	SIZE/TYPE	SLOPE (%)
1-2	30	24" RCP	1.0
2-3	68	24" RCP	0.9
3-4	231	24" RCP	1.0
4-5	99	24" RCP	1.0
5-6	146	18" RCP	1.0
6-7	86	18" RCP	1.9
8-9	19	15" HDPE	10.0
9-10	62	12" HDPE	2.0
10-11	64	12" HDPE	2.0
12-13	20	12" HDPE	10.0
14-15	6	15" RCP	1.0
16-17	9	15" RCP	5.0

GRADING AND DRAINAGE NOTES :

- NO TREES ARE TO BE REMOVED AND/OR VEGETATION DISTURBED EXCEPT AS NECESSARY FOR GRADING PURPOSES AND ONLY AS APPROVED BY OWNER'S REPRESENTATIVE.
- TOPSOIL IS TO BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM OF 6".
- ALL GRADED AREAS, INCLUDING SLOPES, ARE TO BE MULCHED AND SEEDDED AS SOON AS POSSIBLE AFTER GRADING IS COMPLETED.
- CONSTRUCT EROSION CONTROL AS SHOWN ON DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
- ALL NEW STRUCTURES AND EXISTING STRUCTURES SHALL HAVE SEDIMENT REMOVED PRIOR TO FINAL ACCEPTANCE.
- SILT BARRIERS SHALL BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 50% FILLED WITH SUCH SEDIMENT.
- ALL DIMENSIONS AND LOCATIONS OF TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.
- WHEN THE TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE IN THE OPINION OF THE OWNER'S REPRESENTATIVE, THEY SHALL BE REMOVED BY THE CONTRACTOR.
- REPLACE SILT BARRIERS AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS PRIOR TO BEGINNING WORK.
- CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED ENGINEERING GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE AND MOVEMENT OF MATERIALS. SHOULD THE CONTRACTOR HAVE ANY QUESTION OF THE INTENT OR ANY PROBLEMS WITH CONTINUITY OF GRADES, THE CONTRACTOR SHALL PROVIDE THE NECESSARY PROTECTION, IN ACCORDANCE WITH THE SPECIFICATIONS, FOR TREES TO REMAIN. DO NOT OPERATE OR STORE TREES TO REMAIN.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS-BUILT SURVEY OF DETENTION PONDS TO ENGINEER FOR VERIFICATION OF COMPLIANCE WITH DESIGN.
- CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL ENGINEERING AND CONSTRUCTION EFFORTS REQUIRED FOR VERIFICATION OF COMPLIANCE WITH DESIGN.



PORT COCHERE ROOF DRAIN TO DAYLIGHT TO GROUND SURFACE - SEE PLUMBING PLANS FOR DETAILS

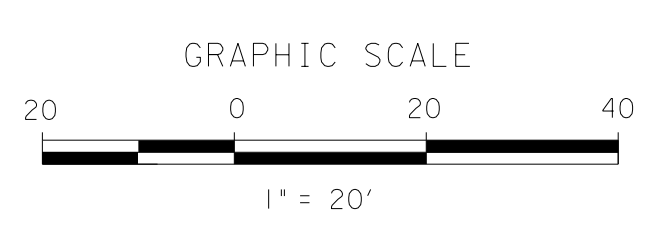
EXISTING UNDERGROUND ELECTRIC VAULT. CONTRACTOR TO FIELD VERIFY EXACT LOCATION BEFORE CONSTRUCTION

EXISTING CONTOURS ON THIS SHEET REPRESENT PREDEVELOPMENT CONDITIONS. FOR CURRENT PAD DELIVER CONDITIONS, SEE EXISTING CONDITION/AS-BUILT SURVEY ON SHEET C0.

EXISTING DRAINAGE BY OTHERS

EXISTING DRAINAGE BY OTHERS

EXISTING DRAINAGE BY OTHERS



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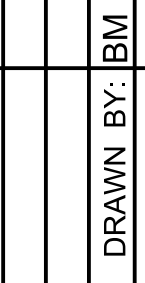
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PERMIT SET	07/15/2019
PERMIT SET	10/17/2019
RFP #001	12/23/2019
RFP #002	03/26/2020
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CHECKED BY: JG	

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BRENTWOOD, TENNESSEE
GMC # ANAS160036

SITE
GRADING AND
DRAINAGE
C3
Sheet 3 of 4

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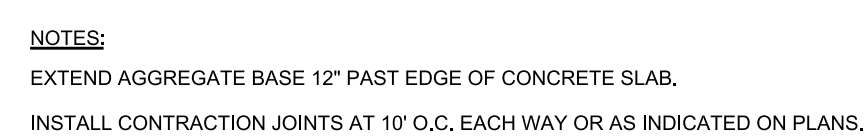
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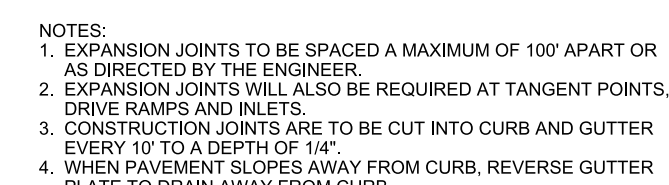
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BRENTWOOD, TENNESSEE

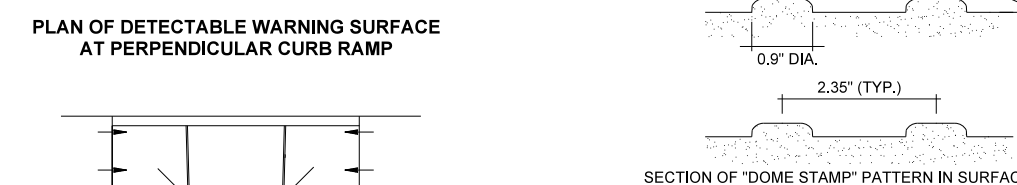
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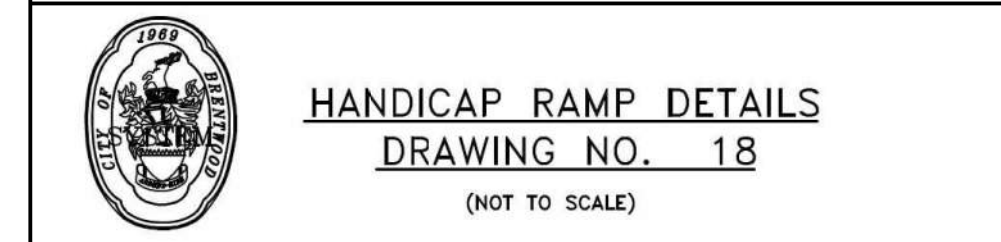
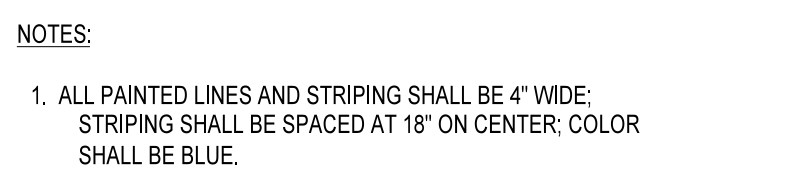


NTC

SONGS OR

N.T.S.

NTA



- NOTES:**
1. ALL PAINTED LINES AND STRIPING SHALL BE 4" WIDE; STRIPING SHALL BE SPACED AT 18" ON CENTER; COLOR SHALL BE BLUE.
 2. SURFACE TEXTURE OF THE RAMP SHALL BE STABLE, FIRM, AND SLIP-RESISTANT. THE SURFACE SHALL BE COARSE BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
 3. MAXIMUM SLOPE IN ANY DIRECTION IN HANDICAP PAVING AREA TO BE 2.0%.

SAI

- NOTES:
1. EXPANSION JOINTS TO BE SPACED A MAXIMUM OF 100' APART OR AS DIRECTED BY THE ENGINEER.
2. EXPANSION JOINTS WILL ALSO BE REQUIRED AT TANGENT POINT DRIVE RAMPS AND INLETS.
3. CONSTRUCTION JOINTS ARE TO BE CUT INTO CURB EVERY 10' TO A DEPTH OF 16"

NTS₁

NTS

SIZE	TEES PLUGS & CROSSES			60° BENDS			45° BENDS			22-1/2° BENDS			11-1/4° BENDS			SIZE
PIPE	H ₁	H ₂	CU FT	H ₁	H ₂	CU FT	H ₁	H ₂	CU FT	H ₁	H ₂	CU FT	H ₁	H ₂	CU FT	PIPE
2" x 30" 10'	12"	12"	1.8	12"	12"	1.8	12"	12"	1.8	12"	12"	1.8	12"	12"	1.8	2" x 30" 10'
2" x 4'	12"	12"	18	12"	12"	18	12"	12"	18	12"	12"	18	12"	12"	18	2" x 4'
6"	24"	12"	5.1	36"	24"	12"	18	24"	9.5	36"	24"	12"	18	24"	9.5	6"
8"	24"	12"	5.1	36"	24"	12"	18	24"	9.5	36"	24"	12"	18	24"	9.5	8"
8"	36"	12"	5.1	48"	36"	12"	18	36"	12.5	48"	36"	12"	18	36"	12.5	8"
10"	36"	12"	5.1	48"	36"	12"	18	36"	12.5	48"	36"	12"	18	36"	12.5	10"
12"	36"	24"	15.4	48"	36"	12"	18	48"	19.3	60"	36"	12"	18	48"	19.3	12"
14"	36"	24"	15.4	48"	36"	12"	18	48"	19.3	60"	36"	12"	18	48"	19.3	14"
16"	36"	36"	25.8	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	16"
18"	36"	36"	25.8	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	18"
20"	36"	48"	36.2	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	20"
22"	36"	48"	36.2	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	22"
24"	36"	48"	36.2	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	24"
26"	36"	48"	36.2	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	26"
28"	36"	48"	36.2	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	28"
30"	36"	48"	36.2	60"	48"	12"	18	60"	25.8	72"	48"	12"	18	60"	25.8	30"

N.T.S.

- NOTE:**
1. HANDICAP PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS, AND A.D.A. REGULATIONS, SECTION 4.30.
 2. VAN ACCESSIBLE SIGNS TO BE PLACED AT ALL PARKING SPACES LEFT OF ALL 96" OR WIDER STRIPED DRIVE AISLES.

DAF

PAF



**Sales and
Service**

AC MARRIOTT - BRENTWOOD

SUBMITTAL

Project # 96574

SUBMITTED TO:

Knight Electric

4375 Guthrie Highway
Clarksville, Tennessee 37040

June 15, 2020

SUBMITTED BY:



**Sales and
Service**

5125 Highway 85
Atlanta, GA 30349

SUBMITTAL REVIEW

☒ NO EXCEPTIONS TAKEN

☐ MAKE CORRECTIONS NOTED

☐ REVISE AND RESUBMIT

☐ REJECTED

REVIEW IS FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS. CORRECTIONS OR COMMENTS ON THE SUBMITTAL DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL CONFIRM AND CORRELATE ALL DIMENSIONS, DETAILS, QUANTITIES, UTILITIES, AND LOCATIONS.

EDMONDS
Engineering

DATE: 06/24/2020 BY: J.L. Harris, III

24 HOUR PARTS & SERVICE AVAILABILITY

ATLANTA	Regional HQ	404-763-0151	MIAMI	305-821-4200
ALBANY		229-888-6210	CHARLOTTE	706-596-7690
AUGUSTA		706-722-8825	COLUMBIA	803-799-2410
CHATTANOOGA		423-629-1448	CHESAPEAKE	757-485-4848
FT. MYERS		941-337-1211	GREENSBORO	336-275-4531
GAINESVILLE		678-450-8700	SPARTANBURG	864-208-2657
JACKSONVILLE		904-378-1902	RICHMOND	804-232-7891
OCALA		352-861-1122	MYRTLE BEACH	843-716-7072
ORLANDO		407-298-2080	ROANOKE	540-966-3169
SAVANNAH		912-232-5565	KENLY	919-284-9111
TAMPA		813-626-1101	CHARLESTON	843-851-9819
WEST PALM BEACH		561-840-7281	WINCHESTER	540-931-9114
NASHVILLE		615-366-4341	KNOXVILLE	865-523-0446

Note: Please note that issuance of these submittals shall not be deemed or interpreted as performance nor acceptance of your Purchase Order Terms and Conditions.



**Sales and
Service**

AC MARRIOTT - BRENTWOOD

SUBMITTAL

Project # 96574

CUSTOMER

Attn: Jeff Hargrove

Knight Electric

4375 Guthrie Highway

Clarksville, Tennessee 37040

jeff@knight-elec.com

Phone: (931) 220-7741

1 COPY OF YOUR SUBMITTAL IS ENCLOSED

RETURN APPROVED SUBMITTAL TO:

CUMMINS SALES AND SERVICE

Attn: Valerie Logan

5125 Highway 85

Atlanta, GA 30349

oc734@Cummins.com

Fax: 404-763-0711

- ☐ **ATS Withstand Ratings Approved Based on Feeder Breaker Requirements Detailed by ATS Drawings in Section 4.**
(Approval Required Prior to Submitting Order to Factory)
- ☐ **No written specification for this submittal provided**
- ☐ **Approved, release order for production**
- ☐ **Approved as noted, release order for production**
- ☐ **Not approved, make changes and resubmit**

COMMENTS

PLEASE SIGN AND DATE FOR APPROVAL

Signature _____

Date _____

CUMMINS SALES AND SERVICE REPRESENTATIVE

Joesph Birdsall, Power Generation Sales

Phone: 615-854-0970

Valerie Logan, Project Manager

Phone: 404-765-5134



**Sales and
Service**

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Section 6

(Generator) Commercial Warranty Statement
(ATS) Power Electronics Warranty Statement

Our energy working for you.™



Quotation

Cummins Inc. DBA Cummins Sales and Service
706 Spence Lane
Nashville TN 37217 United States
Direct: (615) 854 - 0970

June 15, 2020
Project Name: AC Marriott - Brentwood
Quotation: 4862000000025828

Thank you for your inquiry. We are pleased to quote as follows:

		USD
Item	Description	Qty
	Diesel Genset: 60Hz-450/410kW	
US-Stat	U.S. EPA, Stationary Emergency Application	1
450DFEJ	Genset-Diesel,60Hz,450kW-Standby Rating	1
A331-2	Duty Rating-Standby Power	1
L090-2	Listing-UL 2200	1
L170-2	Emissions Certification, EPA, Tier 2, NSPS CI Stationary Emergency	1
F201-2	Enclosure-Steel,SndAtt,Level 1,Base Mtd,w/ExhSys	1
C201-2	Fuel Tank-Subbase,300 Gallon,UL142 Compliant (8 hr. @ full load)	1
R002-2	Voltage-277/480,3 Phase,Wye,4 Wire	1
B246-2	Alternator-60 Hz, 12 Lead, Limited Range, 125/105C	1
H703-2	Generator Set Control-PowerCommand 2.3	1
H536-2	Display Language-English	1
KP74-2	Stop Switch-Emergency,Externally Mounted	1
H678-2	Display-Control, LCD	1
H609-2	Control Mounting-Left Facing	1
A292-2	Heater-Alternator, 120 Volt AC	1
KU95-2	CB or EB or TB-Right And Left	1
KC67-2	Circuit Breaker-400A,Left CB on Right side,3-Pole, UL 600,IEC 690 100%	1
KB73-2	CB or EB or TB-Bottom Entry, Left	1
KX09-2	Circuit Breaker-250A, Right CB on Right side, 3-Pole, UL 600,IEC 690 100% (Dialed to 200A)	1
KB72-2	CB or EB or TB-Bottom Entry, Right	1
KM74-2	Shunttrip-24vdc,Dual Breakers	1
P175-2	Enclosure Color-Green,Steel Enclosure	1
L163-2	Listing, ULC-S601-07	1
H657-2	Distribution Panel-Prewired AC Features	1
C127-2	Separator-Fuel/Water	1
B786-2	Battery Charger-12 Amp, Regulated	1
E082-2	Engine Cooling-Radiator, 40C Ambient	1
H389-2	Shutdown-Low Coolant Level	1

H556-2	Coolant Heater-208/240/480V, 40F Minimum Ambient Temp	1
D041-2	Engine Air Cleaner-Normal Duty	1
L028-2	Genset Warranty- Base	1
L050-2	Literature-English	1
A412-2	Packing-None, Base Mounted Housing	1
CP01-2	Common Parts Listing	1
SPEC-N	Product Revision - N	1
CPS	3 rd 150A Breaker Addition	1
0300-5929-02	Annunciator-Panel Mounted With Enclosure (RS485)	1
ST120SN3RSL, PILNCCB, PILNOCB W/CONTACT CPS	E STOP BRK Glass NEMA 3 w/ contacts	1
	Startup, Load Bank Testing, Level I Training	1
Transfer Switch-Electronic Control:300A/400A/600A		
OTEC400	Transfer Switch-Electronic Control,400Amp	1
A028-7	Poles-3	1
A046-7	Listing-UL 1008/CSA Certification	1
A044-7	Frequency-60 Hertz	1
A042-7	System-3 Phase,3 Wire Or 4 Wire	1
R026-7	Voltage-480 Vac	1
B001-7	Cabinet-Type 1	1
M034-7	Genset Starting Battery-24VDC	1
M032-7	Relay-Elevator Signal	1
G009-7	Transfer Switch Warranty - 5 Yr Comprehensive	1
CP01-7	Common Parts Listing	1
SPEC-A	Product Revision - A	1
Transfer Switch-Electronic Control:150A/225A/260A		
OTEC150	Transfer Switch-Electronic Control,150Amp	1
A028-7	Poles-3	1
A046-7	Listing-UL 1008/CSA Certification	1
A044-7	Frequency-60 Hertz	1
A042-7	System-3 Phase,3 Wire Or 4 Wire	1
R026-7	Voltage-480 Vac	1
B001-7	Cabinet-Type 1	1
M034-7	Genset Starting Battery-24VDC	1
G009-7	Transfer Switch Warranty - 5 Yr Comprehensive	1
CP01-7	Common Parts Listing	1
SPEC-A	Product Revision - A	1
EATON	Eaton Electric Fire Pump Transfer Switch Model # FPATS-100-D-L-1 480V, 3-phase, 100HP, NFPA 20, NEMA 2	1



Diesel generator set QSX15 series engine

450 kW – 500 kW Standby



Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby and prime power applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle, industrial diesel delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short-circuit capability.

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Enclosures - Optional weather protective and sound attenuated enclosures are available.

Fuel tanks - Dual wall sub-base fuel tanks are also available.

NFPA - The genset accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

	Standby rating	Prime rating	Continuous rating	Data sheets
Model	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz
DFEJ	450 (563)	410 (513)		D-3400
DFEK	500 (625)	455 (569)		D-3401

Generator set specifications

Governor regulation class	ISO 8528 part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	IEC 61000-4-2: Level 4 Electrostatic discharge IEC 61000-4-3: Level 3 Radiated susceptibility

Engine specifications

Design	Turbocharged with air-to-air charge air-cooling
Bore	136.9 mm (5.39 in.)
Stroke	168.9 mm (6.65 in.)
Displacement	14.9 L (912.0 in ³)
Cylinder block	Cast iron with replaceable wet liners, in-line 6 cylinder
Battery capacity	1400 Amps minimum at ambient temperature 0 °C (32 °F)
Battery charging alternator	35 Amps
Starting voltage	24 volt, negative ground
Fuel system	Full authority electronic (FAE) Cummins HPI-TP
Fuel filter	
Air cleaner type	
Lube oil filter type(s)	Single spin-on combination full flow and bypass filters
Standard cooling system	40 °C (104 °F) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible discs
Insulation system	Class H
Standard temperature rise	125 °C standby at 40 °C ambient
Exciter type	PMG (Permanent Magnet Generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50% per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3%

Available voltages

60 Hz Line – Neutral/Line - Line

- | | | | |
|-----------|-----------|-----------|-----------|
| • 110/190 | • 110/220 | • 115/200 | • 115/230 |
| • 120/208 | • 127/220 | • 139/240 | • 220/380 |
| • 230/400 | • 240/416 | • 255/440 | • 277/480 |
| • 347/600 | | | |

Note: Consult factory for other voltages.

Generator set options

Engine

- 208/240/480 V thermostatically controlled coolant heater for ambient above 4.5 °C (40 °F)
- 208/240/480 V thermostatically controlled coolant heater for ambient below 4.5 °C (40 °F)
- 120 V 300 W lube oil heater
- Heavy duty air cleaner with safety element

Alternator

- 80 °C rise
- 105 °C rise
- 150 °C rise
- 120/240 V 200 W anti-condensation heater

Exhaust system

- Critical grade exhaust silencer
- Exhaust packages
- Industrial grade exhaust silencer
- Residential grade exhaust silencer

Fuel system

- 1022 L (270 gal) sub-base tank
- 1136 L (300 gal) sub-base tank
- 1514 L (400 gal) sub-base tank
- 1893 L (500 gal) sub-base tank
- 2271 L (600 gal) sub-base tank
- 2498 L (660 gal) sub-base tank
- 3218 L (850 gal) sub-base tank
- 6435 L (1700 gal) sub-base tank
- 9558 L (2525 gal) sub-base tank

Cooling system

- High ambient 50 °C radiator

Control panel

- PC 3.3
- PC 3.3 with MLD
- 120/240 V 100 W control anti-condensation heater
- Ground fault indication
- Remote fault signal package
- Run relay package

Generator set

- AC entrance box
- Battery
- Battery charger
- Export box packaging
- UL 2200 Listed
- Main line circuit breaker
- Paralleling accessories
- Remote annunciator panel
- Spring isolators
- Enclosure: aluminium, steel, weather protective or sound attenuated
- 2 year standby power warranty
- 2 year prime power warranty
- 5 year basic power warranty
- 10 year major components warranty

*Note: Some options may not be available on all models - consult factory for availability.

Control system 2.3

The PowerCommand 2.3 control system - An integrated generator set control system providing voltage regulation, engine protection, generator protection, operator interface and isochronous governing (optional).

Control - Provides battery monitoring and testing features and smart-starting control system.

InPower™ - PC-based service tool available for detailed diagnostics.

PCCNet RS485 - Network interface (standard) to devices such as remote annunciator for NFPA 110 applications.

Control boards - Potted for environmental protection.

Ambient operation - Suitable for operation in ambient temperatures from -40 °C to +70 °C and altitudes to 13,000 feet (5000 meters). Prototype tested - UL, CSA and CE compliant.

AC protection

- AmpSentry protective relay
- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload
- Overload warning
- Reverse kW shutdown
- Reverse Var shutdown
- Short circuit protection

Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning

- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown

Operator/display panel

- Manual off switch
- 128 x 128 Alpha-numeric display with push button access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating genset running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -20 °C to +70 °C

Alternator data

- Line-to-Neutral AC volts
- Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kVA, kW, power factor

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature

Control functions

- Time delay start and cool down
- Glow plug control (some models)
- Cycle cranking
- PCCNet interface
- (4) Configurable inputs
- (4) Configurable outputs
- Remote emergency stop
- Battle short mode
- Load shed
- Real time clock with exerciser
- Derate

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase Line-to-Line sensing
- Configurable torque matching
- Fault current regulation under single or three phase fault conditions

Other data

- Genset model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)
- Total kilowatt hours
- Load profile

Options

- Auxiliary output relays (2)
- 120/240 V, 100 W anti-condensation heater
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand for Windows® remote monitoring software (direct connect)
- AC output analogue meters
- PowerCommand 2.3 and 3.3 control with AmpSentry protection

For further detail on PC 2.3 see document S-1569.

For further detail on PC 3.3 see document S-1570.

Emergency Standby Power (ESP):

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time running Power (LTP):

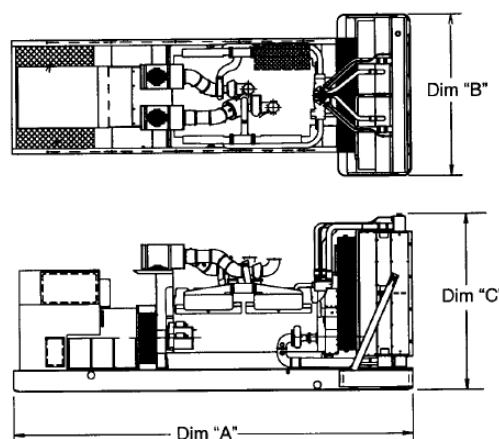
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Model	Dim 'A' mm (in.)	Dim 'B' mm (in.)	Dim 'C' mm (in.)	Set weight dry* kg (lbs)	Set weight wet* kg (lbs)
DFEJ	3864 (152.1)	1524 (60.0)	1812 (71.3)	4098 (9035)	4234 (9335)
DFEK	3864 (152.1)	1524 (60.0)	1812 (71.3)	4325 (9535)	4461 (9835)

*Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.
	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.	U.S EPA	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.
	All low voltage models are CSA certified to product class 4215-01.	International Building Code	The generator set package is available certified for seismic application in accordance with the following International Building Code: IBC2000, IBC2003, IBC2006, IBC2009 and IBC2012.

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit power.cummins.com

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Generator set data sheet



Model: DFEJ
Frequency: 60 Hz
Fuel type: Diesel
kW rating: 450 Standby
 410 Prime
Emissions level: EPA NSPS Stationary Emergency Tier 2

Exhaust emission data sheet:	EDS-184
Exhaust emission compliance sheet:	EPA-1025
Sound performance data sheet:	MSP-183
Cooling performance data sheet:	MCP-106
Prototype test summary data sheet:	PTS-145
Standard set-mounted radiator cooling outline:	0500-3326
Optional set-mounted radiator cooling outline:	
Optional heat exchanger cooling outline:	
Optional remote radiator cooling outline:	

Fuel consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				kW (kVA)
Ratings	450 (563)				410 (513)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	10.8	17.4	23.4	30.1	10.2	16.2	21.9	27.7	
L/hr	41	66	89	114	39	61	83	105	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSX15-G9		
Configuration	Cast iron with replaceable wet cylinder liners, In-Line 6 cylinder		
Aspiration	Turbocharged and air-to-air after-cooled		
Gross engine power output, kW _m (bhp)	563.0 (755.0)	507.3 (680.0)	
BMEP at set rated load, kPa (psi)	2192.5 (318.0)	2006.4 (291.0)	
Bore, mm (in.)	136.9 (5.39)		
Stroke, mm (in.)	168.9 (6.65)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	10.1 (1995.0)		
Compression ratio	17.0:1		
Lube oil capacity, L (qt)	83.3 (88.0)		
Overspeed limit, rpm	2150 ± 50		
Regenerative power, kW	52.00		

Fuel flow	Standby rating	Prime rating	Continuous rating
Maximum fuel flow, L/hr (US gph)	423.9 (112.0)		
Maximum fuel inlet restriction, mm Hg (in Hg)	127.0 (5.0)		
Maximum return restriction, mm Hg (in Hg)	165.1 (6.5)		
Air			
Combustion air, m ³ /min (scfm)	38.3 (1355.0)	36.8 (1300.0)	
Maximum air cleaner restriction, kPa (in H ₂ O)	6.2 (25.0)		
Alternator cooling air, m ³ /min (cfm)	62.0 (2190.0)		
Exhaust			
Exhaust flow at set rated load, m ³ /min (cfm)	87.9 (3105.0)	82.4 (2910.0)	
Exhaust temperature, °C (°F)	462.8 (865.0)	440.6 (825.0)	
Maximum back pressure, kPa (in H ₂ O)	10.2 (41.0)		
Standard set-mounted radiator cooling			
Ambient design, °C (°F)	40 (104)		
Fan load, kW _m (HP)	19 (25.5)		
Coolant capacity (with radiator), L (US gal)	57.9 (15.3)		
Cooling system air flow, m ³ /min (scfm)	707.5 (25000.0)		
Total heat rejection, MJ/min (Btu/min)	19.6 (18485.0)	17.7 (16680.0)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Optional set-mounted radiator cooling			
Ambient design, °C (°F)	50 (122)		
Fan load, kW _m (HP)	19 (25.5)		
Coolant capacity (with radiator), L (US gal)	57.9 (15.3)		
Cooling system air flow, m ³ /min (scfm)	707.5 (25000.0)		
Total heat rejection, MJ/min (Btu/min)	19.6 (18485.0)	17.7 (16680.0)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		

Optional heat exchanger cooling	Standby rating	Prime rating	Continuous rating
Set coolant capacity, L (US gal)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)			
Heat rejected, aftercooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)			
Maximum raw water pressure, jacket water circuit, kPa (psi)			
Maximum raw water pressure, after-cooler circuit, kPa (psi)			
Maximum raw water pressure, fuel circuit, kPa (psi)			
Maximum raw water flow, jacket water circuit, L/min (US gal/min)			
Maximum raw water flow, aftercooler circuit, L/min (US gal/min)			
Maximum raw water flow, fuel circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, jacket water circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, after-cooler circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, fuel circuit, L/min (US gal/min)			
Raw water delta P at min flow, jacket water circuit, kPa (psi)			
Raw water delta P at min flow, aftercooler circuit, kPa (psi)			
Raw water delta P at min flow, fuel circuit, kPa (psi)			
Maximum jacket water outlet temp, °C (°F)			
Maximum after-cooler inlet temp, °C (°F)			
Maximum after-cooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			
Maximum fuel return line restriction, kPa (in Hg)			

Optional remote radiator cooling¹

Set coolant capacity, L (US gal)	
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)	
Heat rejected, jacket water circuit, MJ/min (Btu/min)	
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	
Heat rejected, fuel circuit, MJ/min (Btu/min)	
Total heat radiated to room, MJ/min (Btu/min)	
Maximum friction head, jacket water circuit, kPa (psi)	
Maximum friction head, aftercooler circuit, kPa (psi)	
Maximum static head, jacket water circuit, m (ft)	
Maximum static head, aftercooler circuit, m (ft)	
Maximum jacket water outlet temp, °C (°F)	
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)	
Maximum aftercooler inlet temp, °C (°F)	
Maximum fuel flow, L/hr (US gph)	
Maximum fuel return line restriction, kPa (in Hg)	

Weights²

Unit dry weight kgs (lbs)	4098 (9035)
Unit wet weight kgs (lbs)	4234 (9335)

Notes:

¹ For non-standard remote installations contact your local Cummins representative.

² Weights represent a set with standard features. See outline drawing for weights of other configurations.

Derating factors

Standby	Genset may be operated up to 1740 m (5700 ft) and 40 °C (104 °F) without power deration. For sustained operation above these conditions up to 2220 m (7280 ft), derate by 2.8% per 305 m (1000 ft), and 5.7% per 10 °C (3.2% per 10 °F). Above 2220 m (7280 ft) up to 3000 m (9840 ft), derate 3.9% total for 2200 m (7280 ft) plus 4.3% per 305 m (1000 ft), and 5.7% per 10 °C (3.2% per 10 °F). Above 3000 m (9840 ft), derate 14.9% total for 3000 m (9840 ft) plus 1.8% per 305 m (1000 ft) and 10% per 10 °C (5.6% per 10 °F).
Prime	Genset may be operated up to 1740 m (5700 ft) and 40 °C (104 °F) without power deration. For sustained operation above these conditions up to 2220 m (7280 ft), derate by 2.8% per 305 m (1000 ft), and 5.7% per 10 °C (3.2% per 10 °F). Above 2220 m (7280 ft) up to 3000 m (9840 ft), derate 3.9% total for 2200 m (7280 ft) plus 4.3% per 305 m (1000 ft), and 5.7% per 10 °C (3.2% per 10 °F). Above 3000 m (9840 ft), derate 14.9% total for 3000 m (9840 ft) plus 1.8% per 305 m (1000 ft) and 10% per 10 °C (5.6% per 10 °F).
Continuous	

Ratings definitions

Emergency Standby Power (ESP):	Limited-Time Running Power (LTP):	Prime Power (PRP):	Base Load (Continuous) Power (COP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

Alternator data

Three phase table ¹		105 °C	105 °C	125 °C	125 °C	125 °C	125 °C	125 °C	150 °C	150 °C	150 °C	150 °C
Feature code		B259	B301	B258	B252	B414	B246	B300	B426	B413	B424	B419
Alternator data sheet number		308	306	307	306	307	305	305	307	306	305	305
Voltage ranges		110/190 thru 139/240 220/380 thru 277/480	347/600	110/190 thru 139/240 220/380 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	277/480	347/600	110/190 thru 139/240 220/380 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	277/480	347/600
Surge kW		515	516	513	512	515	513	511	513	512	513	511
Motor starting kVA (at 90% sustained voltage)	Shunt											
	PMG	2429	1896	2208	1896	2208	1749	1749	2208	1896	1749	1749
Full load current amps at Standby rating		110/190 1711	120/208 1563	110/220 1478	115/230 1414	139/240 1355	220/380 856	230/400 813	240/416 782	255/440 739	277/480 677	347/600 542

Notes:

¹ Single phase power can be taken from a three phase generator set at up to 2/3 set rated 3-phase kW at 1.0 power factor. Also see Note 3 below.

Formulas for calculating full load currents:

Three phase output	Single phase output
$\frac{\text{kW} \times 1000}{\text{Voltage} \times 1.73 \times 0.8}$	$\frac{\text{kW} \times \text{SinglePhaseFactor} \times 1000}{\text{Voltage}}$

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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PowerCommand® 2.3 control system



Control system description

The PowerCommand control system is a microprocessor-based generator set monitoring, metering and control system designed to meet the demands of today's engine driven generator sets. The integration of all control functions into a single control system provides enhanced reliability and performance, compared to conventional generator set control systems. These control systems have been designed and tested to meet the harsh environment in which gensets are typically applied.

Features

- 320 x 240 pixels graphic LED backlight LCD.
- Multiple language support.
- AmpSentry™ protective relay - true alternator overcurrent protection.
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.
- Digital voltage regulation. Three phase full wave FET type regulator compatible with either shunt or PMG systems.
- Generator set monitoring and protection.
- 12 and 24 VDC battery operation.
- Modbus® interface for interconnecting to customer equipment.
- Warranty and service. Backed by a comprehensive warranty and worldwide distributor service network.
- Certifications - suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.

PowerCommand digital genset control PCC 2300



Description

The PowerCommand generator set control is suitable for use on a wide range of generator sets in non-paralleling applications. The PowerCommand control is compatible with shunt or PMG excitation style. It is suitable for use with reconnectable or non-reconnectable generators, and it can be configured for any frequency, voltage and power connection from 120-600 VAC Line-to-Line.

Power for this control system is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 30 VDC.

Features

- 12 and 24 VDC battery operation.
- Digital voltage regulation - Three phase full wave FET type regulator compatible with either shunt or PMG systems. Sensing is three phase.
- Full authority engine communications (where applicable) - Provides communication and control with the Engine Control Module (ECM).
- AmpSentry protection - for true alternator overcurrent protection.
- Common harnessing - with higher feature Cummins controls. Allows for easy field upgrades.
- Generator set monitoring - Monitors status of all critical engine and alternator functions.
- Digital genset metering (AC and DC).
- Genset battery monitoring system to sense and warn against a weak battery condition.
- Configurable for single or three phase AC metering.
- Engine starting - Includes relay drivers for starter, Fuel Shut Off (FSO), glow plug/spark ignition power and switch B+ applications.
- Generator set protection – Protects engine and alternator.
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.
- Advanced serviceability - using InPower™, a PC-based software service tool.

- Environmental protection - The control system is designed for reliable operation in harsh environments. The main control board is a fully encapsulated module that is protected from the elements.
- Modbus interface for interconnecting to customer equipment.
- Configurable inputs and outputs - Four discrete inputs and four dry contact relay outputs.
- Warranty and service - Backed by a comprehensive warranty and worldwide distributor service network.
- Certifications - Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.

Base control functions

HMI capability

Operator adjustments - The HMI includes provisions for many set up and adjustment functions.

Generator set hardware data - Access to the control and software part number, generator set rating in kVA and generator set model number is provided from the HMI or InPower.

Data logs - Includes engine run time, controller on time, number of start attempts, total kWh, and load profile (control logs data indicating the operating hours at percent of rated kW load, in 5% increments. The data is presented on the operation panel based on total operating hours on the generator.)

Fault history - Provides a record of the most recent fault conditions with control date and time stamp. Up to 32 events are stored in the control non-volatile memory.

Alternator data

- Voltage (single or three phase Line-to-Line and Line-to-Neutral)
- Current (single or three phase)
- kW, kVar, power factor, kVA (three phase and total)
- Frequency

Engine data

- Starting battery voltage
- Engine speed
- Engine temperature
- Engine oil pressure
- Engine oil temperature
- Intake manifold temperature
- Comprehensive Full Authority Engine (FAE) data (where applicable)

Service adjustments - The HMI includes provisions for adjustment and calibration of generator set control functions. Adjustments are protected by a password. Functions include:

Service adjustments (continued)

- Engine speed governor adjustments
- Voltage regulation adjustments
- Cycle cranking
- Configurable fault set up
- Configurable output set up
- Meter calibration
- Display language and units of measurement

Engine control

SAE-J1939 CAN interface to full authority ECMs (where applicable). Provides data swapping between genset and engine controller for control, metering and diagnostics.

12 VDC/24 VDC battery operations - PowerCommand will operate either on 12 VDC or 24 VDC batteries.

Temperature dependent governing dynamics (with electronic governing) - modifies the engine governing control parameters as a function of engine temperature. This allows the engine to be more responsive when warm and more stable when operating at lower temperature levels.

Isochronous governing - (where applicable) Capable of controlling engine speed within +/-0.25% for any steady state load from no load to full load. Frequency drift will not exceed +/-0.5% for a 33 °C (60 °F) change in ambient temperature over an 8 hour period.

Droop electronic speed governing - Control can be adjusted to droop from 0 to 10% from no load to full load.

Remote start mode - It accepts a ground signal from remote devices to automatically start the generator set and immediately accelerate to rated speed and voltage. The remote start signal will also wake up the control from sleep mode. The control can incorporate a time delay start and stop.

Remote and local emergency stop - The control accepts a ground signal from a local (genset mounted) or remote (facility mounted) emergency stop switch to cause the generator set to immediately shut down. The generator set is prevented from running or cranking with the switch engaged. If in sleep mode, activation of either emergency stop switch will wakeup the control.

Sleep mode - The control includes a configurable low current draw state to minimize starting battery current draw when the genset is not operating. The control can also be configured to go into a low current state while in auto for prime applications or applications without a battery charger.

Engine starting - The control system supports automatic engine starting. Primary and backup start disconnects are achieved by one of two methods: magnetic pickup or main alternator output frequency. The control also supports configurable glow plug control when applicable.

Cycle cranking - Is configurable for the number of starting cycles (1 to 7) and duration of crank and rest periods. Control includes starter protection algorithms to prevent the operator from specifying a starting sequence that might be damaging.

Time delay start and stop (cooldown) - Configurable for time delay of 0-300 seconds prior to starting after receiving a remote start signal and for time delay of 0-600 seconds prior to shut down after signal to stop in normal operation modes. Default for both time delay periods is 0 seconds.

Alternator control

The control includes an integrated three phase Line-to-Line sensing voltage regulation system that is compatible with shunt or PMG excitation systems. The voltage regulation system is a three phase full wave rectified and has an FET output for good motor starting capability.

Major system features include:

Digital output voltage regulation - Capable of regulating output voltage to within +/-1.0% for any loads between no load and full load. Voltage drift will not exceed +/- 1.5% for a 40 °C (104 °F) change in temperature in an eight hour period. On engine starting or sudden load acceptance, voltage is controlled to a maximum of 5% overshoot over nominal level. The automatic voltage regulator feature can be disabled to allow the use of an external voltage regulator.

Droop voltage regulation - Control can be adjusted to droop from 0-10% from no load to full load.

Torque-matched V/Hz overload control - The voltage roll-off set point and rate of decay (i.e. the slope of the V/Hz curve) is adjustable in the control.

Fault current regulation - PowerCommand will regulate the output current on any phase to a maximum of three times rated current under fault conditions for both single phase and three phase faults. In conjunction with a permanent magnet generator, it will provide three times rated current on all phases for motor starting and short circuit coordination purpose.

Protective functions

On operation of a protective function the control will indicate a fault by illuminating the appropriate status LED on the HMI, as well as display the fault code and fault description on the LCD. The nature of the fault and time of occurrence are logged in the control. The service manual and InPower service tool provide service keys and procedures based on the service codes provided.

Protective functions include:

Battle short mode

When enabled and the *battle short* switch is active, the control will allow some shutdown faults to be bypassed. If a bypassed shutdown fault occurs, the fault code and description will still be annunciated, but the genset will not shutdown. This will be followed by a *fail to shutdown* fault. Emergency stop shutdowns and others that are critical for proper operation are not bypassed. Please refer to the control application guide or manual for list of these faults.

Derate

The derate function reduces output power of the genset in response to a fault condition. If a derate command occurs while operating on an isolated bus, the control will issue commands to reduce the load on the genset via contact closures or modbus.

Configurable alarm and status inputs

The control accepts up to four alarm or status inputs (configurable contact closed to ground or open) to indicate a configurable (customer-specified) condition. The control is programmable for warning, shutdown or status indication and for labeling the input.

Emergency stop

Annunciated whenever either emergency stop signal is received from external switch.

Full authority electronic engine protection

Engine fault detection is handled inside the engine ECM. Fault information is communicated via the SAE-J1939 data link for annunciation in the HMI.

General engine protection

Low and high battery voltage warning - Indicates status of battery charging system (failure) by continuously monitoring battery voltage.

Weak battery warning - The control system will test the battery each time the generator set is signaled to start and indicate a warning if the battery indicates impending failure.

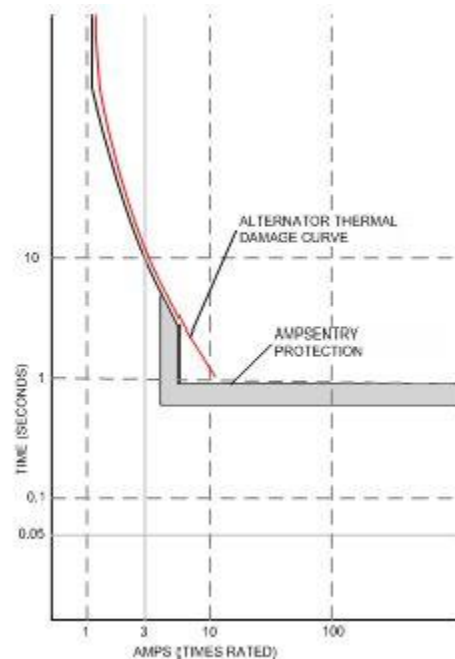
Fail to start (overcrank) shutdown - The control system will indicate a fault if the generator set fails to start by the completion of the engine crank sequence.

Fail to crank shutdown - Control has signaled starter to crank engine but engine does not rotate.

Cranking lockout - The control will not allow the starter to attempt to engage or to crank the engine when the engine is rotating.

Alternator protection

AmpSentry protective relay - A comprehensive monitoring and control system integral to the PowerCommand Control System that guards the electrical integrity of the alternator and power system by providing protection against a wide array of fault conditions in the generator set or in the load. It also provides single and three phase fault current regulation so that downstream protective devices have the maximum current available to quickly clear fault conditions without subjecting the alternator to potentially catastrophic failure conditions. See document R1053 for a full size time over current curve.



High AC voltage shutdown (59) - Output voltage on any phase exceeds preset values. Time to trip is inversely proportional to amount above threshold. Values adjustable from 105-125% of nominal voltage, with time delay adjustable from 0.1-10 seconds. Default value is 110% for 10 seconds.

Low AC voltage shutdown (27) - Voltage on any phase has dropped below a preset value. Adjustable over a range of 50-95% of reference voltage, time delay 2-20 seconds. Default value is 85% for 10 seconds. Function tracks reference voltage. Control does not nuisance trip when voltage varies due to the control directing voltage to drop, such as during a V/Hz roll-off during synchronizing.

Under frequency shutdown (81 u) - Generator set output frequency cannot be maintained. Settings are adjustable from 2-10 Hz below reference governor set point, for a 5- 20 second time delay. Default: 6 Hz, 10 seconds.

Under frequency protection is disabled when excitation is switched off, such as when engine is operating in idle speed mode.

Over frequency shutdown/warning (81 o) - Generator set is operating at a potentially damaging frequency level. Settings are adjustable from 2-10 Hz above nominal governor set point for a 1-20 second time delay. Default: 6 Hz, 20 seconds, disabled.

Overcurrent warning/shutdown - Thresholds and time delays are configurable. Implementation of the thermal damage curve with instantaneous trip level calculated based on current transformer ratio and application power rating.

Loss of sensing voltage shutdown - Shutdown of generator set will occur on loss of voltage sensing inputs to the control.

Field overload shutdown - Monitors field voltage to shutdown generator set when a field overload condition occurs.

Over load (kW) warning - Provides a warning indication when engine is operating at a load level over a set point. Adjustment range: 80-140% of application rated kW, 0-120 second delay. Defaults: 105%, 60 seconds.

Reverse power shutdown (32) - Adjustment range: 5-20% of standby kW rating, delay 1-15 seconds. Default: 10%, 3 seconds.

Reverse Var shutdown - Shutdown level is adjustable: 15-50% of rated Var output, delay 10-60 seconds. Default: 20%, 10 seconds.

Short circuit protection - Output current on any phase is more than 175% of rating and approaching the thermal damage point of the alternator. Control includes algorithms to protect alternator from repeated over current conditions over a short period of time.

Field control interface

Input signals to the PowerCommand control include:

- Coolant level (where applicable)
- Fuel level (where applicable)
- Remote emergency stop
- Remote fault reset
- Remote start
- Battleshort
- Rupture basin
- Start type signal
- Configurable inputs - Control includes (4) input signals from customer discrete devices that are configurable for warning, shutdown or status indication, as well as message displayed

Output signals from the PowerCommand control include:

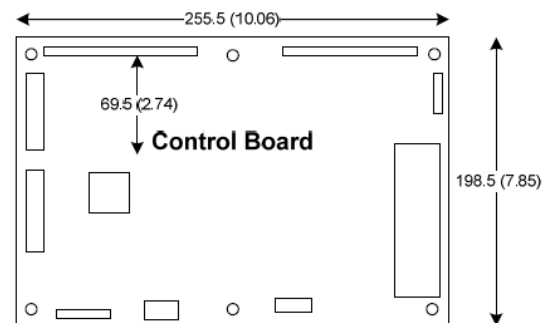
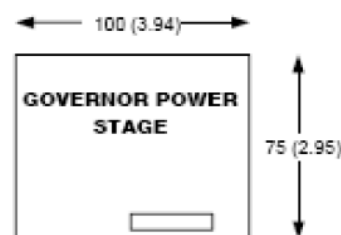
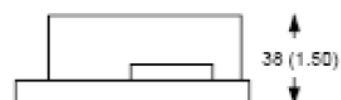
- Load dump signal: Operates when the generator set is in an overload condition.
- Delayed off signal: Time delay based output which will continue to remain active after the control has removed the run command. Adjustment range: 0 – 120 seconds. Default: 0 seconds.

- Configurable relay outputs: Control includes (4) relay output contacts (3 A, 30 VDC). These outputs can be configured to activate on any control warning or shutdown fault as well as ready to load, not in auto, common alarm, common warning and common shutdown.
- Ready to load (generator set running) signal: Operates when the generator set has reached 90% of rated speed and voltage and latches until generator set is switched to off or idle mode.

Communications connections include:

- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running InPower software.
 - Modbus RS-485 port: Allows the control to communicate with external devices such as PLCs using Modbus protocol.
- Note - An RS-232 or USB to RS-485 converter is required for communication between PC and control.
- Networking: This RS-485 communication port allows connection from the control to the other Cummins products.

Mechanical drawings



PowerCommand Human Machine Interface HMI320



Description

This control system includes an intuitive operator interface panel that allows for complete genset control as well as system metering, fault annunciation, configuration and diagnostics. The interface includes five genset status LED lamps with both internationally accepted symbols and English text to comply with customer's needs. The interface also includes an LED backlit LCD display with tactile feel soft-switches for easy operation and screen navigation. It is configurable for units of measurement and has adjustable screen contrast and brightness.

The run/off/auto switch function is integrated into the interface panel.

All data on the control can be viewed by scrolling through screens with the navigation keys. The control displays the current active fault and a time-ordered history of the five previous faults.

Features

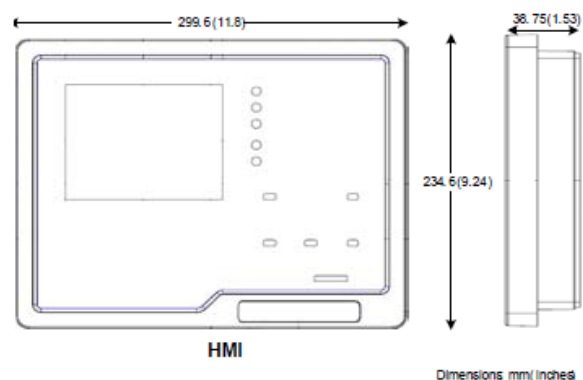
- LED indicating lamps:
 - Genset running
 - Remote start
 - Not in auto
 - Shutdown
 - Warning
 - Auto
 - Manual and stop
- 320 x 240 pixels graphic LED backlight LCD.
- Four tactile feel membrane switches for LCD defined operation. The functions of these switches are defined dynamically on the LCD.
- Seven tactile feel membrane switches dedicated screen navigation buttons for up, down, left, right, ok, home and cancel.
- Six tactile feel membrane switches dedicated to control for auto, stop, manual, manual start, fault reset and lamp test/panel lamps.

- Two tactile feel membrane switches dedicated to control of circuit breaker (where applicable).
- Allows for complete genset control setup.
- Certifications: Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.
- LCD languages supported: English, Spanish, French, German, Italian, Greek, Dutch, Portuguese, Finnish, Norwegian, Danish, Russian and Chinese Characters.

Communications connections include:

- PC tool interface - This RS-485 communication port allows the HMI to communicate with a personal computer running InPower.
- This RS-485 communication port allows the HMI to communicate with the main control board.

Mechanical drawing



Software

InPower (beyond 6.5 version) is a PC-based software service tool that is designed to directly communicate to PowerCommand generator sets and transfer switches, to facilitate service and monitoring of these products.

Environment

The control is designed for proper operation without recalibration in ambient temperatures from -40 °C to +70 °C (-40 °F to 158 °F) and for storage from -55 °C to +80 °C (-67 °F to 176 °F). Control will operate with humidity up to 95%, non-condensing.

The HMI is designed for proper operation in ambient temperatures from -20 °C to +70 °C (-4 °F to 158 °F) and for storage from -30 °C to +80 °C (-22 °F to 176 °F).

The control board is fully encapsulated to provide superior resistance to dust and moisture. Display panel has a single membrane surface, which is impervious to effects of dust, moisture, oil and exhaust fumes. This panel uses a sealed membrane to provide long reliable service life in harsh environments.

The control system is specifically designed and tested for resistance to RFI/EMI and to resist effects of vibration to provide a long reliable life when mounted on a generator set. The control includes transient voltage surge suppression to provide compliance to referenced standards.

Certifications

PowerCommand meets or exceeds the requirements of the following codes and standards:

- NFPA 110 for level 1 and 2 systems.
- ISO 8528-4: 1993 compliance, controls and switchgear.
- CE marking: The control system is suitable for use on generator sets to be CE-marked.
- EN50081-1,2 residential/light industrial emissions or industrial emissions.
- EN50082-1,2 residential/light industrial or industrial susceptibility.
- ISO 7637-2, level 2; DC supply surge voltage test.
- Mil Std 202C, Method 101 and ASTM B117: Salt fog test.
- UL 508 recognized or Listed and suitable for use on UL 2200 Listed generator sets.
- CSA C282-M1999 compliance
- CSA 22.2 No. 14 M91 industrial controls.
- PowerCommand control systems and generator sets are designed and manufactured in ISO 9001 certified facilities.

Warranty

All components and subsystems are covered by an express limited one year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available.



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Enclosures and Tanks

250-1000 kW Gensets



Enclosure Standard Features

- 14-gauge steel construction (panels)
- Stainless steel hardware
- Zinc phosphate pretreatment, e-coat primer and super durable powder topcoat paint minimize corrosion and color fade
- Package listed to UL 2200
- Designed to satisfy national electrical code installation requirements
- Fuel and electrical stub-up area within enclosure perimeter
- Fixed louvers
- Cambered roof prevents water accumulation
- Recessed, lockable doors in two sides
- Retainers hold doors open for easy access
- Enclosed exhaust silencer ensures safety and protects against rust
- Rain cap
- Exterior oil and coolant drains with interior valves for ease of service
- Rodent barriers on inlet
- Non-hygroscopic sound attenuating material
- Side mounted controls and circuit breakers
- Easy access lifting points for spreader bars
- Dual vibration isolation system (250-500 kW)
- Spring vibration isolation system (600-1000 kW)
- Enclosure mounts to lifting base or fuel tank (250-500 kW)
- Enclosure mounts to lifting base (600-1000 kW)
- Factory pre-assembled package
- Designed for outdoor use only
- Externally mounted emergency stop button for operator safety (optional on 250-500 kW)
- Horizontal air discharge to prevent leaf and snow accumulation (600-1000 kW)

Options

- Three levels of sound attenuation
- Motorized louvers to protect from ice and snow accumulation (available on air inlet for all models and on air outlet on level II, 250-500 kW enclosures only)
- Horizontal air discharge, sound level 2 only (250-500 kW)
- Aluminium construction with roll-coated polymer paint
- Wind rated to 150 mph
- Neutral sandstone paint color
- Factory mounted battery charger
- External 120 VAC service outlet
- Rain hoods for air inlet (250-500 kW)
- Lifting base in lieu of a sub-base tank (250-500 kW)
 - Pre-wired AC distribution package
 - 100 amp (250-500 kW) or 150 amp (600-1000 kW) main circuit breaker; connected to 120 VAC Line-Neutral and 208 or 240 VAC Line-Line, spare breaker positions and capacity for future upgrades (600-1000 kW)
 - GFCI protected internal 120 VAC service receptacle
 - GFCI protected weather proof external 120 volt service receptacle
 - All factory installed AC powered features pre-wired into load center
- Interior lights – 120 volt (600-1000 kW)
- Rain hoods for air inlet (250-500 kW)
- Seismic isolators available (600-1000 kW)

Fuel Tanks

Standard sub-base tank features

- UL 142 Listed
- ULC-S601-07 Listed
- NFPA37 compliant
- Dual walled, steel construction
- Emergency tank and rupture basin vents
- Tank mounted mechanical fuel gauge
- Fuel supply and return tubes
- Top mounted leak detection float switch
- Low and high level fuel switches
- Mounting brackets for optional pump and control (250-500 kW)
- Integral lifting points

Sub-base tank options

- Pre-wired fuel pump and control
- Fuel overfill alarm – internal or external
- Overflow and tank fill plugs
- Five gallon spill fill box – internal or external
- Fill pipe extender
- Local code approvals available

200-500 kW Dual Wall Sub-base Fuel Tanks – usable operating hours

Genset model (60 Hz)	Gallons /hour at full load	270 gallon tank	300 gallon tank	400 gallon tank	500 gallon tank	600 gallon tank	660 gallon tank	720 gallon tank	850 gallon tank	1420 gallon tank	1470 gallon tank	1700 gallon tank	2050 gallon tank	2525 gallon tank
250 DQDAA	20	14	15	20	25	30	33	36		72	74		104	
275 DQDAB	21	13	14	19	24	29	31	34		66	70		96	
300 DQDAC	23	12	13	17	22	26	29	31		61	64		88	
300 DQHAB	23	12	13	17	22	26	29		37			74		
450 DFEJ	30	9	10	13	17	20	22		28			57		84
500 DFEK	34	8	9	11	15	18	19		25			50		74

NEW

PREVIOUS

Operating hours are measured at 60 Hz, standby rating.

600-1000 kW Dual Wall Sub-base Fuel Tanks – usable operating hours

Genset model	Gallons /hour at full load	200 gallon tank	660 gallon tank	1000 gallon tank	1500 gallon tank	2000 gallon tank	2400 gallon tank
600 DQCA	42	5	16	24	36	48	57
600 DQPAA	45	4	15	22	33	44	53
650 DQPAB	50	4	13	20	30	40	48
750 DQCB	51	4	13	20	29	39	47
750 DQFAA	53	4	12	19	28	38	45
800 DQCC	53	4	12	19	28	38	45
800 DQFAB	56	4	12	18	27	36	43
900 DQFAC	64	3	10	16	23	31	38
1000 DQFAD	72	3	9	14	21	28	33

*3000 gallon tank offered as an accessory kit – refer to NAAC-5853 spec sheet.

- Operating hours are measured at 60 Hz, standby rating.
- Up to 90% fill alarm to comply with NFPA30, operating capacity is reduced by 10%.

Enclosure Package Sound Pressure Levels @ 7 meters dB(A)

Genset model	Weather protective enclosure (F200, F203)	QuietSite level 1 sound attenuated enclosure (F201, F204)	QuietSite level 2 sound attenuated enclosure (F202, F205)
250 DQDAA	90	88	72
275 DQDAB	90	88	73
300 DQDAC	90	88	73
300 DQHAB	89	88	76
450 DFEJ	88	85	74
500 DFEK	89	87	73
600 DQCA	90.6/86*	79.3/78*	74.1/73*
600 DQPAA	89.10	80.70	74.70
650 DQPAB	89.70	81.40	75
750 DQCB	91.1/87*	79.9/79*	75.3/74*
750 DQFAA	87.8	77.8	73.8
800 DQCC	91.3/87*	80.2/79*	75.7/74*
800 DQFAB	88.1	78.3	74
900 DQFAC	88.8	79.1	74.6
1000 DQFAD	89.6	80.1	75.3

- All data is 60 Hz, full load standby rating, steel enclosures only.

- Data is a measured average of 8 positions.

- Sound levels for aluminium enclosures are approximately 2 dB(A) higher than listed sound levels for steel enclosures.

* Sound data with seismic feature codes L228-2 (IBC) and/or L225-2 (OSHPD)

Package Dimensions of Enclosure, Exhaust System, and UL Tank

250-500 kW

NEW

Tank size (gal)	Weather protective package length (in)	QuietSite level 1 package length (in)	QuietSite level 2 package length (in)	Width (in)	Height (in)	Weather protective package weight (lbs)	QuietSite level 1 package weight (lbs)	QuietSite level 2 package weight (lbs)
270	188	188	222	82	106	4991	5471	6711
300	188	188	222	82	104	5648	6073	6991
400	188	188	222	82	106	5833	6258	7176
500	188	188	222	82	108	5956	6381	7299
600	188	188	222	82	111	6116	6541	7459
660	188	188	222	82	113	6235	6660	7578
720	188	188	222	82	114	6174	6599	7517
850	188	188	222	82	118	6529	6954	7872
1420	200	200	222	82	128	6863	7343	8583
1470	192	192	222	82	128	7253	7733	8973
1700	234	234	234	82	128	7982	8407	9325
2050	284	284	284	82	128	8383	8863	10103
2525	346	346	346	82	128	9391	9871	11111
Lifting base	188	188	222	82	100	4335	4760	5678

PREVIOUS

600-1000 kW

Tank size (gal)	Weather protective package length (in)	QuietSite level 1 package length (in)	QuietSite level 2 package length (in)	Width (in)	Height (in)	Weather protective package weight (lbs)	QuietSite level 1 package weight (lbs)	QuietSite level 2 package weight (lbs)
200	260	303	315	98	137	10194	13074	14954
660	260	303	315	98	137	9586	12466	14346
1000	260	303	315	98	141	10117	12997	14877
1500	260	303	315	98	146	10677	13557	15437
2000	292	327	327	98	143	11959	14839	16719
2400	338	338	338	98	143	12961	15841	17721

- This weight does not include the generator set. Consult your local Cummins distributor or the appropriate generator specification sheet.
- Width is 86" lifting eye to lifting eye (250-500 kW), 102" lifting eye to lifting eye (600-1000 kW).
- Height - Florida, Michigan, and Suffolk add 6.4" (250-500 kW) or 2" (600-1000 kW) for bottom space.
- Maximum length emergency vent removed.



CSA - The generator set is CSA certified to product class 4215-01.



UL - The generator set is available listed to UL 2200, stationary engine generator assemblies. The PowerCommand® control is listed to UL 508 - Category NITW7 for U.S. and Canadian usage.

For more information contact your local Cummins distributor or visit power.cummins.com

Our energy working for you.™





Exhaust Emission Data Sheet

450DFEJ

60 Hz Diesel Generator Set EPA NSPS Stationary Emergency

Engine Information:

Model:	Cummins Inc. QSX15-G9 NR 2	Bore:	5.39 in. (137 mm)
Nameplate BHP @ 1800 RPM:	755	Stroke:	6.65 in. (169 mm)
Type:	4 cycle, in-line, 6 cylinder diesel	Displacement:	912 cu. in. (14.9 liters)
Aspiration:	Turbocharged with air-to-air charge air cooling		
Compression Ratio:	17:1		
Emission Control Device:	Turbocharged with charge air-cooled		

	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Full</u>
<u>Performance Data</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>
Engine HP @ Stated Load (1800 RPM)	185	344	502	661
Fuel Consumption (gal/Hr)	10.6	17.4	23.6	30.3
Exhaust Gas Flow (CFM)	1360	2000	2605	3110
Exhaust Gas Temperature (°F)	735	820	810	865

Exhaust Emission Data

HC (Total Unburned Hydrocarbons)	0.22	0.08	0.06	0.12
NOx (Oxides of Nitrogen as NO ₂)	2.97	3.31	4.20	4.00
CO (Carbon Monoxide)	0.52	0.31	0.37	0.35
PM (Particulate Matter)	0.08	0.05	0.04	0.02
Smoke (Pierburg)	0.47	0.40	0.38	0.19

All values (except smoke) are cited: g/BHP-hr

Test Methods and Conditions

Steady-state emissions recorded per ISO8178-1 during operation at rated engine speed (+/- 2%) and stated constant load (+/- 2%) with engine temperatures, pressures and emission rated stabilized.

Fuel specification:	40-48 Cetane Number, 0.05 Wt.% max. Sulfur; Reference ISO8178-5, 40CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.
Air Inlet Temperature:	25 °C (77 °F)
Fuel Inlet Temperature:	40 °C (104 °F)
Barometric Pressure:	100 kPa (29.53 in Hg)
Humidity:	10.7 g/kg (75 grains H ₂ O/lb) of dry air (required for NOx correction)
Intake Restriction:	Set to maximum allowable limit for clean filter
Exhaust Back Pressure:	Set to maximum allowable limit

Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subjected to instrumentation and engine-to-engine variability. Tests conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results.



2019 EPA Tier 2 Exhaust Emission Compliance Statement

450DFEJ

Stationary Emergency 60 Hz Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 2 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII.

Engine Manufacturer: Cummins Inc.
EPA Certificate Number: KCEXL015.AAJ-024
Effective Date: 10/03/2018
Date Issued: 10/03/2018
EPA Engine Family (Cummins Emissions Family): KCEXL015.AAJ

Engine Information:

Model:	QSX/QSX15/QSX15-G/QSX15-G9	Bore:	5.93 in. (137 mm)
Engine Nameplate HP:	755	Stroke:	6.65 in. (169 mm)
Type:	4 Cycle, In-line, 6 Cylinder Diesel	Displacement:	912 cu. in. (15 liters)
Aspiration:	Turbocharged and CAC	Compression ratio:	17.0:1
Emission Control Device:	Electronic Control	Exhaust stack diameter:	8 in. (203 mm)

Diesel Fuel Emission Limits**D2 Cycle Exhaust Emissions**

	Grams per BHP-hr			Grams per kWm-hr		
	<u>NO_x + NMHC</u>	<u>CO</u>	<u>PM</u>	<u>NO_x + NMHC</u>	<u>CO</u>	<u>PM</u>
Test Results	4.3	0.4	0.10	5.7	0.6	0.13
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

Test methods: EPA nonroad emissions recorded per 40 CFR 89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for constant speed engines (ref. ISO8178-4, D2)

Diesel fuel specifications: 40-48 Cetane number, Reference: ASTM D975 No. 2-D, 300-500 ppm Sulfur

Reference conditions: Air Inlet Temperature: 25 °C (77 °F), Fuel Inlet Temperature: 40 °C (104 °F). Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H₂O/lb) of dry air; required for NO_x correction, Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to a maximum allowable limit..

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.



40 Degree C ambient radiator cooling system

Duty		Rating (kW)	Max cooling @ air flow static restriction, unhoused (inches water/mm water)					Housed in free air, no air discharge restriction			
			0.0/0.0	0.25/6.4	0.5/12.7	0.75/19.1	1.0/25.4	F183	F200	F201	F202
			Maximum allowable ambient temperature, degree C								
60 Hz	Standby	450	43	43	43	43	43	43	43	43	43
	Prime	410	43	43	43	43	43	N/A	N/A	N/A	N/A
50 Hz	Standby	400	43	43	43	43	43	N/A	N/A	N/A	N/A
	Prime	364	43	43	43	43	43	N/A	N/A	N/A	N/A

50 Degree C ambient radiator cooling system

Duty		Rating (kW)	Max cooling @ air flow static restriction, unhoused (inches water/mm water)					Housed in free air, no air discharge restriction			
			0.0/0.0	0.25/6.4	0.5/12.7	0.75/19.1	1.0/25.4	F183	F200	F201	F202
			Maximum allowable ambient temperature, degree C								
60 Hz	Standby	450	55	55	55	49	45	55	55	55	55
	Prime	410	55	54	53	48	44	N/A	N/A	N/A	N/A
50 Hz	Standby	400	55	55	55	55	54	N/A	N/A	N/A	N/A
	Prime	364	55	55	55	55	53	N/A	N/A	N/A	N/A

Notes:

1. Data shown are anticipated cooling performance for typical generator set.
2. Cooling data is based on 1000 ft (305 m) site test location.
3. Generator set power output may need to be reduced at high ambient conditions. Consult generator set data sheet for derate schedules.
4. Cooling performance may be reduced due to several factors including but not limited to: Incorrect installation, improper operation, fouling of the cooling system, and other site installation variables.



Sound pressure level @ 7 meters, dB(A)

See notes 1-8 listed below

Configuration		Measurement location number								Average
		1	2	3	4	5	6	7	8	
Standard – unhooded	Infinite exhaust	89	92	92	91	88	91	91	93	91
F183 – residential muffler	Mounted muffler	87	90	90	88	87	88	87	90	89
F200 – weather	Mounted muffler	88	89	84	87	89	87	84	90	88
F201 – quiet site II first stage	Mounted muffler	87	88	83	82	78	80	82	89	85
F202 – quiet site II second stage	Mounted muffler	73	73	72	74	75	75	75	74	74

Sound power level, dB(A)

See notes 2-6, 9, 10 listed below

Configuration		Octave band center frequency (Hz)								Overall sound power level
		63	125	250	500	1000	2000	4000	8000	
Standard – unhooded	Infinite exhaust	85	100	103	110	112	113	108	105	118
F183 – residential muffler	Mounted muffler	104	114	113	110	108	107	101	103	119
F200 – weather	Mounted muffler	102	108	104	108	110	109	106	101	116
F201 – quiet site II first stage	Mounted muffler	102	108	104	107	109	107	105	98	115
F202 – quiet site II second stage	Mounted muffler	83	92	95	95	97	99	96	90	104

Exhaust sound power level, dB(A)

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)								Overall sound pressure level
	63	125	250	500	1000	2000	4000	8000	
	103	119	125	123	125	126	127	121	133

Note:

- Position 1 faces the engine front. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48 in.) from floor level.
- Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
- Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
- Sound levels for aluminum enclosures are approximately 2 dB(A)s higher than listed sound levels for steel enclosures.
- Sound data for generator set with infinite exhaust do not include exhaust noise.
- Data is based on full rated load with standard radiator-cooling fan package.
- Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
- Reference sound pressure is 20 µPa.
- Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
- Reference power = 1 pw (10⁻¹² W).
- Exhaust sound power levels are per ISO 6798, as applicable.



Prototype Test Support (PTS) 60 Hz test summary



Generator set models

450DFEJ
500DFEK

Representative prototype

Model: 500DFEK
Alternator: HC5F
Engine: QSX15-G9

The following summarizes prototype testing conducted on the designated representative prototype of the specified models. This testing is conducted to verify the complete generator set electrical and mechanical design integrity. Prototype testing is conducted only on generator sets not sold as new equipment.

Maximum surge power: 516 kW

The generator set was evaluated to determine the stated maximum surge power.

Maximum motor starting: 2429 kVA

The generator set was tested to simulate motor starting by applying the specified kVA load at low lagging power factor (0.4 or lower). With this load applied, the generator set recovered to a minimum of 90% rated voltage.

Torsional analysis and testing:

The generator set was tested to verify that the design is not subjected to harmful torsional stresses in excess of 5000 psi. A spectrum analysis of the transducer output was conducted over the speed range of 1200 to 2000 RPM.

Cooling system: 50 °C ambient
0.50 in. H₂O restriction

The cooling system was tested to determine ambient temperature and static restriction capabilities. The test was performed at full rated load in elevated ambient temperature under static restriction conditions.

Durability:

The generator set was subjected to a minimum 500 hour endurance test operating at variable load up to the Standby rating based upon MIL-STD-705 to verify structural soundness and durability of the design.

Electrical and mechanical strength:

The generator set was tested to several single phase and three phase faults to verify that the generator can safely withstand the forces associated with short circuit conditions. The generator set was capable of producing full rated output at the conclusion of the testing.

Steady state performance:

The generator set was tested to verify steady state operating performance was within the specified maximum limits.

Voltage regulation:	± 0.5%
Random voltage variation:	± 0.3%
Frequency regulation:	Isochronous
Random frequency variation:	± 0.25%

Transient performance:

The generator set was tested with the standard alternator to verify single step loading capability as required by NFPA 110. Verify acceptable Voltage and frequency response on load addition or rejection were evaluated. The following results were recorded:

Full load acceptance:

Voltage dip:	30.1%
Recovery time:	3.6 seconds
Frequency dip:	9.9%
Recovery time:	3.8 seconds

Full load rejection:

Voltage rise:	12.8%
Recovery time:	3.8 seconds
Frequency rise:	3.2%
Recovery time:	1.5 seconds

Harmonic analysis:

(per MIL-STD-705B, method 601.4)

<u>Harmonic</u>	<u>Line to Line</u>		<u>Line to Neutral</u>	
	<u>No load</u>	<u>Full load</u>	<u>No load</u>	<u>Full load</u>
3	0.1	0.1	0.1	0.1
5	0.3	1.2	0.3	1.1
7	0.4	1.1	0.4	1.0
9	0.0	0.0	0.0	0.0
11	0.7	0.9	0.6	0.8
13	0.2	0.3	0.1	0.2
15	0.0	0.0	0.0	0.0



Alternator data sheet

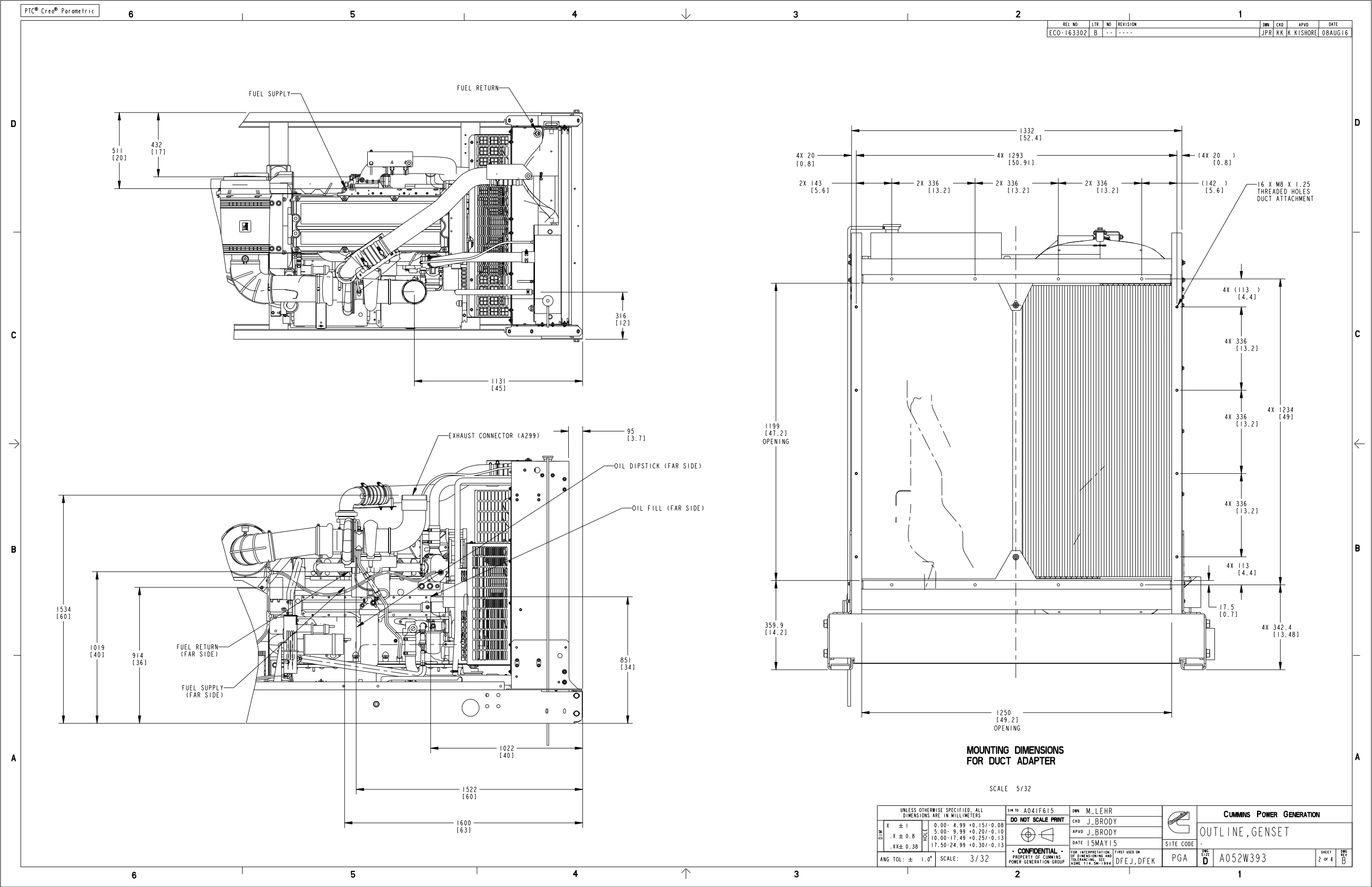
Frame size: **HC5C**

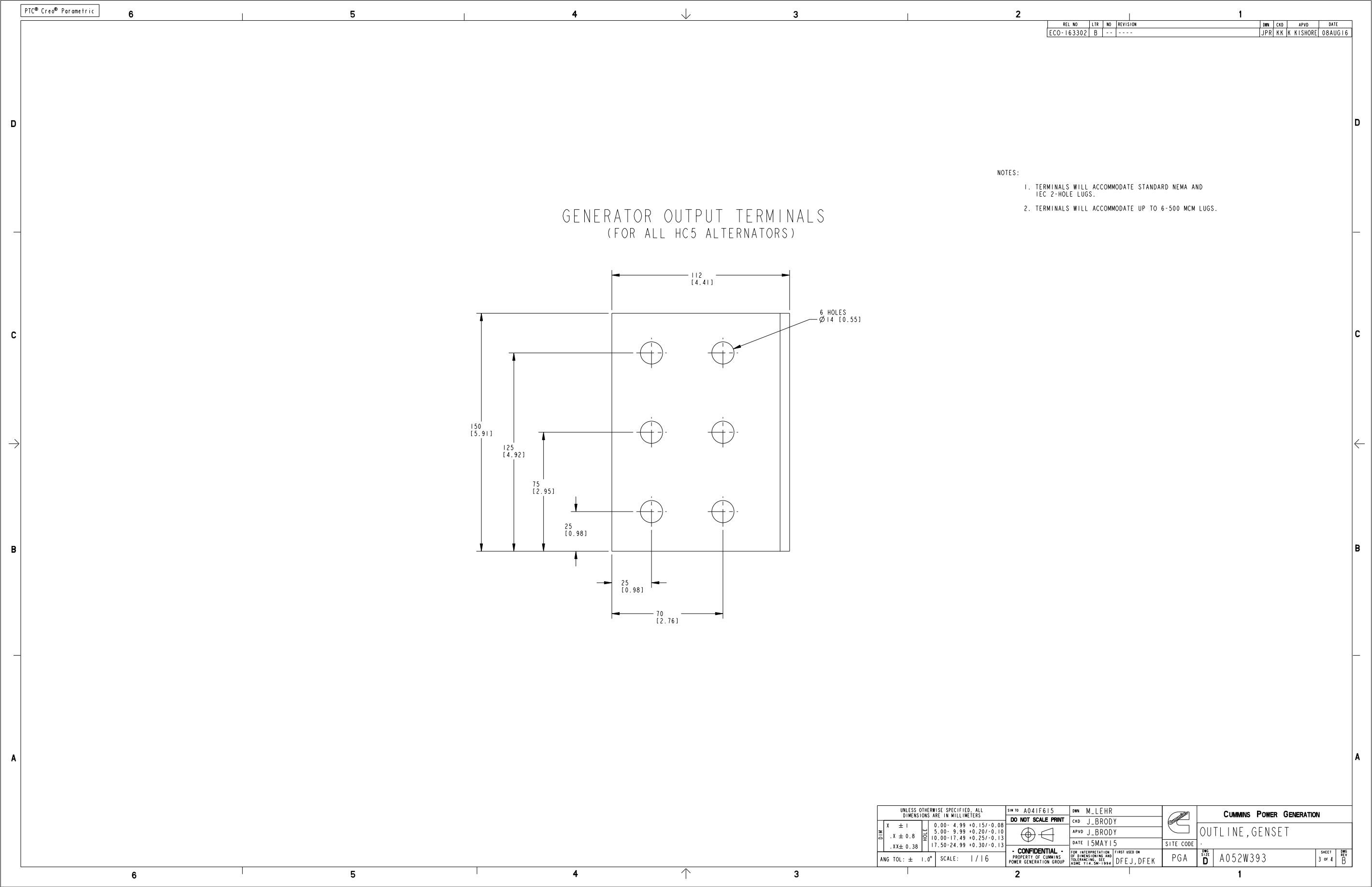
Characteristics

Weights:	Wound stator assembly:	1288 lb	580 kg
	Rotor assembly:	1052 lb	474 kg
	Complete assembly:	2804 lb	1263 kg
Maximum speed:		2250 rpm	
Excitation current:	Full load:	1.72 Amps	
	No load:	0.40 Amps	
Insulation system:	Class H throughout		

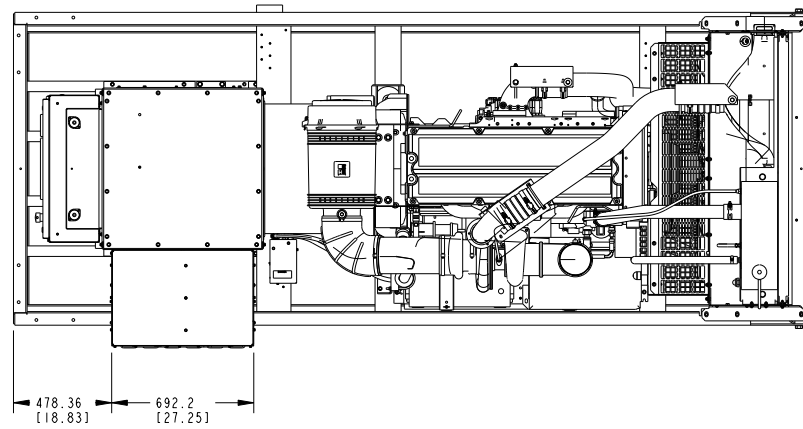
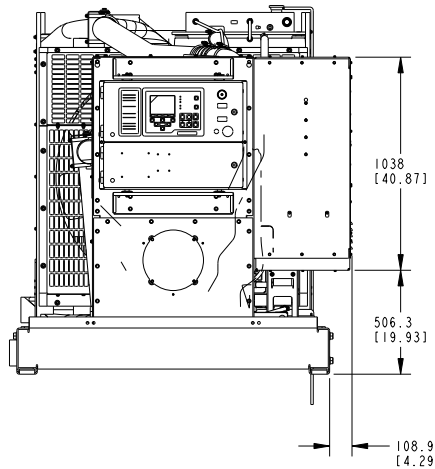
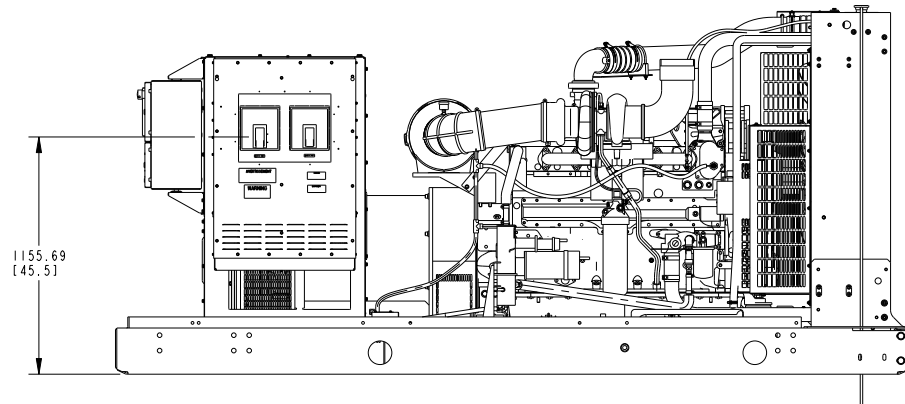
3 Ø Ratings (0.8 power factor)		60 Hz (winding no)				50 Hz (winding no)		
(Based on specific temperature rise at 40 °C ambient temperature)		110/190 <u>220/380</u> (311/312)	120/208 <u>240/416</u> (311/312)	139/240 <u>277/480</u> (311/312)	<u>347/600</u> (07/17)	110/190 <u>220/380</u> (311/312)	120/208 <u>240/415</u> (311/312)	127/220 <u>254/440</u> (311/312)
150 °C Rise ratings	kW	400	440	500	476	382	382	382
	kVA	500	550	625	595	477	477	477
125 °C Rise ratings	kW	384	420	475	450	360	360	360
	kVA	480	525	594	562	450	450	450
105 °C Rise ratings	kW	350	385	430	412	320	320	320
	kVA	438	481	538	515	400	400	400
80 °C Rise ratings	kW	304	336	376	358	280	280	280
	kVA	380	420	470	448	350	350	350
Reactances (per unit ±10%)		110/190 <u>220/380</u>	120/208 <u>240/416</u>	139/240 <u>277/480</u>	<u>347/600</u>	110/190 <u>220/380</u>	120/208 <u>240/415</u>	127/220 <u>254/440</u>
(Based on full load at 125 °C rise rating)								
Synchronous		4.32	3.94	3.35	3.35	3.26	2.73	2.43
Transient		0.19	0.18	0.15	0.15	0.16	0.13	0.12
Subtransient		0.14	0.13	0.11	0.11	0.12	0.10	0.09
Negative sequence		0.26	0.24	0.20	0.20	0.19	0.16	0.15
Zero sequence		0.12	0.11	0.09	0.09	0.11	0.09	0.08
Motor starting		<u>Broad range</u>			<u>600</u>	<u>Broad range</u>		
Maximum kVA (90% sustained voltage)		1749			1749	1749		
Time constants (sec)		<u>Broad range</u>			<u>600</u>	<u>Broad range</u>		
Transient		0.080			0.080	0.080		
Subtransient		0.012			0.012	0.012		
Open circuit		2.000			2.000	2.000		
DC		0.017			0.017	0.017		
Windings (@ 20 °C)		<u>Broad range</u>			<u>600</u>	<u>Broad range</u>		
Stator resistance (Ohms per phase)		0.0136			0.0210	0.0136		
Rotor resistance (Ohms)		1.5500			1.5500	1.5500		
Number of leads		12			6	12		

Single phase power can be taken up to 40% of 3 phase-ratings





REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-163302	B	1	ADD SHEET 4	JPR	KK	K KISHORE	08AUG16

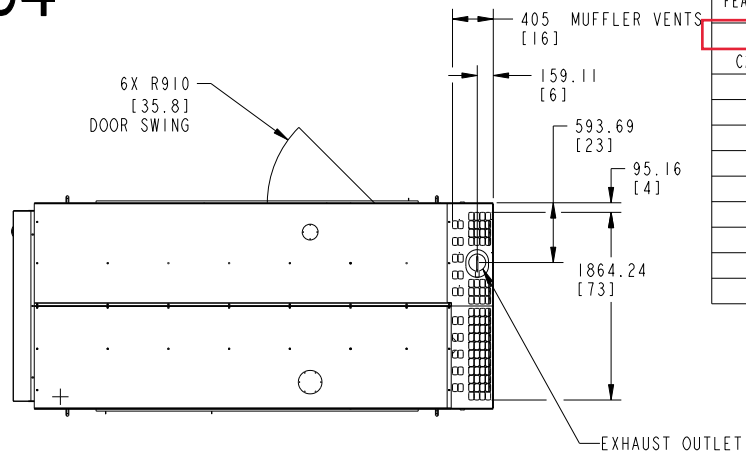


STANDARD SKID BASE SHOWN WITH
100% RATED CIRCUIT BREAKER BOX

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIN TO A041F615		DWN M. LEHR		CUMMINS POWER GENERATION	
DO NOT SCALE PRINT				CKD J. BRODY		APVD J. BRODY		OUTLINE, GENSET	
DATE 15MAY15				DATE 15MAY15		SITE CODE		A052W393	
ANG TOL: ± 1.0°				SCALE: 1/16		PGA		SHEET 4 OF 4	
FOR INTERPRETATION OF DIMENSIONS AND TOLERANCING, SEE ASME Y14.5M-1994				FIRST USED ON D.F.E.J., D.F.E.K.		D		B	

TABULATION									
TANK/LIFT BASE FEATURE CODE	TANK CAPACITY	TANK WEIGHT DRY KG (LBS)	DIM_D	DIM_E	DIM_F	DIM_H	DIM_I	DIM_J	DIM_K
C201	300	1060 (2338)	2643 (104)	183 (7.2)	305 (12)	526 (20.7)	1126 (44.3)	1122 (44.2)	614.7 (24.2)
C202/C242	400/270	1105 (2438)	2694 (106)	234 (9.2)	356 (14)	577 (22.7)	1177 (46.3)	1173 (46.2)	665 (26.2)
C203	500	1171 (2584)	2743 (108)	284 (11.2)	406 (16)	627 (24.7)	1228 (48.3)	1224 (48.2)	716.3 (28.2)
C204	600	1253 (2765)	2819 (111)	361 (14.2)	483 (19)	704 (27.7)	1304 (51.3)	1300 (51.2)	792.5 (31.2)
C205	660	1295 (2857)	2858 (112.5)	399 (15.7)	521 (20.5)	742 (29.2)	1343 (52.8)	1339 (52.7)	830.6 (32.7)
C206	720	1275 (2814)	2895 (114)	437 (17.2)	559 (22)	780 (30.7)	1381 (54.3)	1377 (54.2)	868.7 (34.2)
C207	850	1445 (3189)	2997 (118)	538 (21.2)	660 (26)	881 (34.7)	1481 (58.3)	1478 (58.2)	970.3 (38.2)
F214	N/A	N/A	2540 (100)	81 (3.2)	203 (8)	424 (16.7)	1024 (40.3)	1021 (40.2)	513.1 (20.2)
C208	1470	1702 (3756)	3324 (127.3)	771 (30.3)	914 (36)	1150.2 (45.3)	1748.2 (68.8)	1744 (68.6)	665 (26.2)
C209	1700	1962 (4331)	3324 (127.3)	771 (30.3)	914 (36)	1150.2 (45.3)	1748.2 (68.8)	1744 (68.6)	665 (26.2)
C211	2525	2811 (6204)	3324 (127.3)	771 (30.3)	914 (36)	1150.2 (45.3)	1748.2 (68.8)	1744 (68.6)	665 (26.2)

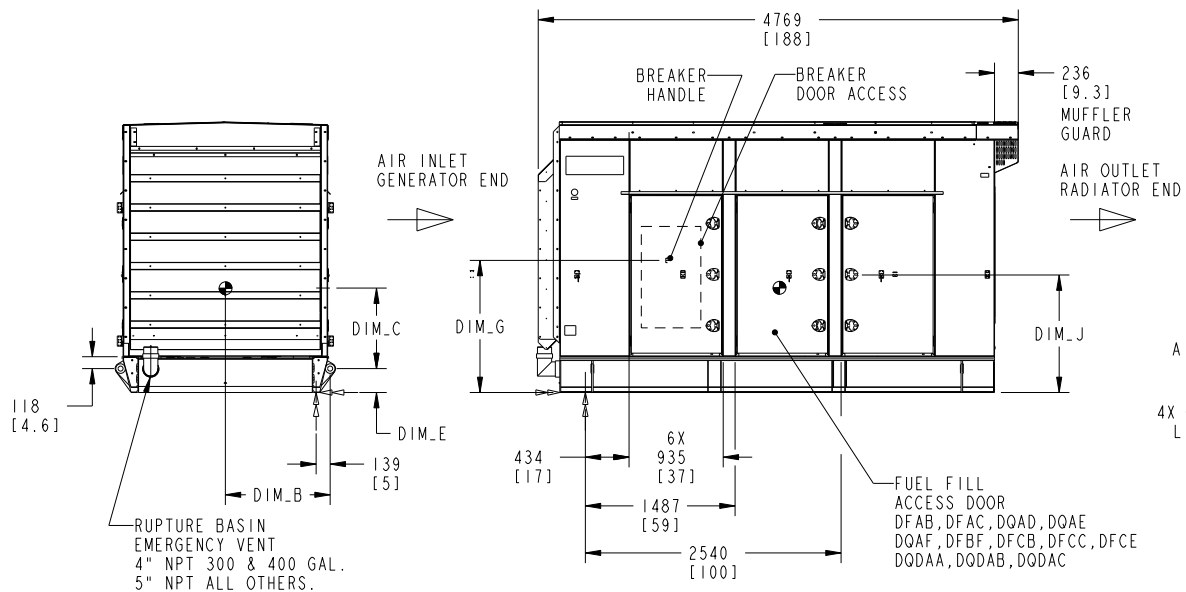
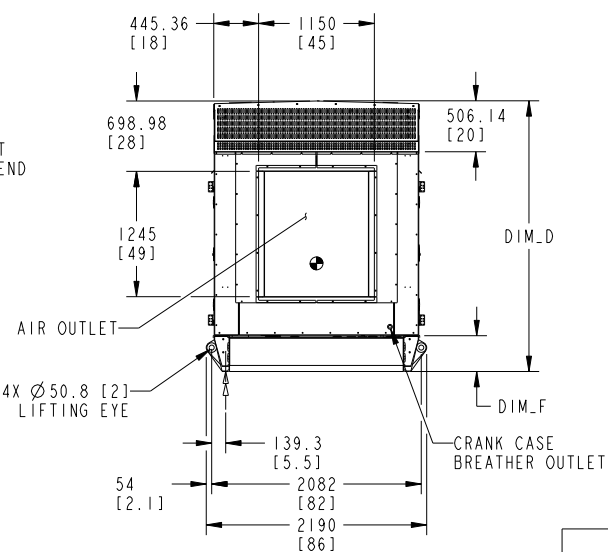
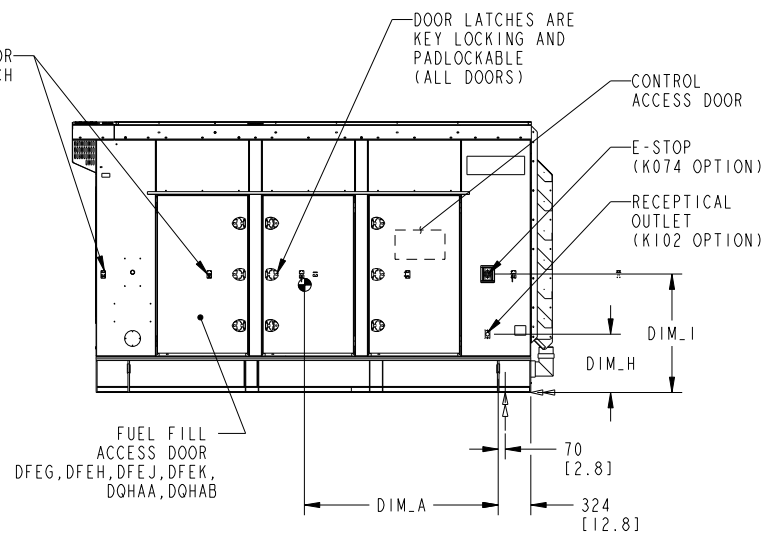
OPTIONAL FEATURE F200,201,F203,F204



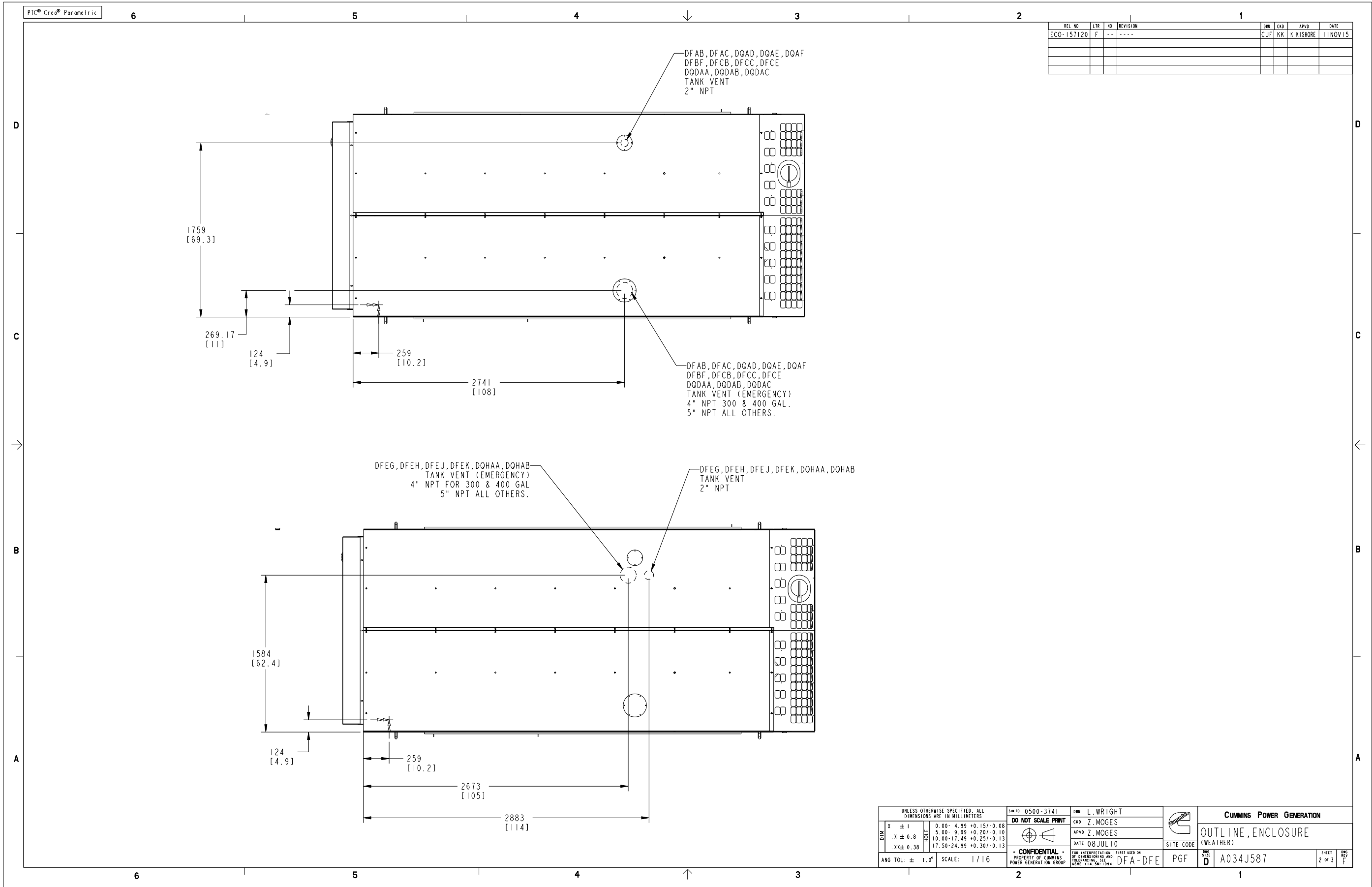
TABULATION							
TANK/LIFT BASE FEATURE CODE	TANK CAPACITY	DIM_G OS L9 L-FRAME	DIM_G OS L9 P-FRAME	DIM_G OS M11 L-FRAME	DIM_G OS M11 P-FRAME	DIM_G OS X15 L-FRAME	DIM_G OS X15 P-FRAME
C201	300	1457.2 [57.37]	1309.4 [51.55]	1495.3 [58.87]	1347.5 [53.05]	1707.9 [67.24]	1560 [61.42]
C202/C242	400/270	1508 [59.37]	1360.2 [53.55]	1546.1 [60.87]	1398.3 [55.05]	1758.7 [69.24]	1610.9 [63.42]
C203	500	1558.8 [61.37]	1411 [55.55]	1596.9 [62.87]	1449.1 [57.05]	1809.5 [71.24]	1661.7 [65.42]
C204	600	1635 [64.37]	1487.2 [58.55]	1673.1 [65.87]	1525.3 [60.05]	1885.7 [74.24]	1737.9 [68.42]
C205	660	1673 [65.87]	1525.3 [60.05]	1711.2 [67.37]	1563.4 [61.55]	1923.8 [75.74]	1776 [69.92]
C206	720	1711.2 [67.37]	1563.4 [61.55]	N/A	N/A	N/A	N/A
C207	850	N/A	N/A	1851 [72.87]	1703.1 [67.05]	2063.5 [81.24]	1915.7 [75.42]
F214	N/A	1355.6 [53.37]	1207.8 [47.55]	1393.7 [54.87]	1245.9 [49.05]	1606.3 [63.24]	1458.5 [57.42]
C208	1470	2066.8 [81.37]	1919 [75.55]	N/A	N/A	N/A	N/A
C209	1700	N/A	N/A	2104.9 [82.87]	1957.1 [77.05]	2317.5 [91.24]	2169.7 [85.42]
C211	2525	N/A	N/A	N/A	N/A	2317.5 [91.24]	2169.7 [85.42]

NOTES:

- DIMENSIONS SHOWN IN [] ARE INCHES.
- FOUNDATION REFERENCE POINT (—>P). SEE FOUNDATION DRAWING FOR DETAILS.
- FOR FEATURE CODE L116 & L120 (FLORIDA & MICHIGAN TANKS) ADD 162.6 [6.4] TO DIMS D-J
- SEE SHEET 2 FOR TANK VENT LOCATIONS.
- EXCESSIVE TWISTING OF THE FUEL TANK, WHEN FASTENING IT TO A FOUNDATION, MAY RESULT IN STRUCTURAL FAILURE OF THE TANK. TO INSURE THE INSTALLATION DOES NOT EXCESSIVELY TWIST THE FUEL TANK, THE FOLLOWING PROCEDURE MUST BE OBSERVED:
 - REFER TO CUMMINS APPLICATION MANUAL TO30 FOR GENERAL GENSET/TANK MOUNTING GUIDELINES.
 - (NOTE REMOVED)
 - (NOTE REMOVED)
 - (NOTE REMOVED)
 - TIGHTEN TANK HOLD DOWN MOUNTING FASTENERS.
- FUEL TANK SHOWN IS 300 GALLON MODEL. FUEL TANKS MAY BE LONGER AND TALLER THAN MODEL SHOWN.



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				DIM NO 0500-3741		DWG L. WRIGHT		CUMMINS POWER GENERATION	
<div><div><div><div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div></div></div><div>DO NOT SCALE PRINT</div></div>				CND Z. MOGES			OUTLINE, ENCLOSURE (WEATHER)		
				APVD Z. MOGES					
				DATE 08JUL10					
				SITE CODE					
ANG TOL: ± 1.0°				- CONFIDENTIAL - PROPERTY OF CUMMINS POWER GENERATION GROUP		FIRST USED ON DFA-DFE		PGF	
SCALE: 1/32				FOR INTERPRETATION OF DIMENSIONS AND TOLERANCING, SEE ASME Y14.5M-1994		SHEET 1 OF 3		REV F	



REL NO	LTR	NO	REVISION	DWG	CHKD	APVD	DATE
ECO-118385	C	1	6X 1813.4 WAS 1803.4, ZONE C2	WGM	B	J.D. K. KISHORE	27 JUL 11
		2	6X 33.1 WAS 38.1, ZONE B2	WGM	B	J.D. K. KISHORE	27 JUL 11
		6	143 WAS 138, ZONE B4	WGM	B	J.D. K. KISHORE	27 JUL 11
		7	480 WAS 475, ZONE B6	WGM	B	J.D. K. KISHORE	27 JUL 11
		8	1535 WAS 1530, ZONE C6	WGM	B	J.D. K. KISHORE	27 JUL 11



1. DIMENSIONS IN [] ARE IN INCHES.
2. SKID-BASE (LIFTING) AND FUEL TANK HAVE A FLANGE THICKNESS OF 4.76mm [.19 INCHES], (FLORIDA UNITS WITH FEATURE CODE L116) 8.76mm [.35 INCHES].
ALLOW EXTRA LENGTH ON HARDWARE FOR UNEVENNESS OF MOUNTING SURFACE.
3. LIFTING BASE OR FUEL TANK PERIMETER IS SHOWN. FOUNDATION SHOULD BE EXTENDED BEYOND THIS PERIMETER. SEE (T030) APPLICATION MANUAL.
4. FEATURE OPTION F214-2 DOES NOT USE THIS BOLT.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS		SIN TO 0500-3745		DIN Z JOHNSON		CUMMINS POWER GENERATION	
DO NOT SCALE PRINT							
DIM X $\pm$ 3 0.00 - 4.99 $\pm$ 0.15 / 0.00 X $\pm$ 0.8 0.00 - 9.99 $\pm$ 0.20 / 0.10 XX $\pm$ 0.38 10.00 - 17.49 $\pm$ 0.25 / 0.13 17.50 - 24.99 $\pm$ 0.30 / 0.13				CKD Z MOGES APVD Z MOGES DATE 10 JAN 11		OUTLINE, GENSET (FOUNDATION)	
ANG TOL: $\pm$ 1.0° SCALE: $\sim$ 1/8		~ CONFIDENTIAL ~ PROPERTY OF CUMMINS POWER GENERATION GROUP		FOR INTERPRETATION DIMENSIONS AND TOLERANCING, SEE CUMMINS INC. 1984 DFEK		SITE CODE D PG A A035F947	
				DATE DFEK		SHEET 2 OF 3	

1

SINGLE BREAKER



1



1

1



OTEC Transfer Switch Open Transition

40 – 1200 amp



Description

OTEC transfer switches are designed for operation and switching of electrical loads between primary power and Standby generator sets. They are suitable for use in emergency, legally required, and optional Standby applications. The switches monitor both power sources, signal generator set startup, automatically transfer power, and return the load to the primary power source once a stable utility is available. The fully integrated controller is designed for practical functionality, with LED indicators and digital pushbuttons for ease of operator use.

Features

Microprocessor control - Easy-to-use, standard control. LEDs display transfer switch status; pushbuttons allow operator to activate control test, exercise timing and transfer mode.

Programmed transition – Open transition timing can be adjusted to completely disconnect the load from both sources for a programmed time period, as recommended by NEMA MG-1 for transfer of inductive loads.

Advanced transfer switch mechanism – Unique bi-directional linear actuator provides virtually frictionfree, constant force, straight-line transfer switch action during automatic operation.

Manual operation - Manual operating handles, shielded termination, and over-center contact mechanisms allow effective manual operation under deenergized conditions.

Positive interlocking - Mechanical and electrical interlocking prevent source-to-source connection through the power or control wiring.

Main contacts - Heavy-duty silver alloy contacts and multi-leaf arc chutes are rated for motor loads or total system load transfer. They require no routine contact maintenance. Continuous load current not to exceed 100% of switch rating and Tungsten loads not to exceed 30% of switch rating.

Easy service/access - Single-plug harness connection and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field-programmable; no tool is required.

Complete product line - Cummins offers a wide range of equipment, accessories and services to suit virtually any backup power application.

Warranty and service - Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.

Transfer switch mechanism



- Transfer switch mechanism is electrically operated and mechanically held in the Source 1 and Source 2 positions. The transfer switch incorporates electrical and mechanical interlocks to prevent inadvertent interconnection of the sources.
- Independent break-before-make action is used for both 3-pole and 4-pole/switched neutral switches. This design allows use of sync check operation when required, or control of the operating speed of the transfer switch for proper transfer of motor and rectifier-based loads (programmed transition feature).
- True 4-pole switching allows for proper ground (earth) fault sensing and consistent, reliable operation for the life of the transfer switch. The neutral poles of the transfer switch have the same ratings as the phase poles and are operated by a common crossbar mechanism, eliminating the possibility of incorrect neutral operation at any point in the operating cycle, or due to failure of a neutral operator.
- Electrical interlocks prevent simultaneous closing signals to normal and emergency contacts and interconnection of normal and emergency sources through the control wiring
- High pressure silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contact wear is reduced by multiple leaf arc chutes that cool and quench the arcs. Barriers separate the phases to prevent interphase flashover. A transparent protective cover allows visual inspection while inhibiting inadvertent contact with energized components.
- Switch mechanism, including contact assemblies, is third-party certified to verify suitability for applications requiring high endurance switching capability for the life of the transfer switch. Withstand and closing ratings are validated using the same set of contacts, further demonstrating the robust nature of the design.

Specifications

Voltage rating	Transfer switches rated from 40 A through 1200 A are rated up to 600 VAC, 50 or 60 Hz.
Arc interruption	Multiple leaf arc chutes cool and quench the arcs. Barriers prevent interphase flashover.
Neutral bar	A full current-rated neutral bar with lugs is standard on enclosed 3-pole transfer switches.
Auxiliary contacts	Two contacts (one for each source) are provided for customer use. Wired to terminal block for easy access. Rated at 10A Continuous and 250 VAC maximum.
Operating temperature	-22 °F (-30 °C) to 140 °F (60 °C)
Storage temperature	-40 °F (-40 °C) to 140 °F (60 °C)
Humidity	Up to 95% relative, non-condensing
Altitude	Up to 10,000 ft (3,000 m) without derating
Total transfer time (source-to-source)	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without delayed transition enabled.
Manual operation handles	Transfer switches are equipped with permanently attached operating handles and quickbreak, quick-make contact mechanisms suitable for manual operation under de-energized conditions.

Transition Modes

Open transition/programmed – Controls the time required for the device to switch from source to source, so that the load-generated voltages decay to a safe level before connecting to an energized source. Recommended by NEMA MG-1 to prevent nuisance tripping breakers and load damage. Adjustable 0-10 seconds, default 0 seconds.

Open transition/in-phase – Initiates open transition transfer when in-phase monitor senses both sources are in phase. Operates in a break-before-make sequence. Includes ability to enable programmed transition as a backup. If sources are not in phase within 120 seconds, the system will transfer using programmed transition.

Microprocessor control

- Simple, easy-to-use control provides transfer switch information and operator controls
- LED lamps for source availability and source connected indication, exercise mode, and test mode. LED status lamps also provided for control set-up and configuration.
- Pushbutton controls for initiating test, overriding time delays and setting exercise time.
- Field-configurable for in-phase open or programmed open transition.
- Integral exerciser clock
- Control is prototype-tested to withstand voltage surges per EN60947-6-1.
- Gold-flashed generator start contacts



Control functions

Voltage sensing: All phases on the normal source and single phase on generator source. Normal Source Pickup: adjustable 90-95%, Dropout: adjustable 70-90% of nominal voltage; Generator Source Pickup: 90%, dropout: 75% of nominal voltage.

Frequency sensing: Generator Source Pickup: 90% of nominal frequency; Dropout: 75% of nominal frequency.

Exerciser clock: Switch is furnished with an integral engine exerciser configurable for operation on a 7, 14, 21, or 28-day cycle with a fixed exercise period duration of 20 minutes. A 12-hr exerciser time offset allows for the convenient setting of exercise time without the need to activate the timer at the exact time that you need to schedule the generator exercise for. Software selectable capability allows for the exercising of the generator with or without load.

Time-delay functions

Engine start: Prevents nuisance genset starts due to momentary power system variation or loss. Adjustable: 0-10 seconds; default: 3 seconds

Transfer normal to emergency: Allows genset to stabilize before application of load. Prevents power interruption if normal source variation or loss is momentary. Allows staggered transfer of loads in multiple transfer switch systems. Adjustable 0-300 seconds, default 5 seconds.

Retransfer emergency to normal: Allows the utility to stabilize before retransfer of load. Prevents needless power interruption if return of normal source is momentary. Allows staggered transfer of loads in multiple transfer switch systems. Adjustable 0-30 minutes, default 10 minutes.

Genset stop: Maintains availability of the genset for immediate reconnection in the event that the normal source fails shortly after transfer. Allows gradual genset cool down by running unloaded. Adjustable 0-30 minutes, default 10 minutes.

Delayed (programmed) transition: Controls the speed of operation of the transfer switch power contacts to allow load generated voltages from inductive devices to decay prior to connecting a live source. Adjustable 0-10 seconds, default 0 seconds.

Elevator signal: Provides a relay output contact for the elevator signal relay (load disconnect). The signal can also be configured to provide a post transfer delay of the same duration. Adjustable: 0-300 seconds (requires optional elevator signal relay for use).

Options

Elevator signal relay: Provides a relay output contact for the signal relay function

Programmable exerciser clock: Provides a fully-programmable 7-day clock to provide greater flexibility in scheduling exercise periods than standard integral exerciser. Time-of-day setting feature operates generator during periods of high utility rates.

UL withstand and closing ratings

The transfer switches listed below must be protected by circuit breakers or fuses. Referenced drawings include detailed listings of specific breakers or fuse types that must be used with the respective transfer switches. Consult with your distributor/dealer to obtain the necessary drawings. Withstand and Closing Ratings (WCR) are stated in symmetrical RMS amperes..

Transfer switch ampere	MCCB protection			Special circuit breaker protection		
	WCR @ volts max with specific manufacturers MCCBs	Max MCCB ratings	Drawing reference	With specific current limiting breakers (CLB)	Max CLB rating	Drawing reference
40, 70, 125 3-pole	14,000 at 600	225 A	A050J441	200,000 @ 600	225 A	A048J566
40, 70, 125 4-pole	30,000 at 600	400 A	A048E949	200,000 @ 600	400 A	A051D533
150, 225, 260	30,000 at 600	400 A	A048E949	200,000 @ 600	400 A	A051D533
300, 400, 600	65,000 at 600	1200 A	A056M829	200,000 @ 600	1200 A	A048J564
800, 1000	65,000 @ 480	1400 A	A056M821	200,000 @ 600	1400 A	A048J562
	50,000 @ 600					
1200	85,000 @ 480	1600 A	A056M825	200,000 @ 600	1600 A	A048P186
	65,000 @ 600					

Fuse Protection

Transfer switch ampere	WCR @ volts max. with current limiting fuses	Max fuse, size and type	Drawing reference
40, 70, 125 3- and 4-pole	200,000 at 600	200 A Class, J, RK1, RK5, T	A050J441
150, 225, 260	200,000 at 600	1200 A Class L or T, or 600 A class J, RK1, RK5	A048E949
300, 400, 600	200,000 at 600	1200 A Class L or T, or 600 A Class, J, RK1, RK5	A056M829
800, 1000	200,000 at 600	2000 A Class L or 1200 A class T or 600 A class J, RK1, RK5	A056M821
1200	200,000 at 600	2000 A Class L or 1200 A class T or 600 A class J, RK1, RK5	A056M825

3-cycle ratings

Transfer switch ampere	WCR @ volts max 3 cycle rating	Max MCCB rating	Drawing reference
300, 400, 600	25,000 at 600	1200 A	A056M829
800, 1000	35,000 at 600	1400 A	A056M821
1200	42,000 at 600	1600 A	A056M825
	50,000 at 480		

Enclosures

The transfer switch and control are wall-mounted in a key-locking enclosure. Wire bend space complies with 2008 NEC.

Dimensions - transfer switch in UL type 1 enclosure

Amp rating	Height		Width		Depth				Weight		Outline drawing
					Door closed		Door open				
	in	mm	in	mm	in	mm	in	mm	lb	kg	
40, 70, 125 3-pole	27.0	686	20.5	521	12.0	305	31.5	800	82	37	0310-0544
40, 70, 125 4-pole	35.5	902	26.0	660	16.0	406	41.0	1042	165	75	0500-4896
150, 225	35.5	902	26.0	660	16.0	406	41.0	1042	165	75	0310-0414
260	43.5	1105	28.5	724	16.0	406	43.0	1093	170	77	0310-0540
300, 400, 600	54.0	1372	25.5	648	18.0	457	42.0	1067	225	102	0310-1307
800, 1000	68.0	1727	30.0	762	19.5	495	48.5	1232	360	163	0310-0417
1200	90.0	2286	39.0	991	27.0	698	63.0	1600	730	331	A030L411

Dimensions - transfer switch in UL type 3R, 4, 4x, or 12 enclosure

Amp rating	Height		Width		Depth				Weight		Cabinet type	Outline drawing
					Door closed		Door open					
	in	mm	in	mm	in	mm	in	mm	lb	kg		
40, 70, 125 3-pole	34.0	864	26.5	673	12.5	318	36.5	927	125	57	3R, 12	0310-0453
											4	0310-0445
	46.0	1168	32.0	813	16.0	406	46.0	1168	255	102	4X	0500-4184
40, 70, 125 4-pole	42.5	1080	30.5	775	16.0	406	44.0	1118	215	97	3R, 12	0500-4896
											4	0500-4896
	46.0	1168	32.0	813	16.0	406	46.0	1168	215	102	4X	0500-4184
150, 225	42.5	1080	30.5	775	16.0	406	44.0	1118	215	97	3R, 12	0310-0453
											4	0310-0446
	46.0	1168	32.0	813	16.0	406	46.	1168	255	102	4X	0500-4184
260											3R, 12	0310-0455
	46.0	1168	32.0	813	16.0	406	46.0	1168	255	102	4	0310-0447
											4X	0500-4184
300, 400, 600	59.0	1499	27.5	699	16.5	419	41.5	1054	275	125	3R, 12	0310-1315
											4	0310-1316
	73.5	1867	32.5	826	19.5	495	49.5	1257	410	186	4X	0500-4185
800, 1000											3R, 12	0310-0457
	73.5	1867	32.5	826	19.5	495	49.5	1257	410	186	4	0310-0449
											4X	0500-4185
1200	90.0	2286	39.0	991	27.0	698	63.0	1600	730	331	3R, 12	A030L411
											4, 4X	A041N370

Transfer switch lug capacities

All lugs 90°C rated and accept copper or aluminum wire unless indicated otherwise.

Transfer switch ampere	Cables per phase	Size
40, 70, 125 3-pole	1	#12 AWG-2/0
40 4-pole	1	#12 AWG-2/0
70, 125 4-pole	1	#6 AWG - 300 MCM
150, 225	1	#6 AWG - 300 MCM
260	1	#6 AWG - 400 MCM
300, 400	2	One accepts 3/0 AWG - 600 MCM and One #4 AWG - 250 MCM
600	2	250 - 500 MCM
800, 1000	4	250 - 500 MCM
1200	4	#2 AWG to 600 MCM standard (feature N045) 1/0 AWG to 750 MCM optional (feature N066) Compression Lug Adapter optional (feature N032)

Certification



All switches are UL 1008 Listed with UL Type Rated cabinets and UL Listed CU-AL terminals.



All switches comply with NEMA ICS 10.



All switches are certified to CSA 282 Emergency Electrical Power Supply for Buildings, up to 600 VAC.



All switches comply with IEEE 446 Recommended Practice for Emergency and Standby Power Systems.

NEC

Suitable for use in emergency, legally required and Standby applications per NEC 700, 701 and 702.



This transfer switch is designed and manufactured in facilities certified to ISO9001.



All switches comply with NFPA 70, 99 and 110 (Level 1).

Submittal detail

Amperage ratings

- 40
- 70
- 125
- 150
- 225
- 260
- 300
- 400
- 600
- 800
- 1000
- 1200

Voltage ratings

- R020 120
- R038 190
- R021 208
- R022 220
- R023 240
- R024 380
- R025 416
- R035 440
- R026 480
- R027 600

Pole configuration

- A028 Poles - 3 (solid neutral)
- A029 Poles - 4 (switched neutral)

Frequency

- A044 60 Hertz
- A045 50 Hertz

Application

- A035 Utility-to-genset

System options

- A041 Single phase, 2-wire or 3-wire
- A042 Three phase, 3-wire or 4-wire

Enclosure

- B001 Type 1: general purpose indoor (similar to IEC Type IP30)
- B002 Type 3R: intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC Type IP34)
- B003 Type 4: indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC Type IP65)
- B010 Type 12: indoor use, some protection from dust (similar to IEC Type IP61)
- B025 Type 4X: stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65)

Standards

- A046 UL 1008/CSA certification
- A080 Seismic certification

Control voltage

- M033 12V, Genset starting voltage
- M034 24V, Genset starting voltage

Control options

- J030 External exercise clock
- M032 Elevator signal relay

Battery chargers

- K001 2 Amps, 12/24 Volts
- KB59 15 Amps, 12 Volts
- KB60 12 Amps, 24 Volts

Auxiliary relays

Relays are UL Listed and factory installed. All relays provide (2) normally closed isolated contacts rated 10A @ 600 VAC. Relay terminals accept (1) 18 gauge to (2) 12 gauge wires per terminal.

- L101 24 VDC coil - installed, not wired (for customer use).
- L102 24 VDC coil - emergency position - relay energized when switch is in source 2 (emergency) position.
- L103 24 VDC coil - normal position - relay energized when switch is in source 1 (normal) position
- L201 12 VDC coil installed, not wired (for customer use)
- L202 12 VDC coil - emergency position - relay energized when switch is in source 2 (emergency) position
- L203 12 VDC coil - normal position - relay energized when switch is in source 1 (normal) position

Miscellaneous options

- C027 Cover - guard
- M003 Terminal block - 30 points (not wired)

Optional lug kits

- N032 Lug adapters, compression, ½ stab (1200A only)
- N045 Cable lugs, mechanical, 600 MCM, 4 per pole (1200A only)
- N066 Cable lugs, mechanical, 750 MCM, 4 per pole (1200A only)

Warranty

- G009 1 year comprehensive
- G004 2 year comprehensive
- G006 5 year basic
- G007 5 year comprehensive
- G008 10 year major components

Shipping

- A051 Packing - export box (800-1000 A)

Accessories

- AC-170 Accessories specifications sheet

Specifications are subject to change without notice.

For more information contact your local Cummins distributor
or visit power.cummins.com

Our energy working for you.™



Pro/ENGINEER

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REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-103286	H	1	REDRAWN ON PROE, REVISED NOTES 6 & 7	GAC	JM	NS	02FEB09

NOTES:

1. APPROX. WEIGHT: 165 LBS
MASS: 75 kg
2. DIMENSIONS IN () ARE MILLIMETERS.
3. LUG CAPACITY:
(1 WIRE) WIRE RANGE 16 AWG-300 MCM (16-150 mm) WIRE CU-AL.
GND LUG CAPACITY:
(1 WIRE) WIRE RANGE 14 AWG-1/0 (2.5-50 mm)
CU-AL
4. USE SEPERATE CONDUITS FOR CONTROL
WIRING AND POWER WIRING. DO NOT
COMBINE.
5. SHADED AREA INDICATES WIRING
AND CABLE ENTRANCE AREA DO NOT
INSTALL OUTSIDE OF SHADED AREA.
6. WIRING BENDING SPACE CONFORMS TO NATIONAL
ELECTRIC CODE (NFPA70).
7. REFER TO THE NATIONAL ELECTRIC CODE
FOR MINIMUM CLEAR SPACE IN FRONT OF
THIS ENCLOSURE.

D

D

C

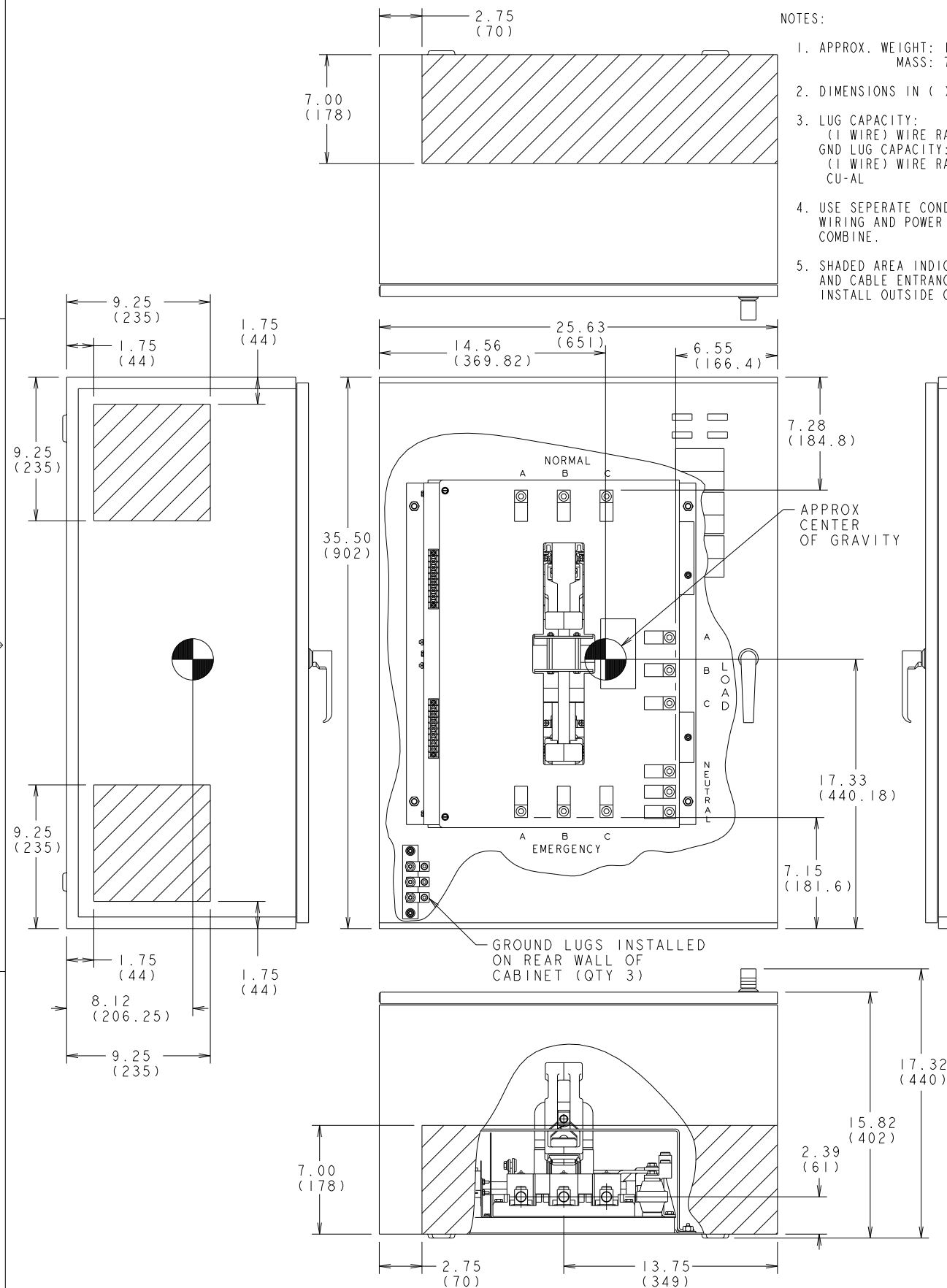
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UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIN TO		DWN G COLLEEN		CKD J MORLEY		APVD N SCHOTTTLER		DATE 14JAN09		SITE CODE		PGF		SHEET 1 OF 2		SHEET 1 OF 2	
DO NOT SCALE PRINT				CONFIDENTIAL		PROPERTY OF CUMMINS POWER GENERATION GROUP		FOR INTERPRETATION OF DIMENSIONS AND TOLERANCING, SEE ASME Y14.5M-1994		FIRST USED ON 150-225 AMP		SHEET 1 OF 2		SHEET 1 OF 2		SHEET 1 OF 2		SHEET 1 OF 2		SHEET 1 OF 2	
ANG TOL: ± 1.0°				SCALE: 1/1		3 POLE		CUMMINS POWER GENERATION		OUTLINE-CONTROL BOX		0310-0414		150-225 AMP		150-225 AMP		150-225 AMP		150-225 AMP	

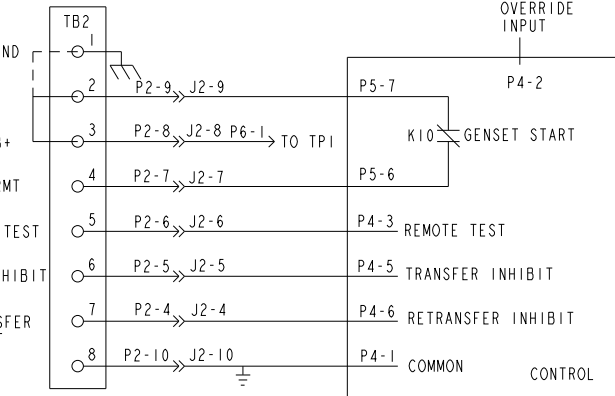
REL NO	LTR	NO	REVISION	OWN	CND	APVD	DATE
ECO-104169	D	1	REDRAWN IN PRO-E WITH CHANGES	NVB	LJY	L.SMITH	23DEC11
		2	ZONE B2, REVISED NOTE 7	NVB	LJY	L.SMITH	23DEC11
		3	ZONE B2, REVISED NOTE 8, SEE ECO	NVB	LJY	L.SMITH	23DEC11

- NOTES:
- UL TYPE I ENCLOSURE
 - APPROX. WEIGHT: 225 LBS
MASS: 102 kg
 - DIMENSIONS IN () ARE MILLIMETRES.
 - LUG CAPACITY: 300, 400 AMP
(QUANTITY 1 WIRE) 3/0-600 (95-300)
MCM CU-AL
(QUANTITY 2 WIRES) 3/0-250 (25-120)
MCM CU-AL
LUG CAPACITY: 600 AMP
(QUANTITY 2 WIRES) 250-500 (120-240)
MCM CU-AL.
 - USE SEPARATE CONDUITS FOR CONTROL WIRING AND POWER WIRING. DO NOT COMBINE.
 - SHADED AREA INDICATES WIRING AND CABLE ENTRANCE AREA DO NOT INSTALL OUTSIDE OF SHADED AREA.
 - WIRE BENDING SPACE CONFORMS TO NATIONAL ELECTRICAL CODE (NFPA70).
 - REFER TO THE NATIONAL ELECTRICAL CODE FOR MINIMUM CLEAR SPACE IN FRONT OF THIS ENCLOSURE.
 - 4 POLE SWITCHED NEUTRAL TRANSFER SWITCH SHOWN. A SOLID NEUTRAL BAR IS PROVIDED WITH 3 POLE TRANSFER SWITCHES.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIM ID 0310-0416	OWN L. KAPLAN		CUMMINS POWER GENERATION	
DO NOT SCALE PRINT				CND L. SMITH	APVD L. SMITH		OUTLINE-CONTROL BOX	
DATE 18MAY99				SITE CODE		PGF		
CONFIDENTIAL				FIRST USED ON		D		
PROPERTY OF CUMMINS POWER GENERATION GROUP				OIPC 300-600A		0310-1307		
ANG TOL: ±				SCALE: 3/16		1 OF 1		

OPTIONS:
BATTERY CHARGER
BATTERY CHARGER ALARMS
EXERCISER CLOCK
ELEVATOR RELAY

TO USE REMOTE TEST, TRANSFER
INHIBIT AND RETRANSFER INHIBIT
CONNECT AN OPEN CONTACT BETWEEN
THE APPLICABLE TERMINAL AND
COMMON (TB2-8). CLOSE THE CONTACT
TO ACTIVATE THE FUNCTION.

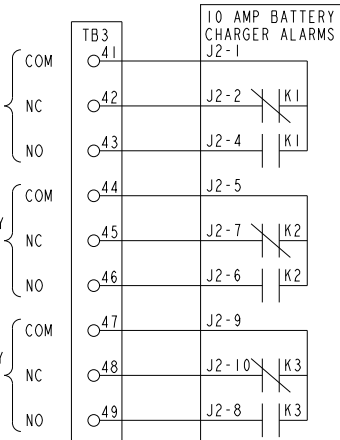



 REMOTE
OVERRIDE
INPUT

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22		21
32		31
44		43
A2		A1

15

LO BATTERY
VOLTAGE
SIGNAL

NET

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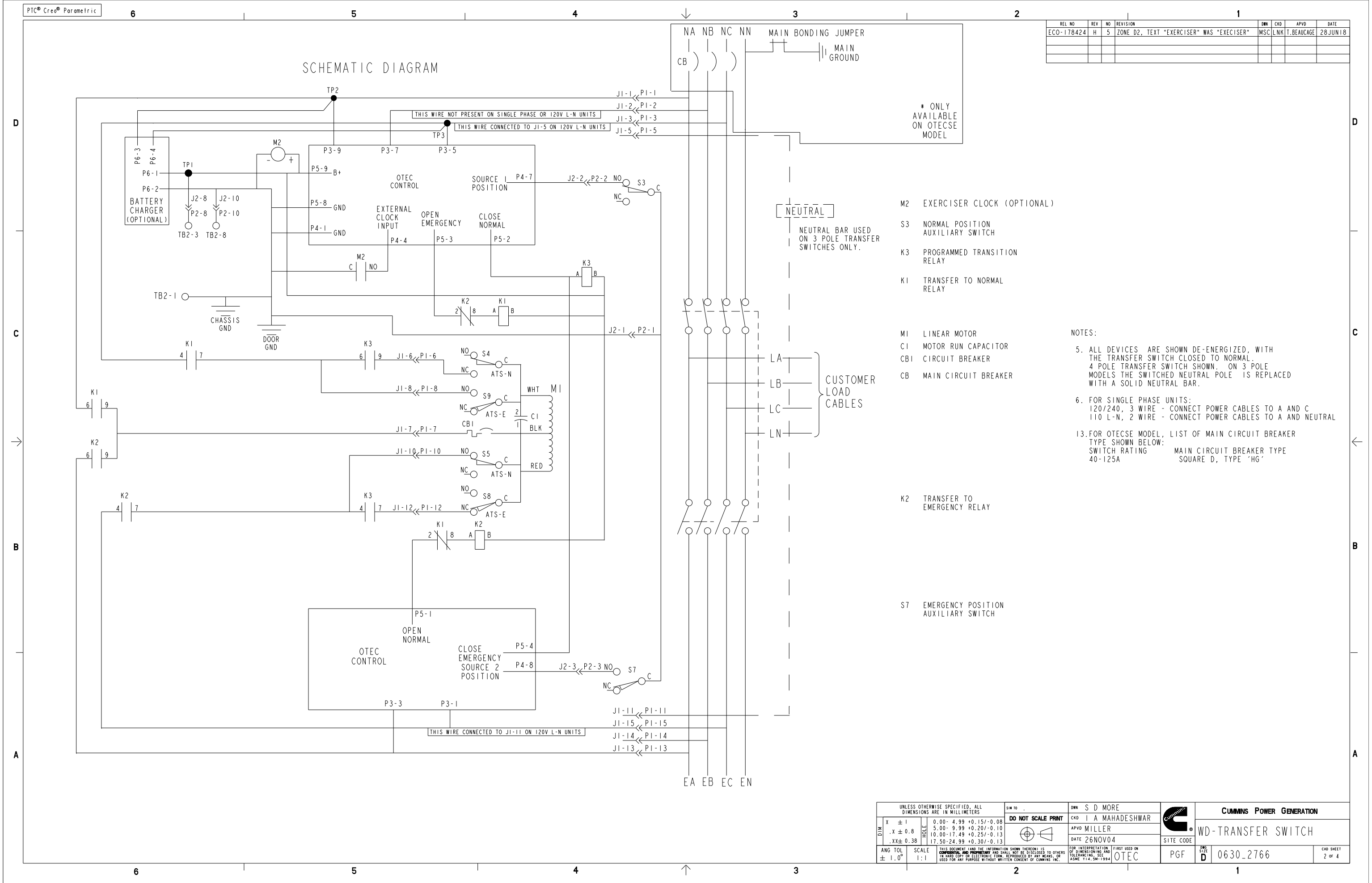
FOR FACTORY
USE ONLY

COMMON ALARM OUTPUT
CONTACT RATING
2 AMP AT 30 VDC

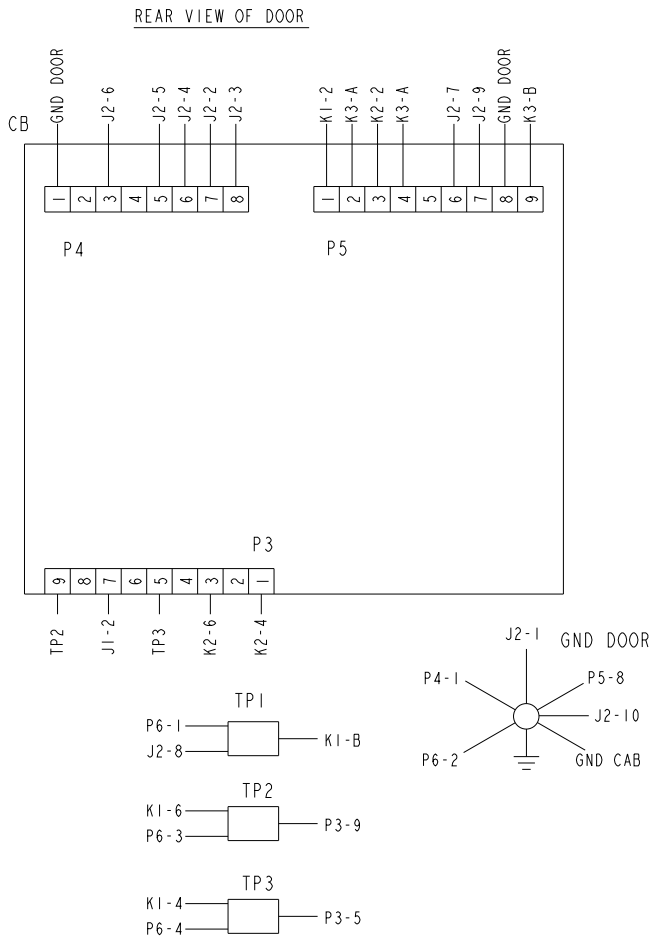
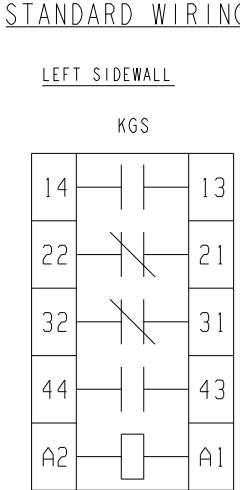
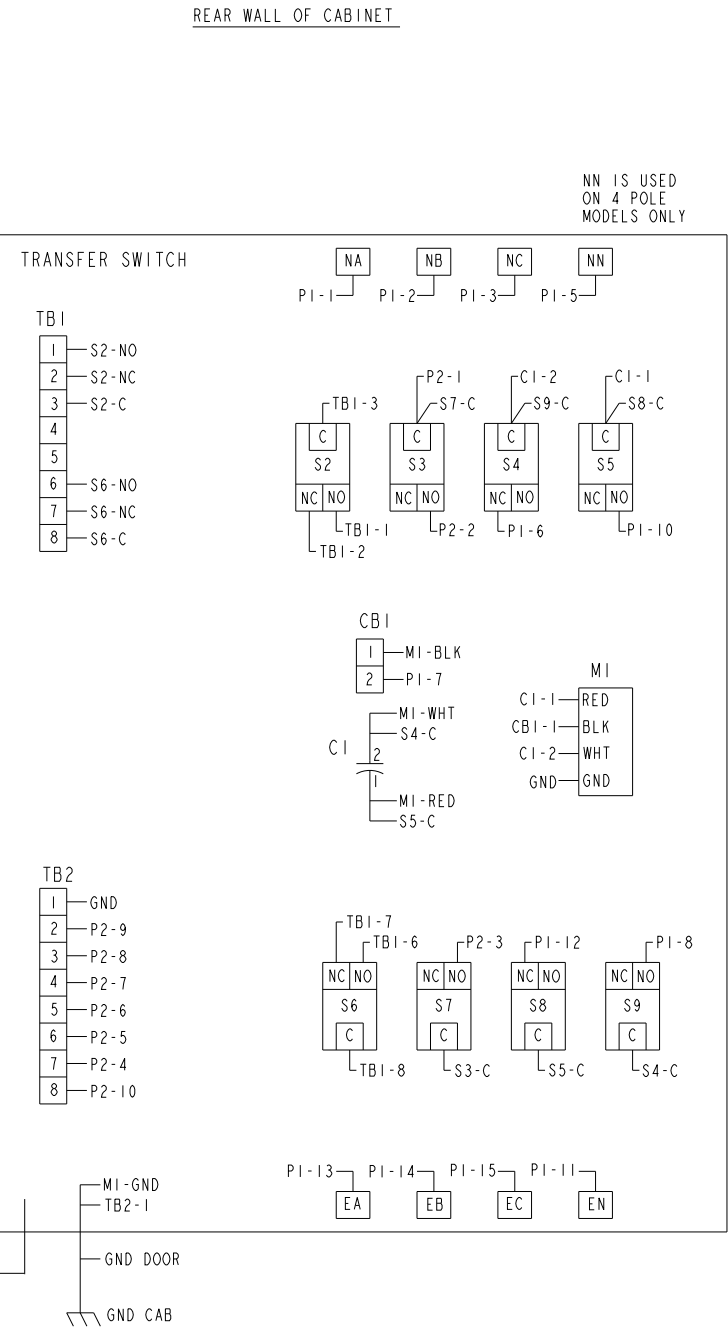
REMOTE TEMPERATURE
SENSOR INPUT

12

Drawing Name: 0630-2766 Revision: H
Part Name: 0630-2766 Revision: H
ECO-178424



REL NO	REV	NO	REVISION	DWN	CKD	APVD	DATE
ECO-178424	H	6	ZONE D4, ADD KGS TERMINALS	MSC	LNK	T.BEAUCAGE	28 JUN 18

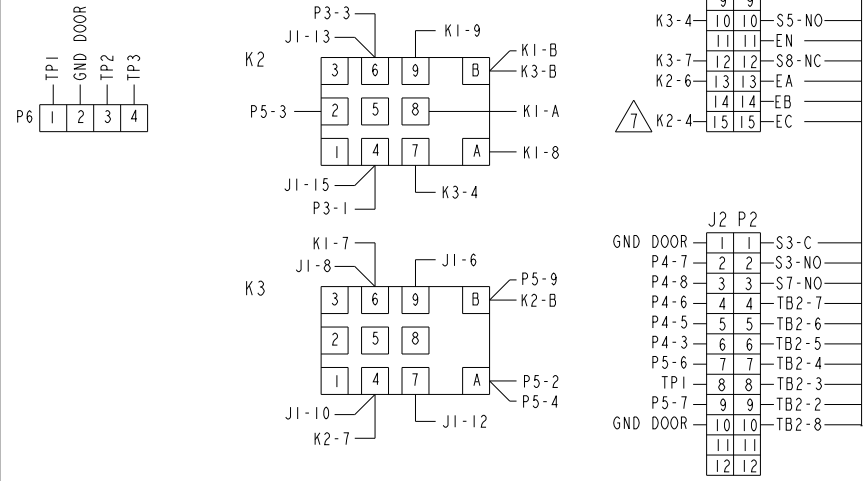


PI-5
PI-11
NEUTRAL BAR
NEUTRAL BAR IS USED
ON 3 POLE MODELS ONLY.

NOTES:

ON ALL SINGLE PHASE, 2 OR 3 WIRE UNITS:
THE WIRE CONNECTED FROM J1-2 TO P3-7
IS NOT PRESENT.

IN ADDITION, ON 120 VOLT L-N, 2 WIRE UNITS:
THE WIRE CONNECTED FROM K1-4 TO J1-3 WILL BE
CONNECTED FROM K1-4 TO J1-5 AND
THE WIRE CONNECTED FROM K2-4 TO J1-15 WILL BE
CONNECTED FROM K2-4 TO J1-11.



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIM TO	DWN	CKD	APVD	DATE	CUMMINS POWER GENERATION	
DO NOT SCALE PRINT					S D MORE	I A MAHADESHWAR	MILLER	26NOV04	WD-TRANSFER SWITCH	
ANG TOL ± 1.0°				SCALE 1:1	FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5M-1994		PGF	0630_2766	CAD SHEET 3 OF 4	

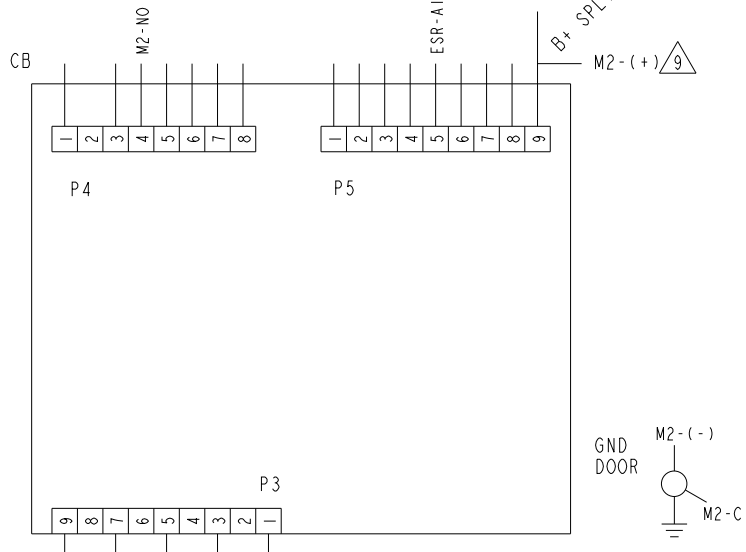
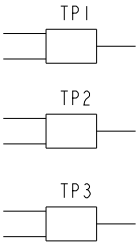
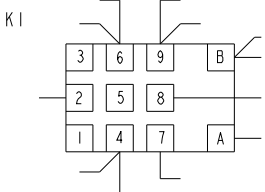
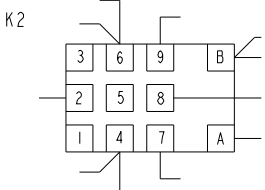
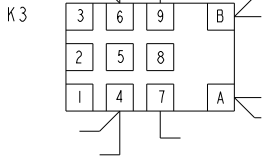
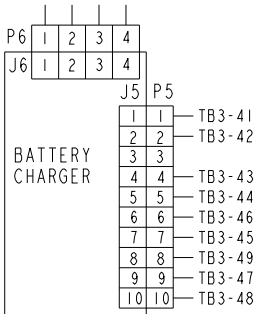
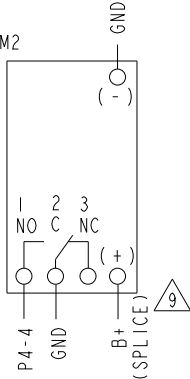
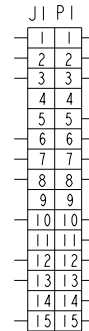
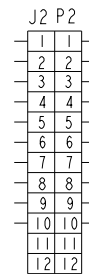
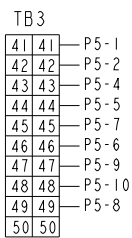
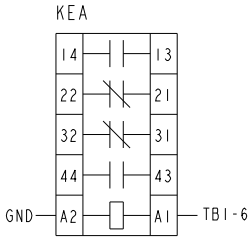
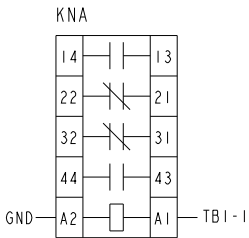
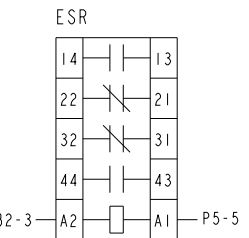
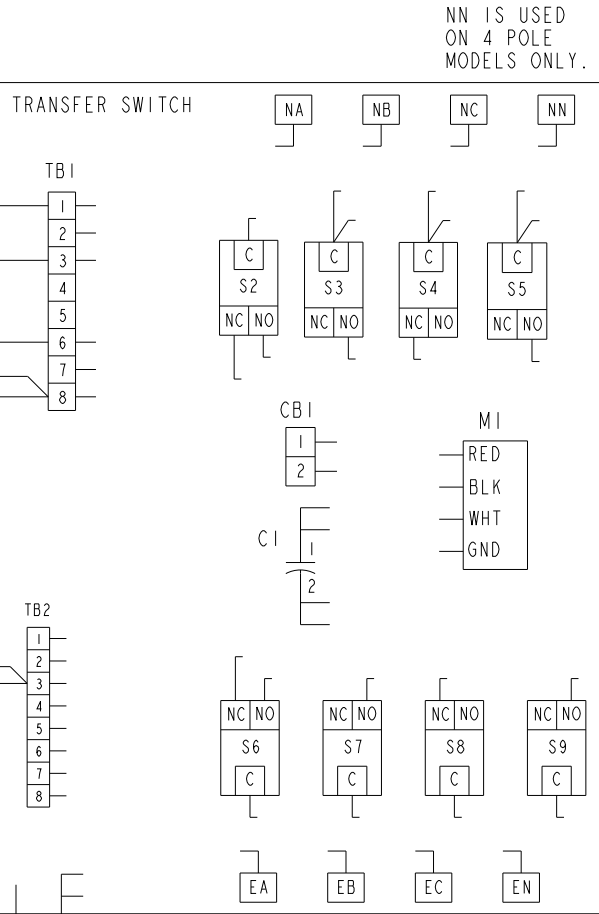
REL NO	REV	NO	REVISION	DWN	CKD	APVD	DATE
ECO-178424	H	-	---	MSC	LNK	T.BEAUCAGE	28 JUN 18

OPTION WIRING

LEFT SIDEWALL

REAR WALL OF CABINET

REAR VIEW OF DOOR



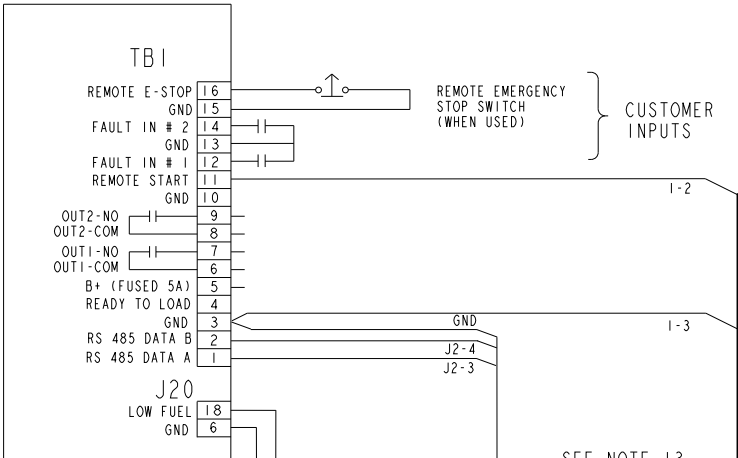
NEUTRAL BAR
NEUTRAL BAR IS USED ON 3 POLE MODELS ONLY.

- NOTES:
8. WIRING FOR RELAYS KNA AND KEA IS TYPICAL. POWER CONNECTIONS MAY VARY SLIGHTLY IF MORE OR LESS RELAYS ARE USED.
 9. THE WIRE FROM M2-(+) IS CONNECTED TO THE WIRE GOING TO P5-9.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIN TO		DWN S D MORE		CUMMINS POWER GENERATION	
DO NOT SCALE PRINT				CKD I A MAHADESHWAR		WD-TRANSFER SWITCH			
				APVD MILLER		SITE CODE			
DATE 26NOV04				PGF		0630-2766		CAD SHEET 4 of 4	

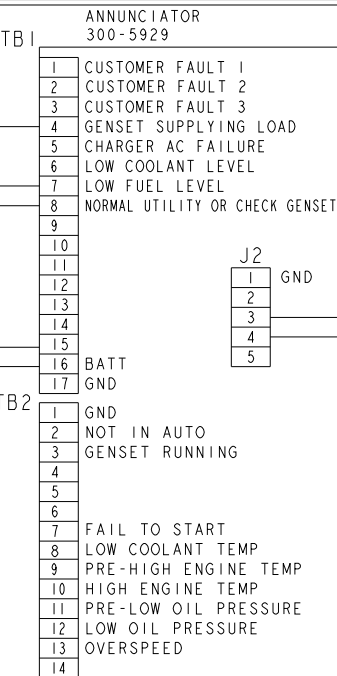
OTEC UTILITY TO GENSET

CUMMINS GENERATOR SET
WITH PCC1302, PCC1.X, PCC2.X, PCC3.X CONTROL



DAY TANK

LOW FUEL
ALARM
CONTACT



SEE NOTE 13

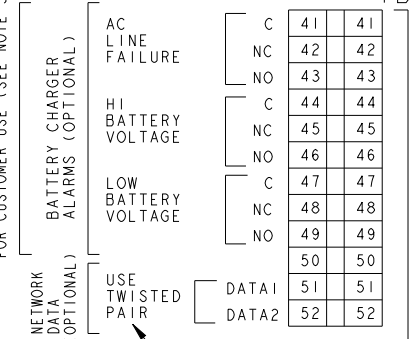
TO B+
TERMINAL
ON STARTER

2-13 1-5

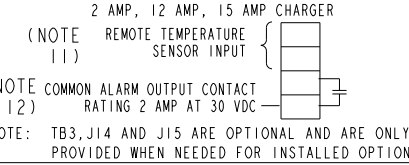
SPLICE BY INSTALLER

2-14 1-6

MOUNTED IN OTEC CABINET

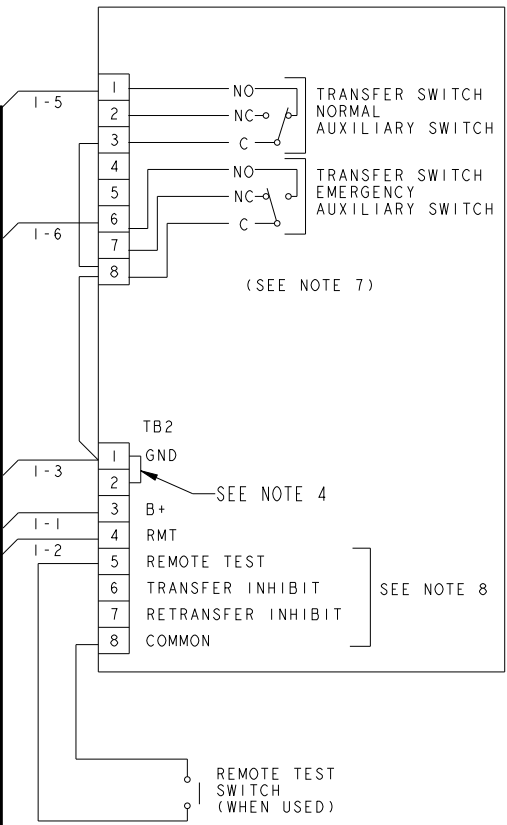


SEE NOTE 6
SEE NOTE 13



RUN #1
SEE NOTE 1

REAR WALL OF CABINET



(SEE NOTE 7)

SEE NOTE 4

SEE NOTE 8

REMOTE TEST
SWITCH
(WHEN USED)

WIRE SIZE (AWG)	DISTANCE IN FEET, ONE WAY (MULTIPLY BY 0.3 FOR METERS)				
	A	B	C	D	E
16	1000	90	-	50	-
14	1600	150	20	80	5
12	2400	225	30	125	10
10	4000	350	50	200	15
8	-	600	80	300	25
6	-	1000	125	500	40

REL NO	REV	NO	REVISION	OWN	CKD	APVD	DATE
ECO-177126	G	5	ZONE B6, RMV CUSTOMER FUSED B+ SEE NOTE 14	MSC	LHS	T.BEAUCAGE	01FEB19
		6	ZONE A6, B+ WAS CUSTOMER FUSED B+ AND CONNECTED LINE TO BUS	MSC	LHS	T.BEAUCAGE	01FEB19
		7	ZONE B5, "TB1-1" WAS "J2-1"	MSC	LHS	T.BEAUCAGE	01FEB19
		8	ZONE B5, "TB1-2" WAS "J2-2"	MSC	LHS	T.BEAUCAGE	01FEB19

NOTES:

- WIRE SIZES MUST BE AS FOLLOWS:
RUN #1-GENSET TO TRANSFER SWITCH-LEAD SIZE MUST BE INCREASED IF A BATTERY CHARGER IS INSTALLED IN THE SWITCH.
WITH NO BATT CHARGER-LEADS 1-1, -2, -3, -5, -6 USE COL. A.
WITH 2 AMP CHARGER, MAXIMUM VOLTAGE DROP OF 1.5 VOLTS, LEADS 1-1, & 1-3 USE COL B.
WITH 12/15 AMP CHARGER MAXIMUM VOLTAGE DROP OF 1.5 VOLTS, LEADS 1-1 & 1-3 USE COL. C.
WITH 2 AMP CHARGER, MAXIMUM VOLTAGE DROP OF 0.75 VOLTS, LEADS 1-1, & 1-3 USE COL D.
WITH 12/15 AMP CHARGER, MAXIMUM VOLTAGE DROP OF 0.75 VOLTS, LEADS 1-1, & 1-3 USE COL E. TO MEET THE NFPA110 REQUIREMENT TO RETURN A FULLY DISCHARGED BATTERY TO 100% OF IT'S AMPERE-HOUR RATING WITHIN 24 HOURS USE COL. E.
- RUN #2-GENSET TO ANNUNCIATOR-ALL LEADS, USE COL. A
- FOR MULTIPLE TRANSFER SWITCHES, DUPLICATE RUN #1 FOR EACH SWITCH. DAISY CHAIN CONNECTION IS ACCEPTABLE PROVIDED WIRE SIZE & DISTANCE TO THE LAST SWITCH MEET THE SPECS IN NOTE 1.
- INSTALL JUMPER BETWEEN TB2-1 & TB2-2.
- CONTACTS RATED: 4 AMPS AT 30 VDC OR 120V MAX.
- USE STRANDED TWISTED PAIR WIRES WHEN CONNECTING DATA1 AND DATA2 TO THE NETWORK.
- TRANSFER SWITCH SHOWN CLOSED TO NORMAL
- CONNECT AN OPEN DRY CONTACT BETWEEN THE APPLICABLE TERMINAL AND COMMON (TB2-8). FOR REMOTE TEST, TRANSFER INHIBIT AND RETRANSFER INHIBIT. CLOSE TO ACTIVATE.
- CONTACTS RATED: 2 AMPS AT 30 VDC OR 0.60 AMPS AT 120 VAC.
- REFER TO 0900-0301 FOR INSTALLATION OF 0300-5929.
- USE THE INVENTER REMOTE TEMPERATURE PROBE (0193-0530).
- THE FOLLOWING FAILS WILL CAUSE A BATTERY CHARGER ALARM OUTPUT:
LOW BATTERY VOLTAGE, HIGH BATTERY VOLTAGE, LOW AC INPUT VOLTAGE, HIGH AC INPUT VOLTAGE, OVERCURRENT, HIGH CHARGER TEMPERATURE, BATTERY FAILURE, HIGH BATTERY TEMPERATURE (NOT AVAILABLE ON 2 AMP CHARGER).
- NETWORK CONNECTIONS: USE BELDEN 9729 24 GAUGE TWISTED, STRANDED, SHIELDED CABLE. SHIELD SHOULD BE GROUNDED AT ONE END. TOTAL NETWORK LENGTH NOT TO EXCEED 4000 FEET. UP TO 20 NODES CAN BE CONNECTED TO THE NETWORK. (NOTE ANY COMMUNICATIONS WIRE CONNECTED TO THE GENSET SHOULD BE STRANDED CABLE.).

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIN TO 0630_1974	OWN G.COLLEEN		CUMMINS POWER GENERATION	
DO NOT SCALE PRINT					CKD J MILLER		WD-INTERCONNECTION	
					APVD J MILLER	SITE CODE	WD-INTERCONNECTION	
DATE 13FEB04				FOR INTERPRETATION OF DIMENSIONS AND TOLERANCING, SEE ASME Y14.5M-1994				
ANG TOL ± 1.0°		SCALE 1/1		THIS DOCUMENT (AND THE INFORMATION SHOWN THEREON) IS CONFIDENTIAL AND PROPRIETARY AND SHALL NOT BE DISCLOSED TO OTHERS IN HARD COPY OR ELECTRONIC FORM, REPRODUCED BY ANY MEANS, OR USED FOR ANY PURPOSE WITHOUT WRITTEN CONSENT OF CUMMINS INC.		FIRST USED ON OTEC	PGF	CAD SHEET 10 of 12
						SIN TO 0630_1974	D 0630_2810	

Special Withstand Ratings

Circuit Breaker Protection

When protected by one of the following circuit breakers rated not more than 1200 amperes, this transfer switch is rated for use on a circuit capable of delivering not more than the indicated RMS symmetrical amperes at the voltage shown.

GE

Type	Interrupting Rating at		
	240 VAC	480 VAC	600 VAC
AKRU, AKU	200000	200000	200000
FE	200000	150000	-
FG	200000	150000	65000
SEL, SFL	100000	65000	25000
SEP, SFP	200000	100000	25000
SGL	100000	65000	65000
SGP	200000	100000	65000
THLC4	200000	200000	50000

Siemens

Type	Interrupting Rating at		
	240 VAC	480 VAC	600 VAC
CE06, CFD6	200000	200000	100000
CJD6, CLD6	200000	150000	100000
CMD6, CND6	200000	100000	65000
CPD6	200000	65000	65000
SCJD6, SCLD6	200000	150000	100000
SCMD6, SCND6	200000	100000	65000

Square D

Type	Interrupting Rating at		
	240 VAC	480 VAC	600 VAC
DG, HG, JG, LG	65000	35000	18000
DJ, HJ, JJ, LJ	100000	65000	25000
DL	125000	100000	25000
FI, KI, LI, HR, JR, LR	200000	200000	100000
HD, JD, LD	25000	18000	14000
HL, JL, LL	125000	100000	50000

Eaton

Type	Interrupting Rating at		
	240 VAC	480 VAC	600 VAC
DSL, LA, NB	200000	200000	200000
EGC	200000	100000	35000
JGU	200000	150000	50000
JGX	200000	200000	35000
KDC, LDC, JGC, LGC	200000	100000	50000
LCL	200000	200000	100000
LGU	200000	150000	65000
LGX	200000	200000	65000

Merlin Gerin

Type	Interrupting Rating at		
	240 VAC	480 VAC	600 VAC
CE106L	150000	100000	42000
CF250L, CJ400L	150000	150000	65000
CK1000L	150000	50000	42000
NSF150N, NSF250N	65000	35000	18000
NSF150H, NSF250H	100000	65000	25000
NSJ400N, NSJ600N	65000	35000	18000
NSJ400H, NSJ600H	100000	65000	25000
NSJ400L, NSJ600L	150000	100000	25000

A048J564.A

-THIS IS A CONTROLLED ITEM-

PER POLICY-PROCEDURE PGG 1-01-01-116

TO MAINTAIN COMPLIANCE WITH REQUIREMENTS OF THE CODES, STANDARDS, OR AGENCIES LISTED BELOW

☒ CSA ☒ UL ☐ CE ☐ RVIA ☐ ABYC
☐ IBC ☐ OTHER ☐ OTHER

CHANGES, DEVIATIONS, OR SUBSTITUTIONS OF MATERIAL, PROCESS, OR PERFORMANCE FOR THIS ITEM MUST BE APPROVED BY THE FOLLOWING CONTROLLED ITEM APPROVER

RESPONSIBLE CIA ROLE PE TRANSFER SWITCH CIA
RESPONSIBLE CIA ROLE
RESPONSIBLE CIA ROLE

REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-147537	A	1	PRODUCTION_RELEASE	SGM	GRB	L.SMITH	28OCT14

NOTES:

- LABEL SHOWN ON PRINT IS NOT ARTWORK. VENDOR ARTWORK CREATED TO PRODUCE THIS LABEL MUST BE SIGNED OFF BY CUMMINS POWER GENERATION PURCHASING.
- ALL TEXT TO BE HELVETICA SANS SERIF, OR EQUIVALENT.
- BLACK TEXT AND WHITE BACKGROUND.
- MATERIAL THICKNESS: 10 MIL.
- SEE CUMMINS POWER GENERATION MATERIAL SPECIFICATIONS FOR APPLICATION INFORMATION.
- IF CORNERS SHOWN SQUARE, RADIUS OPTIONAL.
- IF CSA AGENCY APPROVAL REQUIRED LOCATE VENDOR CSA IDENTIFICATION MARK IN LOWER RIGHT HAND CORNER.
- LOCATE LABEL PART NUMBER & REVISION LETTER WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIM TO 0098-6920		DWN S.MADARAKALL			CUMMINS POWER GENERATION											
DIM	X ± 1	HOLE	0.00- 4.99 +0.15/-0.08	DO NOT SCALE PRINT		CKD G.BAIRAGI			LABEL, INFORMATION (SPECIAL BREAKER)											
	.X ± 0.8			APVD L.SMITH																
	.XX± 0.38		10.00-17.49 +0.25/-0.13	DATE 28OCT14																
ANG TOL: ± 1.0°			SCALE: 1/1		- CONFIDENTIAL - PROPERTY OF CUMMINS POWER GENERATION GROUP		FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5M-1994		FIRST USED ON OT/OTPC/OTEC 300-600A		PGF		DWG SIZE B		A048J564		SHEET 1 OF 1		DWG REV A	

Revision: C
Revision: B



April 9, 2020

DESCRIPTION		QTY		
Eaton Electric Fire Pump Transfer Switch				
Model # FPATS-100-D-L1		1		
	100 HP, 480 Volts, 3 phase, 60 HZ			
	Automatic Transfer Switch (ATS) for use with genset			



Product Description

EATON's Automatic Transfer Switches provide automatic transfer of an electrical load to a standby power supply in the event of drop or loss of voltage of any or all phases of the normal power supply.

Upon the restoration of the normal supply, the electrical load is automatically re-transferred to the normal power supply.

Transfer Switch Features

Electrically and Mechanically Interlocked

The FPATS transfer switch operating mechanisms are mechanically interlocked to prevent the normal and alternate source from connecting at the same time. The switch operates upon signals received from the ATC-300 Plus controller.



Engine Test Button

An engine test button is provided on the ATC-300 controller that can be used to test the Source 2 (generator) engine. The operator can select the engine run test time (0-600 minutes). As well, a silence pushbutton is provided which de-energizes the alarm bell.

Automatic Transfer

The FT Series Transfer Switches will perform an automatic transfer from Normal to Alternate source when the Voltage drops to 85% of normal, or there is a loss of any phase and/or Phase Reversal.



Alarm Relay

The alarm relay is de-energized to indicate an absence of an alarm state and energized to indicate the presence of an alarm condition. Alarm conditions include:

- Improper Circuit Breaker Operation
- Motor Operator Failure
- Lockout
- Failsafe Condition
- Aborted Engine Test
- Aborted Plant Exerciser

Product Features

ATC-300 Plus

The panel mounted, multi-function, microprocessor based ATC-300 Plus controller accurately monitors two power sources and provides the necessary intelligence to reliably operate the transfer switch through a series of programmed sensing and timing functions.



Keypad Programming

The ATC-300 Plus controller membrane is equipped with seven keypad input buttons which are used to program the controller as well as set operating parameters.

Voltage and Frequency Sensing

The ATC-300 Plus continuously monitors the normal source for out of range setpoint values. When the source is outside the dropout setpoints, the source will become unavailable. This prompts a transfer to the alternate source. Retransfer occurs when the normal source's frequency and/or voltage return within pickup setpoints.

LED Status Indication

Five LED's indicate the status of the power sources.

Source 1 Available	Source 1 Connected
Source 2 Available	Source 2 Connected
Unit Status	

Source 1 (Normal) Available

The white Source 1 Available LED illuminates when the Source 1 power source is within the setpoint ranges for the nominal voltage and frequency setting.

Source 2 (Normal) Connected

The green Source 1 LED illuminates when the Source 1 switching device and its associated position indicating auxiliary contact are closed.

Source 2 (Emergency) Available

The amber Source 2 Available LED illuminates when the Source 1 power source is within the setpoint ranges for the nominal voltage and frequency setting.

Source 2 (Emergency) Connected

The red Source 2 Connected LED illuminates when the Source 2 switching device and its associated position indicating auxiliary contact are closed.

Input Pushbuttons

Step / Enter

The Step/Enter pushbutton allows the user to scroll through the information and setpoint displays. When the Step/Enter button is pressed, the information on the LCD display advances through the voltage(s), frequency, and status condition of Source 1, then Source 2, then the time and date information, then the history information, then the setpoints - one step at a time.

Increase

The Increase button allows the user to increase the value of the setpoints. When the ATC-300 is in the "Program" Mode, each time the Increase button is pressed, the value of the displayed item will increase by one.

Decrease

The Decrease button allows the user to decrease the value of the setpoints. When the ATC-300 is in the "Program" Mode, each time the Decrease button is pressed, the value of the displayed item will decrease by one.

Alarm Reset Function

Pressing the Increase and Decrease buttons simultaneously will reset the Alarm function. If this is done while viewing any of the historical logged values in the program mode, the value of the current item resets to zero.

Bypass Time Delay Function

(Step/Enter+Help/Lamp Test)

Pressing the Step / Enter and Help / Lamp Test buttons simultaneously, will bypass the TDNE or TDEN functions when they are actively timing.

Help / Lamp Test

If the Help/Lamp Test pushbutton is pressed when a message is present on the LCD Display, a detailed description of the message will appear. It will scroll across the bottom of the display.

If the LCD Display is displaying the Home screen when the Help/Lamp Test key is pressed, all of the LED's will momentarily illuminate, then the following information will scroll across the display:

Serial Number of the ATC-300 Plus controller, Hardware Revision number, Software Versions and Revision number, Feature Code, Firmware Version

Technical Data and Specifications

Line Terminals (Incoming Cables)

	Line Terminals on Main Isolation Switch (Incoming Cables)						
	LINE VOLTAGE					Quantity & Cable Sizes	Service Entrance Ground Lug Quantity & Cable Sizes
	200-208	220-240	380-415	440-480	550-600		
Max HP	25	30	40	60	75	(1) #14-1/0 PER Ø (CU/AL)	(1) #14-2/0 (CU/AL)
	40	50	75	100	100	(1) #4-4/0 PER Ø (CU)	(1) #4-350MCM (CU/AL)
	75	75	150	200	200	(1) #3-350MCM PER Ø (CU/AL)	(1) #4-350MCM (CU/AL)
	100	125	200	250	300	(2) 3/0-250MCM PER Ø (CU/AL)	(2) 1/0-750MCM (CU/AL)
	150	200	350	400	400	(2) 250-350MCM PER Ø (CU/AL)	(2) 1/0-750MCM (CU/AL)

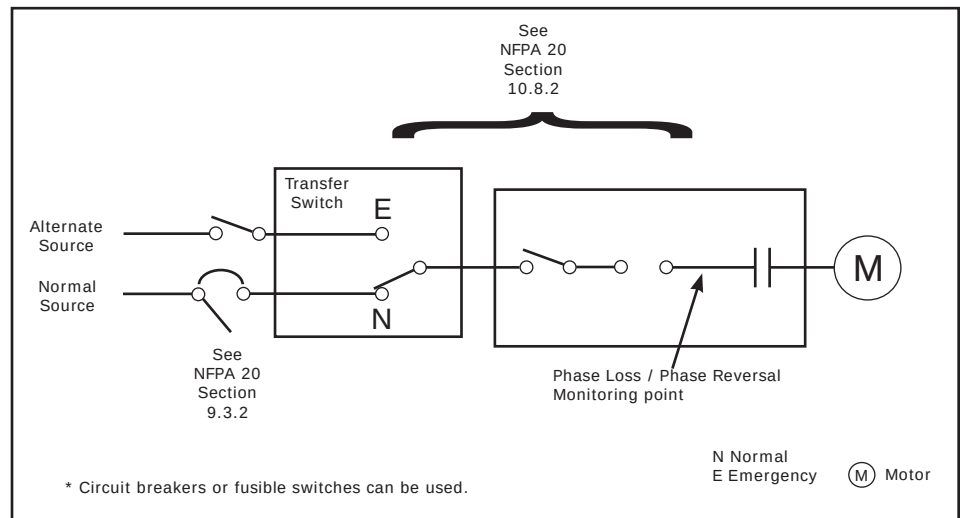
Installation Parameters

NFPA 20 - Arrangement II Individually Listed Fire Pump Controllers and Power Transfer Switch

When applying Arrangement II, all installations should comply with NFPA 20 - Section 9.3.2 and Section 10.8.2.2.

NEMA 2 Enclosures

All FPATS transfer switches come standard with NEMA 2 enclosures unless otherwise ordered. Available options include: NEMA 3R, 4, 4X, 12.



NFPA 20 - Arrangement II

Standards & Certification

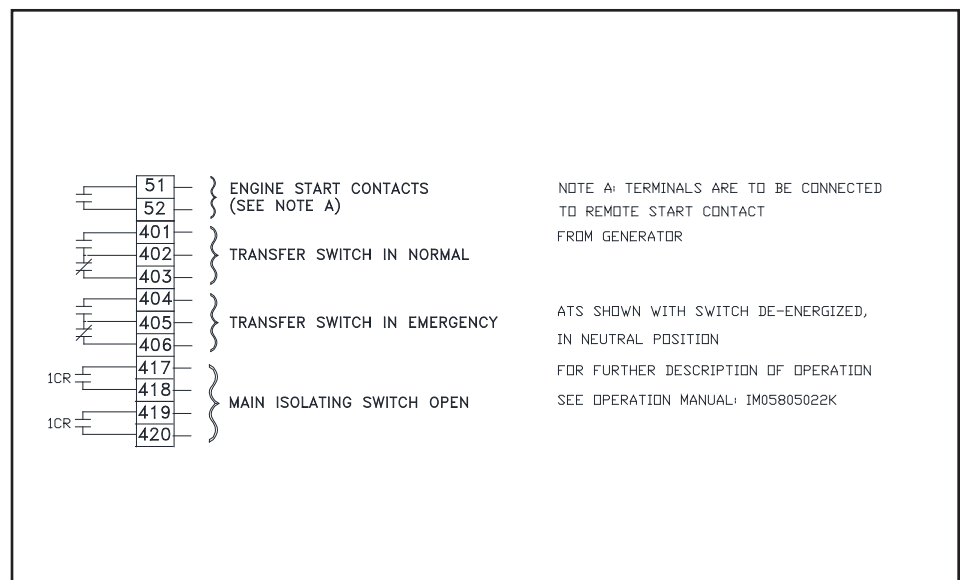
The FPATS transfer switches meet or exceed the requirements of Underwriters Laboratories, Underwriters Laboratories Canada, the Canadian Standards Association, New York City building code, U.B.C. / C.B.C. seismic requirements, and are built to NFPA 20 standards.



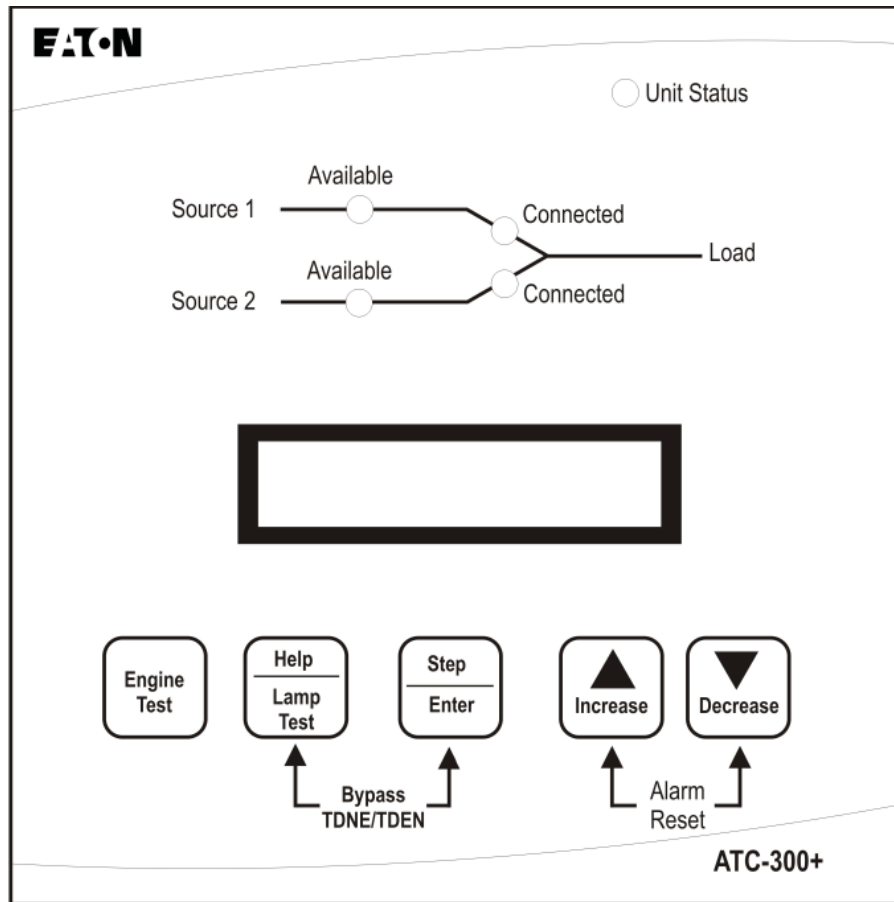
N. Y. C.
APPROVED



Transfer Switch Terminal Block



Main Display



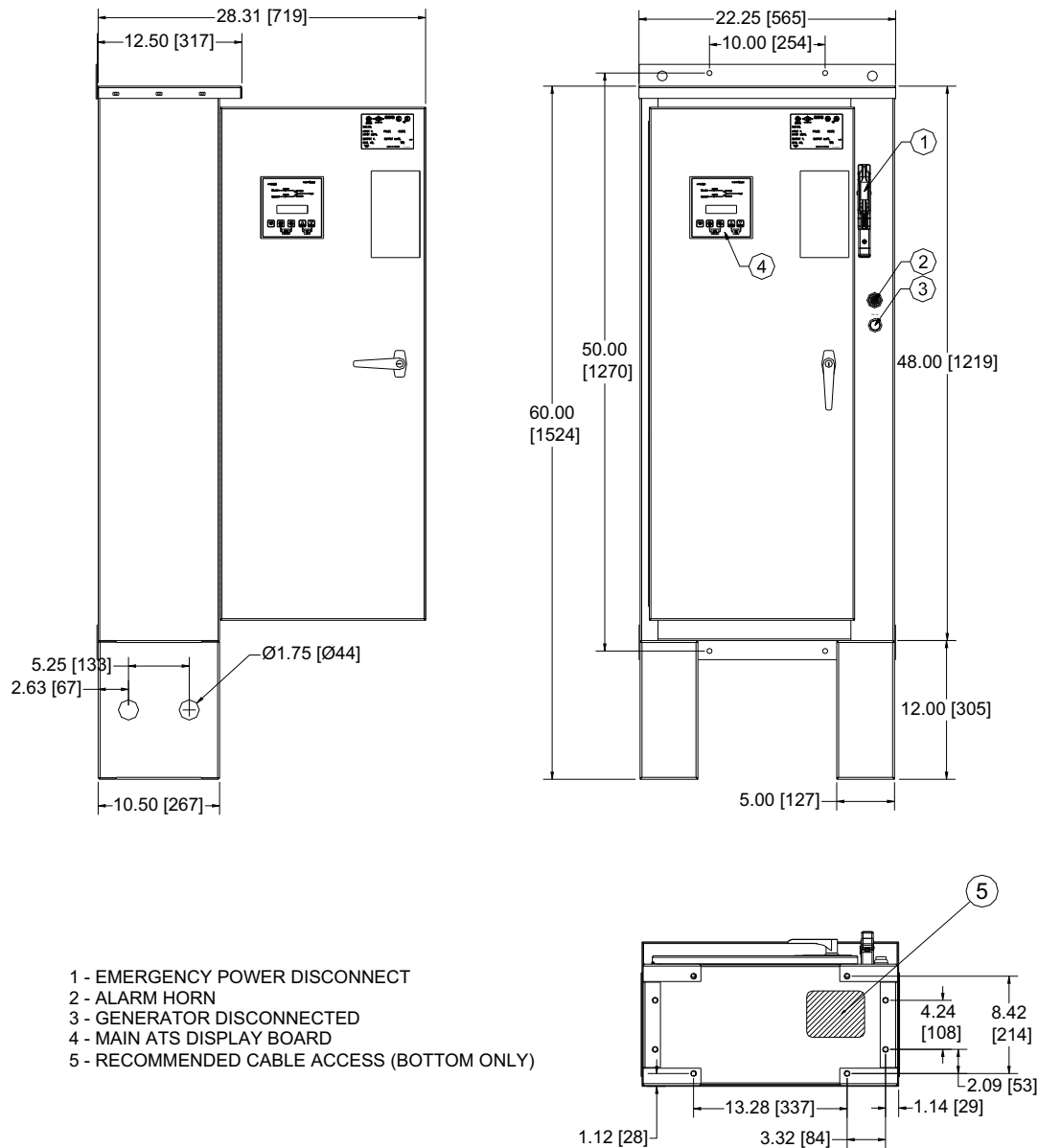
Note: For setup and programming information, refer to the Operation Manual for the EATON ATC-300 Plus Automatic Transfer Switch Controller - IM05805022K

FPATS Stand Alone Transfer Switch

November 2012

Dimensions

Standard Enclosure - Type NEMA 2, 3R, 12



Dimensions in inches and [millimeters].

Motor Hp	Line Voltage	Withstand Rating			Approx. Weight Lbs. (Kg)
		Standard	Intermediate	High	
5 - 40	200 - 208V	100,000	Consult Factory	Consult Factory	180 (81)
5 - 50	220 - 240V				
5 - 75	380 - 415V	65,000			
5 - 100	440 - 480V				
5 - 100	550 - 600V	25,000			



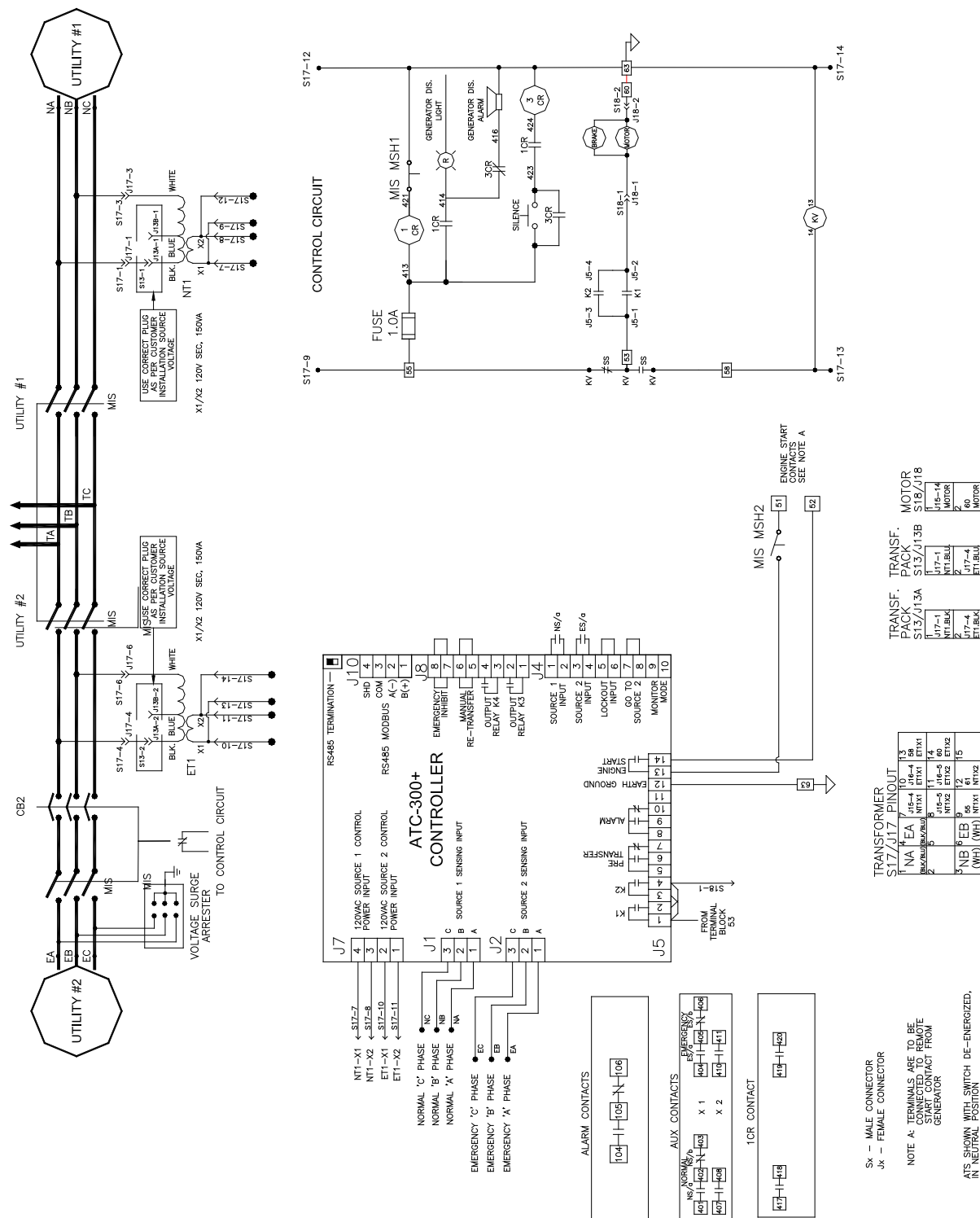
N. Y. C.
APPROVED



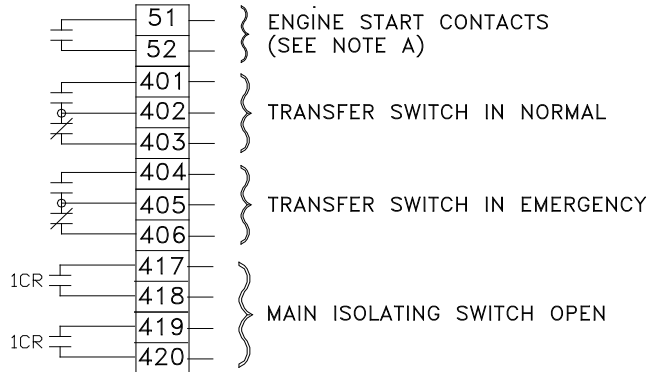
NOTES:

1. All enclosures finished in FirePump red.
2. Cable Entrance bottom only.
3. Standard Enclosure type NEMA 2.

Electrical Wiring Schematic



Field Connections



NOTE A: TERMINALS ARE TO BE CONNECTED TO REMOTE START CONTACT FROM GENERATOR

ATS SHOWN WITH SWITCH DE-ENERGIZED, IN NEUTRAL POSITION
FOR FURTHER DESCRIPTION OF OPERATION SEE OPERATION MANUAL: IM05805022K

Line Terminals on Main Isolation Switch (Incoming Cables)							
	LINE VOLTAGE					Qty. & Cable Sizes	Service Entrance GND. LUG Qty. & Cable Sizes
	200 - 208	220 - 240	*380 - 415	440 - 480	550 - 600		
	25	30	40	60	75	(1)#14-1/0 PER Ø (CU/AL)	(1)#14-2/0 (CU/AL)
Max HP	40	50	75	100	100	(1)#4-4/0 PER Ø (CU)	(1)#4-350MCM (CU/AL)
	75	75	150	200	200	(1)#3-350MCM PER Ø (CU/AL)	(1)#4-350MCM (CU/AL)
	100	125	200	250	300	(2)3/0-250MCM PER Ø (CU/AL)	(2)1/0-750MCM (CU/AL)
	150	200	350	400	400	(2)250-350MCM PER Ø (CU/AL)	(2)1/0-750MCM (CU/AL)

Part Number / Options Selection Guide
Stand Alone Automatic Transfer Switches



FPATS

Horsepower				
5	25	75	250	500
7.5	30	100	300	550
10	40	125	350	600
15	50	150	400	650
20	60	200	450	700

Voltage
A = 208V - 60HZ
B = 240V - 60HZ
C = 380V - 50HZ
D = 480V - 60HZ
E = 600V - 60HZ
F = 415V - 50HZ
H = 380V - 60HZ
J = 400V - 50HZ
K = 400V - 60HZ

Options
E1 = NEMA 3R - Raintight Enclosure
E3 = NEMA 12 - Industrial Dust Tight Enclosure

Language
L1 = English
L2 = French
L4 = Italian
L5 = Spanish
L6 = Portuguese
L7 = Chinese
L8 = Polish
L9 = Dutch
L11 = Turkish



N. Y. C.
APPROVED



June 2014

Typical Specifications**1. Approvals**

- A. The Fire Pump Controller and Transfer Switch combination shall meet the requirements of the latest edition of NFPA 20 and shall be listed by [Underwriters Laboratories (UL)] and approved by [Factory Mutual] (FM) **, [Canadian Standards Association (CSA)] and [New York Department of Buildings (NYSB)] for fire pump service.
- B. The transfer switch shall meet UL 1008 and shall be regularly subjected to Endurance, Interrupting Capacity, and Dielectric Voltage-Withstand test as outlined by UL 489 standards.

2. Ratings

- A. The transfer switch shall be suitable for the available short circuit current at the line terminals of the controller.
- B. The transfer switch shall have an ampere rating not less than 115% of the motor full-load current.

3. Construction

- A. The transfer switch shall be installed in a barriered compartment of the fire pump controller. The complete assembly, controller and transfer switch, shall be shipped as a single unit.
- B. A single uni-gear motor shall electrically operate the transfer mechanism. It shall also be capable of being operated manually and shall have suitable provisions for readily disengaging the gear motor when necessary.
- C. The transfer switch shall be mechanically and electrically interlocked so that it shall not be possible for the load circuits to be connected to normal and emergency sources simultaneously, regardless of whether the switch is electrically or mechanically operated. The switch shall have a manual neutral.
- D. The alternate side shall be provided with an isolation switch sized to a minimum of 115% of the motor full-load current and a circuit breaker having a continuous current rating not less than 115% of the motor full load amps. The isolation switch shall have overcurrent sensing elements of the non-thermal type, and instantaneous short-circuit overcurrent protection. (This does not apply to FPATS Stand Alone and FT20 Limited Service Transfer Switch Controllers.)
The isolating switch and circuit breaker shall be mechanically interlocked and operated by a single handle. (This does not apply to FT20 Limited Service Transfer Switch Controllers.)
The isolating switch shall be supervised to indicate when it is opened by audible and visual alarms.
- E. An auxiliary contact shall be provided to prevent sending of the signal for starting of the alternate source generator when the transfer switch commands it, if the isolation switch on the alternate source side of the transfer switch is open.
- F. The transfer switch shall be provided with locked rotor overcurrent protection. The locked rotor protector shall be calibrated and set to a minimum of 300% of the motor full-load current and have a tripping time between 8 and 20 seconds. (This does not apply to FT20 Limited Service Transfer Switch controllers.)

4. Enclosure

- A. The controller shall be housed in a NEMA Type 2 (IEC IP11) drip-proof, powder baked finish, freestanding enclosure.

** NOTE: FPATS Stand Alone and FT20 Limited Service Transfer Switch controllers, do not carry FM Approval.

5. Microprocessor Control

- A. A solid state sensing and control logic panel shall be separately mounted from the power-switching portion of the transfer switch. The two sections shall be connected together by control cables and plug-in connectors. The control section shall be capable of being isolated from the power section for maintenance.
- B. The normal power source shall be set to pickup at 95% and drop out at 85% of nominal supply. The voltage sensing on the alternate supply shall be set to pickup at 95% of nominal voltage.
- C. All voltage sensing, frequency sensing, and timer set points shall be field adjustable.
- D. The transfer switch shall automatically transfer its load circuit to an emergency or alternate power supply upon failure of the normal or original supply. In order to override momentary fluctuations in the system, a time delay transfer from normal to alternate power supply shall be adjustable up to 1800 seconds. Upon restoration of the normal supply, the transfer switch shall automatically retransfer its load circuits to the normal supply. Mechanically held transfer mechanisms shall be energized only momentarily during transfer or retransfer.
- E. If the emergency / standby power should fail while carrying the load, transfer to the normal supply shall be made instantaneously upon restoration of the normal source to satisfactory conditions.
- F. The transfer switch shall come complete with five LED's to provide visual indication of the unit status, source 1 available, source 1 connected, source 2 available, and source 2 connected.
- G. An engine test button shall be provided that will initiate an engine test.
- H. A silence alarm button shall be provided that will silence the alarm buzzer.

6. Alarm Relays

- A. 1 Form-C contact shall be provided for remote indication for source 1 connected or source 2 connected.
- B. 2 Form-C contacts shall be provided for remote indication for the alternate source-isolating switch open.

7. Manufacturer

- A. The manufacturer of the assembly shall be the manufacturer of major components and control modules installed within the assembly.
- B. The Transfer Switch Fire Pump Controller shall be of the LMR Plus type as manufactured by Eaton Industries (Canada) Company.
- C. Models:
FT20 Limited Service
FT30 Across the Line
FT40 Part Winding
FT50 Primary Resistor
FT60 Autotransformer
FT70 Wye-Delta (Star Delta) Open Transition
FT80 Wye-Delta (Star Delta) Closed Transition
FT90 Soft Start
FPATS Stand Alone Transfer Switch

PowerPact H-, J-, and L-Frame Circuit Breakers

Catalog

0611CT1001 R12/15

2015

Class 0611



Section 1—Catalog Numbering

PowerPact™ with Micrologic™ Circuit Breakers

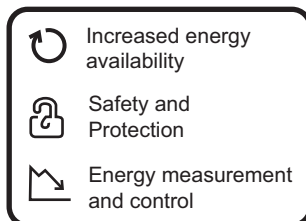
The PowerPact H-, J-, and L-frame circuit breakers are designed to protect electrical systems from damage caused by overloads and short circuits. H- and J-frame circuit breakers are available with either thermal-magnetic or Micrologic electronic trip units. L-frame circuit breakers are available with Micrologic electronic trip units only.



Direct Access to Energy Management

The new generation PowerPact with Micrologic circuit breakers set the standard with direct access to energy management. Integrated metering enhances their protective functions. For the first time, Schneider Electric™ users can monitor energy from 15 to 3000 A, offering new performance in a remarkably compact device.

- Smart – A meter in every breaker
- Safe – Combines safety and performance in one compact device
- Simple – To select, install, and use



PowerPact H-, J-, and L-Frame Circuit Breakers

Catalog Numbering

Catalog Numbering

Table 1: Circuit Breaker Catalog Numbers

N L G L 3 6 400 - U33X

Segment	Character	Description	—	J	L	L	3	6	250	W	T	—	—	—	—
Brand	—	Square D													
	N	Schneider Electric													
Frame	H	H-Frame													
	J	J-Frame													
	L	L-Frame													
Performance Level (kA) See Table 2															
Terminations	L	Lugs Line/Load Side													
	M	Lugs Line Side													
	P	Lugs Load Side													
	F	Bus Bar													
	A	A-Line													
	S	Rear Connected													
	N	Plug-in													
	D	Drawout													
Poles	K	Reverse I-Line													
	2	Two Pole													
	3	Three Pole													
Voltage	4	Four Pole													
	6	600 V													
Amperage	4	480 V													
	060	60 A													
	100	100 A													
	150	150 A													
	250	250 A													
	400	400 A													
	600	600 A													
Mission Critical	000	Switch or Frame Only													
	W	(J- and L-frame with D, G, J and L-interrupting ratings)													
Trip Unit	See Table 3														
I-Line Phasing															
Accessory Suffix Code	See Table 4														

Table 2: Interrupting Rating

	UL® / CSA® / NOM®					IEC 647-2 Icu/Ics					
	240 Vac	480 Vac	600 Vac	250 Vdc ¹	500 Vdc ²	220/240 Vac	380/440/415 Vac	500/525 Vac	690 Vac	250 Vdc ¹	500 Vdc ³
D	25 kA	18 kA	14 kA	20 kA	—	25/25 kA	18/18 kA	14/14 kA	—	20 kA	20 kA
G	65 kA	35 kA	18 kA	20 kA	20 kA	65/65 kA	35/35 kA	18/18 kA	—	20 kA	20 kA
J	100 kA	65 kA	25 kA	20 kA	—	100/100 kA	65/65 kA	25/25 kA	—	20 kA	20 kA
L	125 kA	100 kA	50 kA	20 kA	50 kA	125/125 kA	100/100 kA	50/50 kA	—	20 kA	20 kA
R	200 kA	200 kA	100 kA	—	—	150 kA	125 kA	75 kA	20 kA	—	—

¹ 250 Vdc ratings only available with PowerPact H or J circuit breakers with thermal-magnetic trip units (not including MCP).

² UL 500 Vdc ratings only available with PowerPact H-, J-, and L-frame circuit breakers with thermal-magnetic trip units (not including MCP).

³ IEC 500 Vdc rating only available on PowerPact J-frame circuit breakers.

PowerPact H-, J-, and L-Frame Circuit Breakers Catalog Numbering

Table 3: Trip Unit Numbering

Trip Unit Type	Character	Description
Micrologic Trip Units	U31 X	LI Standard Protection
	U33X	LSI Standard Protection
	U43X	LSI plus Ammeter
	U44X	LSIG plus Ammeter
	U53X	LSI plus Energy Management
	U54X	LSIG plus Energy Management
	M37X	Magnetic Only (L-Frame Only)
	M38X	Motor Protector Circuit Breaker
	S40X	400 A Molded Case Switch (L-Frame Automatic Switch)
	S60X	600 A Molded Case Switch (L-Frame Automatic Switch)
	F40	400 A L-Frame Only (No Trip Unit)
	F60	600 A L-Frame Only (No Trip Unit)
Thermal-Magnetic Trip Units	—	Standard Fixed Trip Unit (Suitable for reverse connection)
	F06	60 A H-Frame Only (No trip unit)
	F15	150 A H-Frame Only (No trip unit)
	F25	250 A J-Frame Only (No trip unit)
	T	Complete Circuit Breaker (Frame + removable trip unit)
	S15	150 A Molded Case Switch (H-Frame automatic switch)
	S17	175 A Molded Case Switch (J-Frame automatic switch)
	S25	250 A Molded Case Switch (J-Frame automatic switch)
	C	100% Rated Continuous Current Rating ¹
	M71	30 A H-Frame Motor Circuit Protector (MCP)
	M72	50 A H-Frame Motor Circuit Protector (MCP)
	M73	100 A H-Frame Motor Circuit Protector (MCP)
	M74	150 A H-Frame Motor Circuit Protector (MCP)
	M75	250 A J-Frame Motor Circuit Protector (MCP)
	D81	500 Vdc 150–175 A J-Frame Molded Case Circuit Breaker
	D82	500 Vdc 200–250 A J-Frame Molded Case Circuit Breaker
	D87	500 Vdc 30–70 A H-Frame Molded Case Circuit Breaker
	Dxx	500 Vdc 300A–1200A L-Frame Molded Case Circuit Breaker (Refer to Table 9 for details)
	R	100% Rated Continuous Current Rating Complete Circuit Breaker (frame + removable trip unit)

¹ 100% ratings valid for:
 Three-pole H/J frame unit mount and busbar connection
 Three-pole/four-pole L-frame 250 A and 400 A unit mount
 Three-pole L-frame 250 A and 400 A I-Line

Section 2—General Information

The PowerPact™ H-, J-, and L-frame circuit breakers are designed to protect electrical systems from damage caused by overloads and short circuits. H- and J-frame circuit breakers are available with either thermal-magnetic or Micrologic™ electronic trip units. L-frame circuit breakers are available with Micrologic electronic trip units only.

H- and J-frame circuit breakers with thermal-magnetic trip units contain individual thermal (overload) and instantaneous (short circuit) sensing elements in each pole. The amperage ratings of the thermal trip elements are calibrated at 104°F (40°C) free air ambient temperature. Per the National Electric Code® (NEC®) and the Canadian Electrical Code, standard circuit breakers may only be applied continuously at up to 80% of their rating. Circuit breakers rated for 100% operation are available but require specially-designed enclosures and 194°F (90°C) rated wire.

Devices with the Micrologic electronic trip unit provide adjustable protection settings for greater system flexibility. In addition to electronic protection, Micrologic trip units allow users to monitor both energy and power. Through direct access to in-depth information and networking using open protocols, PowerPact circuit breakers with Micrologic trip units let operators optimize the management of their electrical installations. Far more than just a circuit breaker, these devices are a measurement and communication tool ready to meet energy-efficiency needs through optimized power requirements, increased energy availability, and improved installation management.

Applications

PowerPact H-, J-, and L-frame circuit breakers offer high performance and a wide range of interchangeable trip units to protect most applications.

Electronic trip units provide highly accurate protection with wide setting ranges and can integrate measurement, metering and communication functions. They can be combined with the front display module (FDM121) to provide functions similar to a power meter.

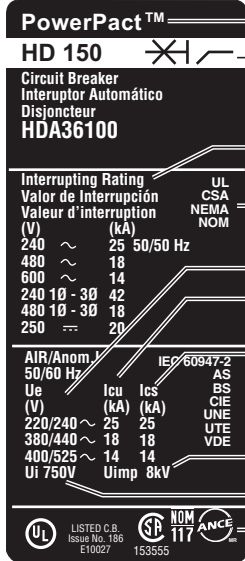
Table 5: Applications

	Power Meter	PowerPact H-, J-, and L-frame circuit breakers equipped with Micrologic 5/6 trip units offer type A (ammeter) or E (energy) metering functions as well as communication capability. Using Micrologic trip unit sensors and intelligence, PowerPact H-, J-, and L-frame circuit breakers provide access to measurements of all the main electrical parameters on the built-in screen, on a dedicated front display module (FDM121) or through the communication network.
	Operating assistance	Integration of measurement functions provides operators with operating assistance functions including alarms tripped by user-selected measurement values, time-stamped event tables and histories, and maintenance indicators.
	Front display module	The main measurements can be read on the built-in screen of Micrologic 5/6 trip units. They can also be displayed on the equipment FDM121 along with pop-up windows signalling the main alarms.
	Communication Network	PowerPact H-, J-, and L-frame circuit breakers equipped with Micrologic 5/6 trip units provide communication capabilities. Simple RJ45 cables connect to a Modbus communication interface module.

PowerPact H-, J-, and L-Frame Circuit Breakers
General Information

General Characteristics

Faceplate Label

	<p>Characteristics indicated on the faceplate label:</p> <p>A. Circuit breaker type</p> <p>B. Circuit breaker disconnecter symbol</p> <p>C. Performance levels</p> <p>D. Standards</p> <p>E. Ue: Operating voltage per IEC</p> <p>F. Icu: Ultimate breaking capacity per IEC</p> <p>G. Ics: Service breaking capacity per IEC</p> <p>H. Uimp: Rated impulse withstand voltage per IEC</p> <p>I. Ui: Insulation voltage per IEC</p> <p>J. Certification marks</p> <p>NOTE: When the circuit breaker is equipped with an extended rotary handle, the door must be opened to view the faceplate.</p>
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Codes and Standards

H-, J-, and L-frame circuit breakers, automatic switches and electronic motor circuit protectors are manufactured and tested in accordance with the following standards.

NOTE: Apply circuit breakers according to guidelines detailed in the National Electric Code (NEC) and other local wiring codes.

Table 8: Codes and Standards (Domestic)

PowerPact H-, J-, and L-Frame Circuit Breakers	H-, J-, and L-Frame Switches	PowerPact H-, J-, and L-Frame Motor Circuit Protectors
UL 489 ¹	UL 489 ³	UL 508
IEC 60947-2	IEC 60947-3	IEC 60947-2
CSA C22.2 No. 5 ²	CSA C22.2 No. 5 ⁴	CSA C22.2 No. 14
Federal Specification W-C-375B/GEN	Federal Specification W-C-375B/GEN	NEMA AB1
NEMA AB1	NEMA AB1	CCC
NMX J-266	NMX J-266	CE Marking
CCC	CE Marking	
CE Marking		

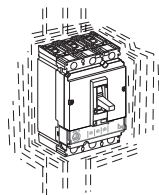
¹ PowerPact H- and J-frame circuit breakers are in UL File E10027. PowerPact L-frame circuit breakers are in UL File E63335.

² PowerPact H- and J-frame circuit breakers are in CSA File LR40970. PowerPact L-frame circuit breakers are in CSA File 69561.

³ PowerPact H- and J-frame switches are in UL File E87159.

⁴ PowerPact H- and J-frame switches are in CSA File LR32390.

Vibration



PowerPact H-, J-, and L-frame devices resist mechanical vibration.

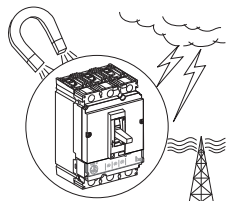
Tests are carried out in compliance with standard UL 489 SA and SB for the levels required by merchant-marine inspection organizations (Veritas®, Lloyd's®, etc.):

PowerPact H-, J-, and L-frame circuit breaker meet IEC 60068-2-6 for vibration:

- 2.0 to 25.0 Hz and amplitude +/- 1.6 mm
- 25.0 to 100 Hz acceleration +/- 4.0 g

Excessive vibration may cause tripping, breaks in connections or damage to mechanical parts.

Electromagnetic Disturbances



PowerPact H-, J-, and L-frame devices are protected against:

- overvoltages caused by circuit switching
- overvoltages caused by an atmospheric disturbances or by a distribution-system outage (such as from failure due to lightning)
- devices emitting radio waves (radios, walkie-talkies, radar, etc.)
- electrostatic discharges produced directly by users

PowerPact H-, J-, and L-frame devices have successfully passed the electromagnetic-compatibility tests (EMC) defined by the following international standards:

- IEC/EN 60947-2: Low-voltage switchgear and controlgear, part 2: Circuit breakers:
 - Annex F: Immunity tests for circuit breakers with electronic protection
 - Annex B: Immunity tests for residual current protection
- IEC/EN 61000-4-2: Electrostatic-discharge immunity tests
- IEC/EN 61000-4-3: Radiated, radio-frequency, electromagnetic-field immunity tests
- IEC/EN 61000-4-4: Electrical fast transient/burst immunity tests
- IEC/EN 61000-4-5: Surge immunity tests
- IEC/EN 61000-4-6: Immunity tests for conducted disturbances induced by radio frequency fields
- CISPR 11: Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment.

These tests ensure that:

- no nuisance tripping occurs due to electromagnetic disturbances
- tripping times are respected

Tropicalization

The materials used in PowerPact circuit breakers will not support the growth of fungus and mold.

PowerPact circuit breakers have passed the test defined below for extreme atmospheric conditions.

Dry cold and dry heat:

- IEC 68-2-1—dry cold at -55°C
- IEC 68-2-2—dry heat at +85°C

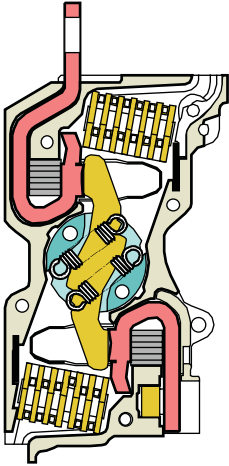
Damp heat (tropicalization)

- IEC 68-2-30—damp heat (temperature + 55°C and relative humidity of 95%)
- IEC 68-2-52 level 2—salt mist

Section 3—Circuit Breakers

Dual-Break Rotating Contacts

All PowerPact™ H-, J-, and L-frame circuit breakers are equipped with dual-break rotating contacts that reduce the amount of peak current during a short circuit fault. This reduces the let-through currents and enhances equipment protection.



Reduced Let-Through Currents

The moving contact has the shape of an elongated “S” and rotates around a floating axis. The shape of the fixed and moving contacts are such that the repelling forces appear as soon as the circuit reaches approximately 15 times I_n .

Due to the rotating movement, repulsion is rapid and the device greatly limits short-circuit currents, whatever the interrupting level of the unit (D, G, J or L). The fault current is extinguished before it can fully develop. Lower let-through currents provide less peak energy, reducing the required bus bar bracing, lowering enclosure pressure, and delivering improved series or combination ratings. See page 25 for UL Current-Limiting labels.



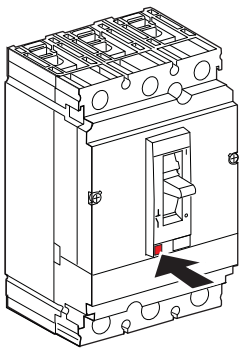
High Ampere Interrupting Ratings (AIR)

Circuit breakers are available with interrupting ratings up to:

- 200 kA at 240 Vac delta
- 200 kA at 480 Vac delta
- 100 kA at 600 Vac delta.

See Table 2 for additional performance levels.

Internal Operating Mechanism



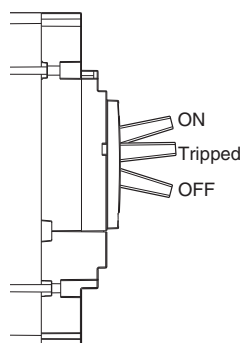
Push-to-Trip

PowerPact H-, J-, and L-frame circuit breakers have an over-center toggle mechanism providing quick-make, quick-break operation. The operating mechanism is also trip-free, which allows tripping even when the circuit breaker handle is held in the “ON” position.

Internal cross-bars provide common opening and closing of all poles with a single operating handle.

All PowerPact circuit breakers have an integral push-to-trip button in the cover to manually trip the circuit breaker. This should be used as part of a regular preventive maintenance program.

Handle Position Indication



The circuit breaker handle can assume any of three positions, ON, tripped or OFF as shown. The center tripped position provides positive visual indication that the circuit breaker has tripped.

The circuit breaker can be reset by first pushing the handle to the extreme “OFF” position. Power can then be restored to the load by pushing the handle to the “ON” position.

Circuit Breaker Ratings

The interrupting rating is the highest current at rated voltage the circuit breaker is designed to safely interrupt under standard test conditions. Circuit breakers must be selected with interrupting ratings equal to or greater than the available short-circuit current at the point where the circuit breaker is applied to the system (unless it is a branch device in a series rated combination). Interrupting ratings are shown on Table 11: Circuit Breakers on page 21 and on the faceplate label on the front of the circuit breaker.

Reverse Feeding of Circuit Breakers

The standard unit-mount H-, J-, and L-frame circuit breakers have sealed trip units and may be reverse fed. See Tables 18, 19, and 32 through 40 for catalog numbers.

Circuit breakers with field-interchangeable trip units (designated by the suffix T and labeled “LINE” and “LOAD”) cannot be reverse fed. Neither can circuit breaker frames without terminations or trip units.

Current-Limiting

The current-limiting attributes of PowerPact H-, J-, and L-frame circuit breakers provide greater protection for downstream devices by limiting the let-through current in the event of a fault. The current-limiting capabilities of HJ/HL/HR, JJ/JL/JR, and LJ/LL/LR frame circuit breakers are documented with Underwriters Laboratories and Canadian Standards Association. These current-limiting circuit breakers ship with a label that identifies them as UL/CSA Current-Limiting Circuit Breakers. (The HD/HG, JD/JG, and LD/LG circuit breakers do not carry the UL Current-Limiting label).

The trip curves with let-through data are available in the trip curve section in this catalog.

Please note that as let-through curves for UL Listed/CSA Certified Current-Limiting Circuit Breakers, these curves are maximum let-through values.

100% Rated

Some models of the H-, J-, and L-frame circuit breakers are UL Listed/CSA Certified to be applied at up to 100% of their current rating. Because of the additional heat generated, the use of specially-designed enclosures on H- and J-frame circuit breakers and 194°F (90°C) rated wire is required when applying circuit breakers at 100% of continuous current rating. (H-, J-, and L-frame circuit breakers can use aluminum or copper lugs.) Markings on the circuit breaker indicate the minimum enclosure size and ventilation required. The 194°F (90°C) wire must be sized according to the ampacities of the 167°F (75°C) wire column in the NEC. Circuit breakers with 100% rating can also be used in applications requiring only standard (80%) continuous loading.

PowerPact H-, J-, and L-Frame Circuit Breakers

- 100% ratings valid for:
- three-pole H/J-frame unit mount construction only.
 - three- and four-pole L-frame 250 A and 400 A unit mount construction.
 - three-pole L-frame 250 A and 400 A I-Line™ construction.

Corner Grounded Delta Ratings (1Ø-3Ø)

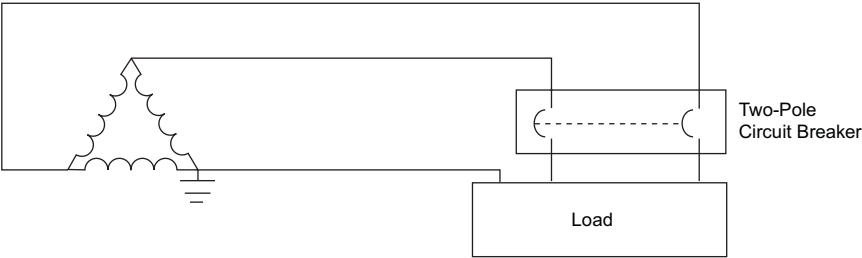
Circuit breakers suitable for corner-grounded circuits are marked 1Ø-3Ø. For additional information, refer to data bulletin 2700DB0202.

Table 13: Corner Grounded Delta Ratings (1Ø-3Ø)

	Two-Pole H-Frame					Two-Pole J-Frame				
	HD	HG	HJ ¹	HL ¹	HR ¹	JD ¹	JG ¹	JJ ¹	JL ¹	JR ¹
Ampere Rating (A)	15–150					150–250				
Voltage Rating (Vac)	240					240				
UL Interrupting Rating (kA)	42	42	65	100	200	42	42	65	100	200

¹ Built using three-pole module.

Figure 3: Three-Phase 240 Vac Corner-Grounded Delta System



PowerPact H-, J-, and L-frame Circuit Breaker Trip Units

Table 12: Micrologic Trip Unit Features

Features	Micrologic Trip Unit (X = Standard Feature, O = Available Option)					
	Standard 		Ammeter		Energy	
	3.2/3.3	3.2S/3.3S	5.2A/5.3A	6.2A/6.3A	5.2E/5.3E	6.2E/6.3E
LI	X					
LSI ¹		X	X		X	
LSIG/Ground Fault Trip ²				X		X
Ground-Fault Alarm Trip				X		X
Current Settings Directly in Amperes	X	X	X	X	X	X
True RMS Sensing	X	X	X	X	X	X
UL Listed	X	X	X	X	X	X
Thermal Imaging	X	X	X	X	X	X
LED for Long-Time Pickup	X	X	X	X	X	X
LED for Long-Time Alarm	X	X	X	X	X	X
LED Green "Ready" Indicator	X	X	X	X	X	X
Up to 12 Alarms Used Together			X	X	X	X
Digital Ammeter			X	X	X	X
Zone-Selective Interlocking ³			X	X	X	X
Communications	O	O	O	O	O	O
LCD Display			X	X	X	X
Front Display Module FDM121			O	O	O	O
Advanced User Interface			X	X	X	X
Neutral Protection			X	X	X	X
Contact Wear Indication ⁴			X	X	X	X
Incremental Fine Tuning of Settings			X	X	X	X
Load Profile ^{4, 5}			X	X	X	X
Power Measurement					X	X
Power Quality Measurements					X	X

¹ The LSI with 3.2S/3.3S trip units have fixed short time and long time delays.

² Requires neutral current transformer on three-phase four-wire loads.

³ ZSI for H/J-frame devices is only OUT. ZSI for L-frame devices is IN and OUT.

⁴ Indication available using the communication system only.

⁵ % of hours in 4 current ranges: 0–49%, 50–79%, 80–89%, and >90% I_n .

Thermal-Magnetic or Electronic Trip Unit?

Thermal-magnetic trip units (available on H- and J-frame circuit breakers only) protect against overcurrents and short-circuits using tried and true techniques. For applications requiring installation optimization and energy efficiency, electronic trip units offering more advanced protection functions combined with measurements.

Trip units using digital electronics are faster as well as more accurate. Wide setting ranges make installation upgrades easier. Designed with processing capabilities, Micrologic trip units can provide measurement information and device operating assistance. With this information, users can avoid or deal more effectively with disturbances and can play a more active role in system operation. They can manage the installation, anticipate events and plan any necessary servicing.

L-Frame Circuit Breaker Catalog Numbers

Unit-Mount Circuit Breaker Catalog Numbers

**Table 32: L-Frame 600 A Electronic Trip UL Rated Three-Pole Circuit Breakers
(600 Vac, 50/60 Hz) With Factory Sealed Trip Unit Suitable for Reverse Connection**

Electronic Trip Unit			Sensor Rating	Interrupting Rating (2nd Letter of Catalog Number)				
Type	Function	Trip Unit		D	G	J ¹	L ¹	R ¹
Standard (80%) Rated, 600 Vac, 50/60 Hz								
Standard	LI	3.3 ²	250 A ³	LDL36250U31X	LGL36250U31X	LJL36250U31X	LLL36250U31X	LRL36250U31X
			400 A ⁴	LDL36400U31X	LGL36400U31X	LJL36400U31X	LLL36400U31X	LRL36400U31X
			600 A ⁴	LDL36600U31X	LGL36600U31X	LJL36600U31X	LLL36600U31X	LRL36600U31X
Standard	LSI	3.3S ²	250 A ³	LDL36250U33X	LGL36250U33X	LJL36250U33X	LLL36250U33X	LRL36250U33X
			400 A ⁴	LDL36400U33X	LGL36400U33X	LJL36400U33X	LLL36400U33X	LRL36400U33X
			600 A ⁴	LDL36600U33X	LGL36600U33X	LJL36600U33X	LLL36600U33X	LRL36600U33X
Ammeter	LSI	5.3A	400 A ⁴	LDL36400U43X	LGL36400U43X	LJL36400U43X	LLL36400U43X	LRL36400U43X
			600 A ⁴	LDL36600U43X	LGL36600U43X	LJL36600U43X	LLL36600U43X	LRL36600U43X
Energy	LSI	5.3E	400 A ⁴	LDL36400U53X	LGL36400U53X	LJL36400U53X	LLL36400U53X	LRL36400U53X
			600 A ⁴	LDL36600U53X	LGL36600U53X	LJL36600U53X	LLL36600U53X	LRL36600U53X
Ammeter	LSIG	6.3A	400 A ⁴	LDL36400U44X	LGL36400U44X	LJL36400U44X	LLL36400U44X	LRL36400U44X
			600 A ⁴	LDL36600U44X	LGL36600U44X	LJL36600U44X	LLL36600U44X	LRL36600U44X
Energy	LSIG	6.3E	400 A ⁴	LDL36400U54X	LGL36400U54X	LJL36400U54X	LLL36400U54X	LRL36400U54X
			600 A ⁴	LDL36600U54X	LGL36600U54X	LJL36600U54X	LLL36600U54X	LRL36600U54X
100% Rated, 600 Vac, 50/60 Hz								
Standard	LI	3.3 ²	250 A ³	LDL36250CU31X	LGL36250CU31X	LJL36250CU31X	LLL36250CU31X	LRL36250CU31X
			400 A ⁴	LDL36400CU31X	LGL36400CU31X	LJL36400CU31X	LLL36400CU31X	LRL36400CU31X
Standard	LSI	3.3S ²	250 A ³	LDL36250CU33X	LGL36250CU33X	LJL36250CU33X	LLL36250CU33X	LRL36250CU33X
			400 A ⁴	LDL36400CU33X	LGL36400CU33X	LJL36400CU33X	LLL36400CU33X	LRL36400CU33X
Ammeter	LSI	5.3A	400 A ⁴	LDL36400CU43X	LGL36400CU43X	LJL36400CU43X	LLL36400CU43X	LRL36400CU43X
Energy	LSI	5.3E	400 A ⁴	LDL36400CU53X	LGL36400CU53X	LJL36400CU53X	LLL36400CU53X	LRL36400CU53X
Ammeter	LSIG	6.3A	400 A ⁴	LDL36400CU44X	LGL36400CU44X	LJL36400CU44X	LLL36400CU44X	LRL36400CU44X
Energy	LSIG	6.3E	400 A ⁴	LDL36400CU54X	LGL36400CU54X	LJL36400CU54X	LLL36400CU54X	LRL36400CU54X

¹ UL Listed/CSA Certified as current-limiting circuit breakers.

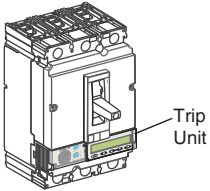
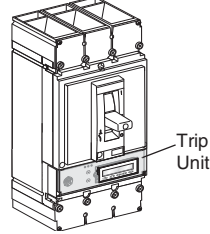
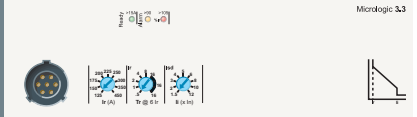
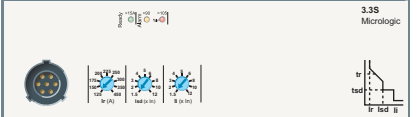
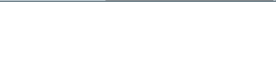
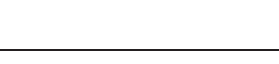
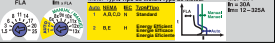
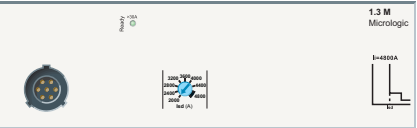
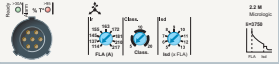
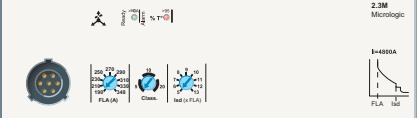
² Three-pole circuit breakers with this trip unit can be used for two-pole applications.

³ Standard lug kit: AL400L61K3. Terminal wire range: (1) 2 AWG–600 kcmil Cu or (1) 2 AWG–500 kcmil Al. Type of terminal shield: short.

⁴ Standard lug kit: AL600LS52K3. Terminal wire range: (2) 2/0 AWG–500 kcmil Al/Cu. Type of terminal shield: medium.

PowerPact H-, J-, and L-Frame Circuit Breakers Trip Units

Table 62: Trip Unit Availability

Trip Unit Type	Trip Unit	H-, J-Frame 	Trip Unit	L-Frame 
Distribution Protection Thermal-Magnetic	T-M		N/A	
Distribution Protection LI	Micrologic 3.2 and 3.2-W		Micrologic 3.3 and 3.3-W	
Distribution Protection LSI Fixed ST and LT delays	Micrologic 3.2S and 3.2S-W		Micrologic 3.3S and 3.3S-W	
Distribution Protection LSI + Ammeter	Micrologic 5.2 A and 5.2 A-W		Micrologic 5.3 A and 5.3 A-W	
Distribution Protection LSI + Energy Monitoring	Micrologic 5.2 E and 5.2 E-W		Micrologic 5.3 E and 5.3 E-W	
Distribution Protection LSIG + Ammeter	Micrologic 6.2 A and 6.2 A-W		Micrologic 6.3 A and 6.3 A-W	
Distribution Protection LSIG + Energy Monitoring	Micrologic 6.2 E and 6.2 E-W		Micrologic 6.3 E and 6.3 E-W	
Motor Circuit Protection Magnetic Only	M		N/A	
Motor Protection Micrologic 1 M	N/A		Micrologic 1.3M	
Motor Protection Micrologic 2 M	Micrologic 2.2 M		Micrologic 2.3 M	

NOTE: W = mission critical trip unit.



PowerPact H-, J-, and L-Frame Circuit Breakers

Trip Units

Table 64: Micrologic 3 Trip Unit

Ratings	I_n at 104°F (40°C) ¹		60 A	100 A	150 A	250 A	400 A	600 A
Circuit Breaker	H-frame		X	X	X			
	J-frame					X		
	L-frame					X	X	X

Micrologic 3.2 / 3.3 trip units²

L Long-time protection

Pick-Up (A) Tripping between 1.05 and 1.20 I_r	I_r	Value depending on sensor rating (I_n) and setting on rotary switch									
	$I_n = 60$ A	$I_r =$	15	20	25	30	35	40	45	50	60
	$I_n = 100$ A	$I_r =$	35	40	45	50	60	70	80	90	100
	$I_n = 150$ A	$I_r =$	50	60	70	80	90	100	110	125	150
	$I_n = 250$ A	$I_r =$	70	80	100	125	150	175	200	225	250
	$I_n = 400$ A	$I_r =$	125	150	175	200	225	250	300	350	400
	$I_n = 600$ A	$I_r =$	200	225	250	300	350	400	450	500	600
Time Delay (s) Accuracy 0 to -20%	t_r		0.5	1	2	4	8	16			
		$1.5 \times I_r$	15	25	50	100	200	400			
		$6 \times I_r$	0.5	1	2	4	8	16			
		$7.2 \times I_r$	0.35	0.7	1.4	2.8	5.5	11			
	Thermal memory		20 minutes before and after tripping								

I Instantaneous

Pick-up (A) accuracy $\pm 15\%$	$I_i \times$	60 A, 100 A	1.5	2	3	4	6	8	10	12	15
		150 A	1.5	2	3	4	6	8	10	12	15
		250 A	1.5	2	3	4	5	6	8	10	12
		400 A	1.5	2	3	4	5	6	8	10	12
		600 A	1.5	2	3	4	5	6	8	10	11
	Non-tripping time Maximum break time		10 ms 50 ms for $I > 1.5 I_i$								

Micrologic 3.2S / 3.3S trip units²

L Long-time protection

Pick-Up (A) Tripping between 1.05 and 1.20 I_r	I_r	Value depending on sensor rating (I_n) and setting on rotary switch									
	$I_n = 60$ A	$I_r =$	15	20	25	30	35	40	45	50	60
	$I_n = 100$ A	$I_r =$	35	40	45	50	60	70	80	90	100
	$I_n = 150$ A	$I_r =$	50	60	70	80	90	100	110	125	150
	$I_n = 250$ A	$I_r =$	70	80	100	125	150	175	200	225	250
	$I_n = 400$ A	$I_r =$	125	150	175	200	225	250	300	350	400
	$I_n = 600$ A	$I_r =$	200	225	250	300	350	400	450	500	600
Time Delay (s) Accuracy 0 to -20%	t_r		non-adjustable								
		$1.5 \times I_r$	400								
		$6 \times I_r$	16								
		$7.2 \times I_r$	11								
Thermal memory			20 minutes before and after tripping								

S Short-time protection

Pick-up (A) accuracy $\pm 10\%$	$I_{sd} - I_r \times \dots$		1.5	2	3	4	5	6	7	8	10
Time delay (ms)	t_{sd}		non-adjustable								
	Non-tripping time		20								
	Maximum break time		80								

I Instantaneous

Pick-up (A) accuracy $\pm 15\%$	$I_i \times$	60 A, 100 A	1.5	2	3	4	6	8	10	12	15
		150 A	1.5	2	3	4	6	8	10	12	15
		250 A	1.5	2	3	4	5	6	8	10	12
		400 A	1.5	2	3	4	5	6	8	10	12
		600 A	1.5	2	3	4	5	6	8	10	11
	Non-tripping time Maximum break time		10 ms 50 ms for $I > 1.5 I_i$								

¹ If the trip units are used in high-temperature environments, the Micrologic trip unit setting must take into account the thermal limitations of the circuit breaker. See the temperature derating information on page 150.

² Mission Critical trip units have a "-W" at the end of the number (for example 3.2-W). All other protections are the same and have the same trip curves.

Accessory Connections

Electrical accessories are fitted with numbered terminal blocks for wires with the following maximum size:

- 16 AWG (1.5 mm²) for auxiliary switches (OF1 or OF2), and shunt trip (MX) or undervoltage trip (MN)
- 14 AWG (2.5 mm²) for the motor operator

Auxiliary switch wiring exits fixed mounted devices through a knock-out in the front cover.

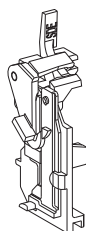
NOTE: See page 140 for plug-in and page 142 for drawout options.

Auxiliary and Alarm Indication Contacts

Auxiliary indication contacts provide remote information of the circuit breaker status and can thus be used for indications, electrical locking, relays, etc.



Auxiliary Switch (OF)/
Alarm Switch (SD)



Overcurrent Trip
Switch Actuator (SDE)

Table 88: Auxiliary and Alarm Indication Contacts

Applications	Open/Closed—Auxiliary Switches (OF) <ul style="list-style-type: none"> Indicates the position of the circuit breaker contacts
	Trip Indication—Alarm Switch (SD) <ul style="list-style-type: none"> Indicates that the circuit breaker has tripped due to an overload, short circuit or ground fault, the operation of a shunt trip or undervoltage trip or the “push-to-trip” button Resets when the circuit breaker is reset
	Overcurrent Trip Switch (SDE) <ul style="list-style-type: none"> Indicates that the circuit breaker has tripped due to an overload, short circuit or ground fault Resets when the circuit breaker is reset <p>The above switches are also available in low-level versions (with gold flash plating) capable of switching very low loads (e.g., for controlling PLCs or electronic circuits)</p>
Installation & Connection	Rotary Handle Indicator: CAO (early-break) and CAF (early-make) <ul style="list-style-type: none"> Fitted in the rotary handle module (see page 127)
	<ul style="list-style-type: none"> The auxiliary switch (OF), alarm switch (SD), and overcurrent trip switch (SDE) indication contacts snap into cavities behind the front accessory cover of the circuit breaker. One model serves for all indication functions depending on where it is fitted in the circuit breaker. The overcurrent trip switch (SDE) in a circuit breaker equipped with a thermal-magnetic or Micrologic 1/2/3 trip unit requires the SDE actuator.
Standards	<ul style="list-style-type: none"> The internal accessories comply with requirements of Underwriters Laboratories® Inc. (UL®). UL 489 and Canadian Standard Association C22.2 No. 5-02 Standards. All internal accessories are Listed for field installation per UL file E103955 and Certified under CSA file LR 69561. Auxiliary indicator contacts comply with UL 489, CSA C22.2 No. 5-02 and IEC 60947-5 Standards. “Low-level” indicator contacts are not UL Recognized.

Table 89: Electrical Characteristics

Characteristic	Standard		Low-Level ¹	
Supplied as Standard (Form C)	4		4	
Maximum Number of Contacts	4		4	
Rated Thermal Current	6 A		5 A	
Minimum Load	100 mA at 24 V		1 mA at 4 V	
Operational Current	AC	DC	AC	DC
	24 V	6 A	5 A	5 A
	48 V	6 A	5 A	2.5 A
	110 V	6 A	5 A	0.6
	220/240 V	6 A	5 A	—
	250 V	—	5 A	0.3 A
	380/440 V	6 A	5 A	—
	480 V	6 A	5 A	—
	660/690 V	6 A	—	—

¹ If the maximum voltage and current is exceeded, the low-level function of the switch will be lost but the switch will continue to function as a standard switch.

PowerPact H-, J-, and L-Frame Circuit Breakers Accessories and Auxiliaries

Table 90: Auxiliary Switch Catalog Numbers

Contacts	Factory-Installed Suffix	Field-Installable Kit No.	Kit Qty.
1A/1B Standard	AA	S29450	1
2A/2B Standard	AB	S29450	2
1A/1B Low-Level (Gold)	AE	S29452	1
2A/2B Low-Level (Gold)	AF	S29452	2

Table 91: Alarm/Overcurrent Trip Switch Catalog Numbers

Suffix	Switch	Kit No.	Kit Qty.
PowerPact L-Frame			
PowerPact H/J-Frame with Micrologic 5/6 trip units			
BC	Alarm Switch	S29450	1
BH	Alarm Switch Low-Level	S29452	1
BD	Overcurrent Trip Switch Standard	S29450	1
BJ	Overcurrent Trip Switch Low-Level	S29452	1
BE	Alarm Switch and Overcurrent Trip Switch, Standard	S29450	2
BK	Alarm Switch and Overcurrent Trip Switch, Low-Level	S29452	2
PowerPact H/J-Frame with Thermal-Magnetic or Micrologic 1/2/3 trip units			
BC	Alarm Switch	S29450	1
BH	Alarm Switch, Low-Level	S29452	1
BD	Overcurrent Trip Switch, Standard SDE Actuator	S29450	1
		S29451	1
BJ	Overcurrent Trip Switch, Low-Level SDE Actuator	S29452	1
		S29451	1
BE	Alarm Switch and Overcurrent Trip Switch, Standard SDE Actuators	S29450	2
		S29451	2
BK	Alarm Switch and Overcurrent Trip Switch, Low-Level SDE Actuators	S29452	2
		S29451	2

Shunt Trip (MX) and Undervoltage Trip (MN)



A voltage release can be used to trip the circuit breaker using a control signal.

Table 93: Shunt Trip and Undervoltage Trip

Applications	Shunt Trip (MX) <ul style="list-style-type: none"> Trips the circuit breaker when the control voltage rises above 70% of its rated voltage Impulse type ≥ 20 ms or maintained control signals AC shunt trips are suitable for ground-fault protection when combined with a Class I ground-fault sensing element Continuous duty rated coil
	Undervoltage Trip (MN) <ul style="list-style-type: none"> Trips the circuit breaker when the control voltage drops below a tripping threshold Drops out between 35% and 70% of the rated voltage Continuous duty rated coil Circuit breaker closing is possible only if the voltage exceeds 85% of the rated voltage. If an undervoltage condition exists, operation of the closing mechanism of the circuit breaker will not permit the main contacts to touch, even momentarily. This is commonly called "Kiss Free".
Installation and Connection	<ul style="list-style-type: none"> Accessories are common to H-, J-, and L-frame circuit breakers and snap into cavities under the front accessory cover of the circuit breaker Each terminal may be connected by one 18–14 AWG (1.0–2.5 mm²) stranded copper wire
Operation	<ul style="list-style-type: none"> The circuit breaker must be reset locally after being tripped by shunt trip (MX) or undervoltage trip (MN) Tripping by the shunt trip or undervoltage trip has priority over manual (or motor operator) closing; in the presence of a standing trip order such an action does not result in any closing, even temporarily, of the main contacts Endurance: 50% of the rated mechanical endurance of the circuit breaker

Table 94: Electrical Characteristics

	AC	DC
Rated Voltage (V)	24, 48, 120, 208/277, 380/480, 525, 600	12, 24, 30, 48, 60, 125, 250
Power Requirements	Pickup (shunt trip)	< 5 W
	Seal-in (undervoltage trip)	< 5 VA
Clearing Time (ms)	< 50	< 50

Table 95: Shunt Trip and Undervoltage Trip Suffix Codes and Kit Numbers

Voltage	Shunt Trip (MX)		Undervoltage Release (MN)	
	Factory-Installed Suffix	Field-Installable Kit No.	Factory-Installed Suffix	Field-Installable Kit No.
24 Vac	SK	S29384	UK	S29404
48 Vac	SL	S29385	UL	S29405
120 Vac	SA	S29386	UA	S29406
208/277 Vac	SD	S29387	UD	S29407
380/480 Vac	SH	S29388	UH	S29408
525/600 Vac	SJ	S29389	UJ	S29409
12 Vdc	SN	S29382	UN	S29402
24 Vdc	SO	S29390	UO	S29410
30 Vdc	SU	S29391	UU	S29411
48 Vdc	SP	S29392	UP	S29412
60 Vdc	SV	S29383	UV	S29403
125 Vdc	SR	S29393	UR	S29413
250 Vdc	SS	S29394	US	S29414

Table 96: Adjustable and Fixed Time Delay Units for Undervoltage Trip

Rated Input Voltage	Field-Installable Kit No.		Use Only with These Undervoltage Releases (MN)
	Adjustable	Fixed	
48 Vac/dc	S33680	S29426	S29412
100/130 Vac/dc	S33681	—	S29413
220/250 Vac/dc	S33682	S29427	S29414

PowerPact H-, J-, and L-Frame Circuit Breakers

Circuit Breaker Mounting and Connections

Table 125: Mechanical Lug Kits for H-Frame and J-Frame Circuit Breakers

	Circuit Breaker Application				Number of Wires Per Lug and Wire Range	Kit Cat. No.	Qty Per Kit
	Standard	Ampere Rating	Optional	Ampere Rating			
Al Lugs for Use with Al or Cu Wire	HD, HG, HJ, HL	15–150 A			(1) 14–3/0 AWG Al or Cu	AL150HD	3
	JD, JG, JJ, JL	150–175 A			(1) 4–4/0 AWG Al or Cu	AL175JD	3
	JD, JG, JJ, JL	200–250 A	JD, JG, JJ, JL	150–175 A	(1) 3/0–350 kcmil Al or Cu	AL250JD	3
Cu Lugs for Use with Cu Wire Only			HD, HG, HJ, HL	15–150 A	(1) 14–2/0 AWG Cu	CU150HD	3
			JD, JG, JJ, JL	150–250 A	(1) 1/0–300 kcmil Cu	CU250JD	3
Control Wire Terminal for H-frame lug kit						S37423	2
Control Wire Terminal for J-frame lug kit						S37424	2

Table 126: Mechanical Lug Kits for L-Frame Circuit Breakers¹

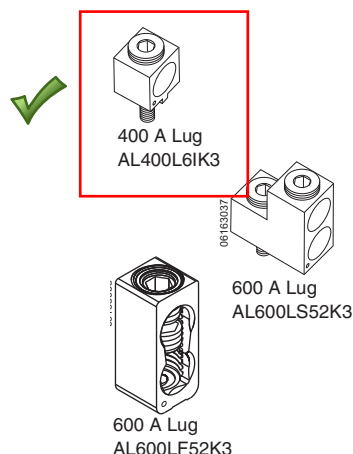
	Circuit Breaker Application				Number of Wires Per Lug and Wire Range ²	Kit Cat. No.	Qty Per Kit	Type of Terminal Shield ³
	Ampere Rating	Poles	Unit Mount	I-Line				
Al Lugs for Use with Al or Cu Wire	250	3	X	X	(1) 2 AWG–500 kcmil Al	AL400L61K3	3	Short
		4	X	—	(1) 2 AWG–600 kcmil Cu	AL400L61K4	4	Medium
	400/600	3	X	—	(2) 2/0 AWG–500 kcmil Al or Cu	AL600LS52K3⁴	3	Medium
		4	X	—		AL600LS52K4⁴	4	Medium
Cu Lugs for Use with Cu Wire Only	400/600	3	X	X	(2) 3/0 AWG–500 kcmil Al or Cu	AL600LF52K3⁴	3	Short
	250/400	3	X	X	(1) 2 AWG–500 kcmil Al	CU400L61K3	3	Short
		4	X	—	(1) 2 AWG–600 kcmil Cu	CU400L61K4	4	Medium
	400/600	3	X	—	(2) 2/0 AWG–500 kcmil Al or Cu	CU600LS52K3⁴	3	Medium
		4	X	—		CU600LS52K4⁴	4	Medium
	400/600	3	X	X	(2) 3/0 AWG–500 kcmil Al or Cu	CU600LF52K3⁴	3	Short

¹ For lug pack information, see Figure 36 on page 177.

² For control wire installation, use an 8-32 x 1/4 in. screw (not provided) into tapped control wire hole in lower left hand corner of lug.

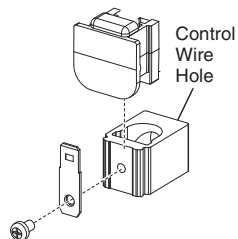
³ For terminal shield dimensions, see Figure 36 on page 177.

⁴ Terminal shields are included in mechanical lug kits.

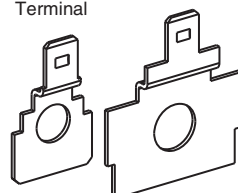


Voltage Takeoff (Control Wire Terminals) for Mechanical Lugs and Terminal Nuts

Mechanical Lug Control Wire Terminal



Busbar Control Wire Terminal



Powerpact H- and J-Frame mechanical lugs may be equipped with a separate control wire termination. The kit is available factory installed or as a field installable kit. The adaptor is secured underneath the lug and has a tab extension suitable for attachment of a 0.250 inch slip-on connector.

All L-frame mechanical lugs are pre-tapped for control wires. For control wire installation, use an 8-32 x 1/4 in. screw (not provided) into tapped control wire hole in lower left hand corner of the lug.

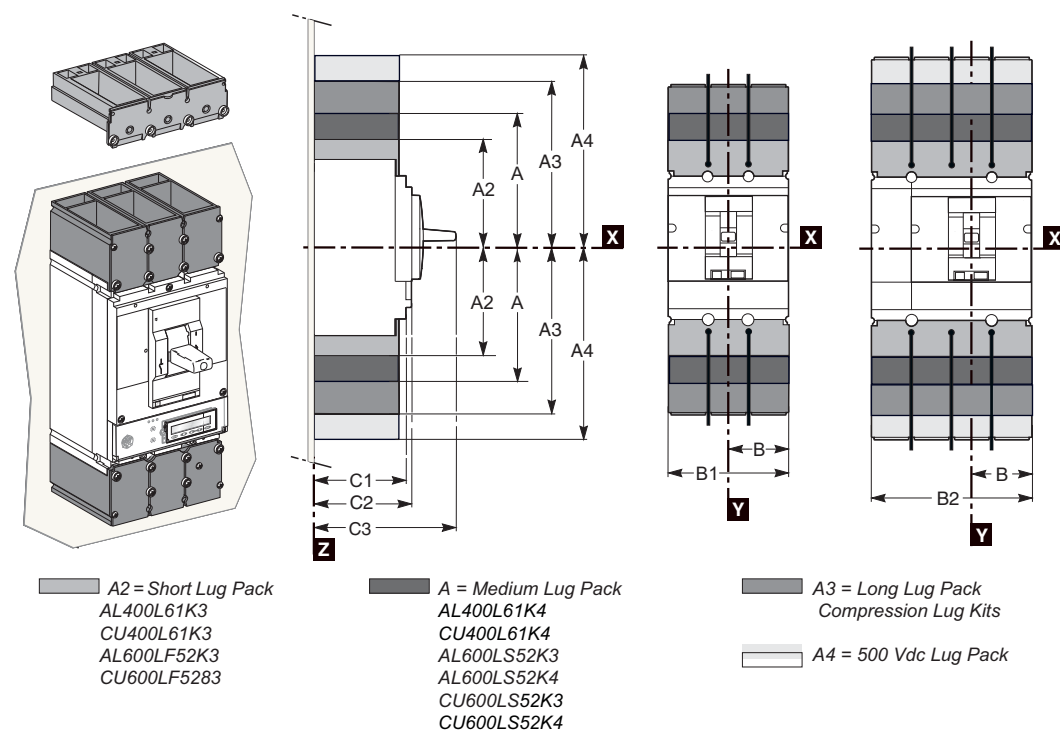
Fully insulated type connectors must be used to prevent live parts from extending into the wiring gutter area.

Table 127: Control Wire Terminals

Description	Frame	Cat. No.	Qty Per Kit
Mechanical Lugs			
Control Wire Terminal for H-Frame Lugs	HD/HG/HJ/HL	S37423	2
Control Wire Terminal for J-Frame Lugs	JD/JG/JJ/JL	S37424	2
Busbar Connection			
Control Wire Terminal for H-Frame Terminal Nut	HD/HG/HJ/HL	S37429	2
Control Wire Terminal for J-Frame Terminal Nut	JD/JG/JJ/JL	S37430	2

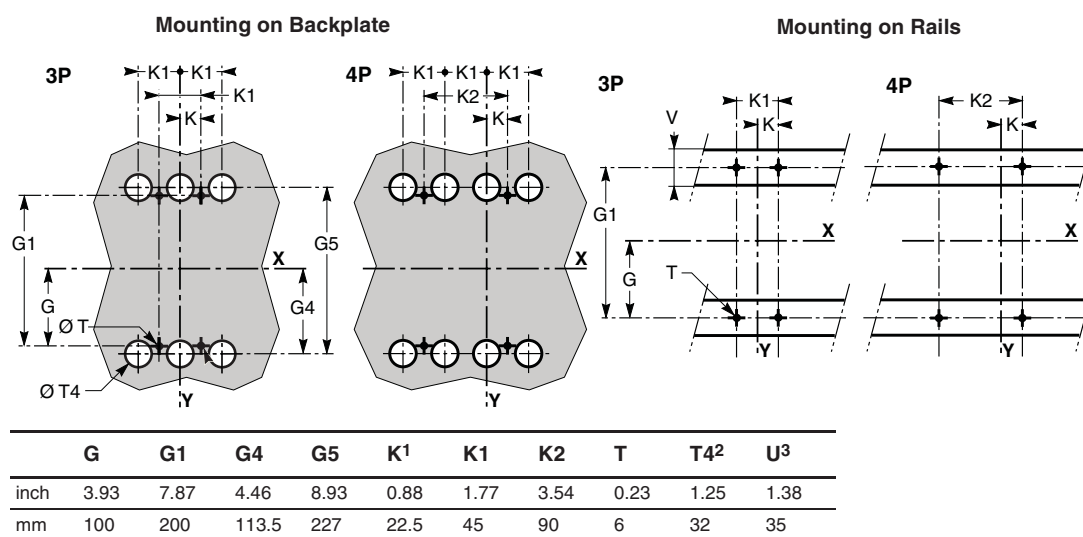
PowerPact L-Frame Circuit Breakers

Figure 36: PowerPact L-Frame Fixed Mounted Circuit Breaker



	A	A2	A3	A4	B	B1	B2	C1	C2	C3
inch	6.69	5.65	7.87	9.53	2.76	5.51	7.28	3.76	4.33	6.61
mm	170	143.5	200	242	70	140	185	105	110	168

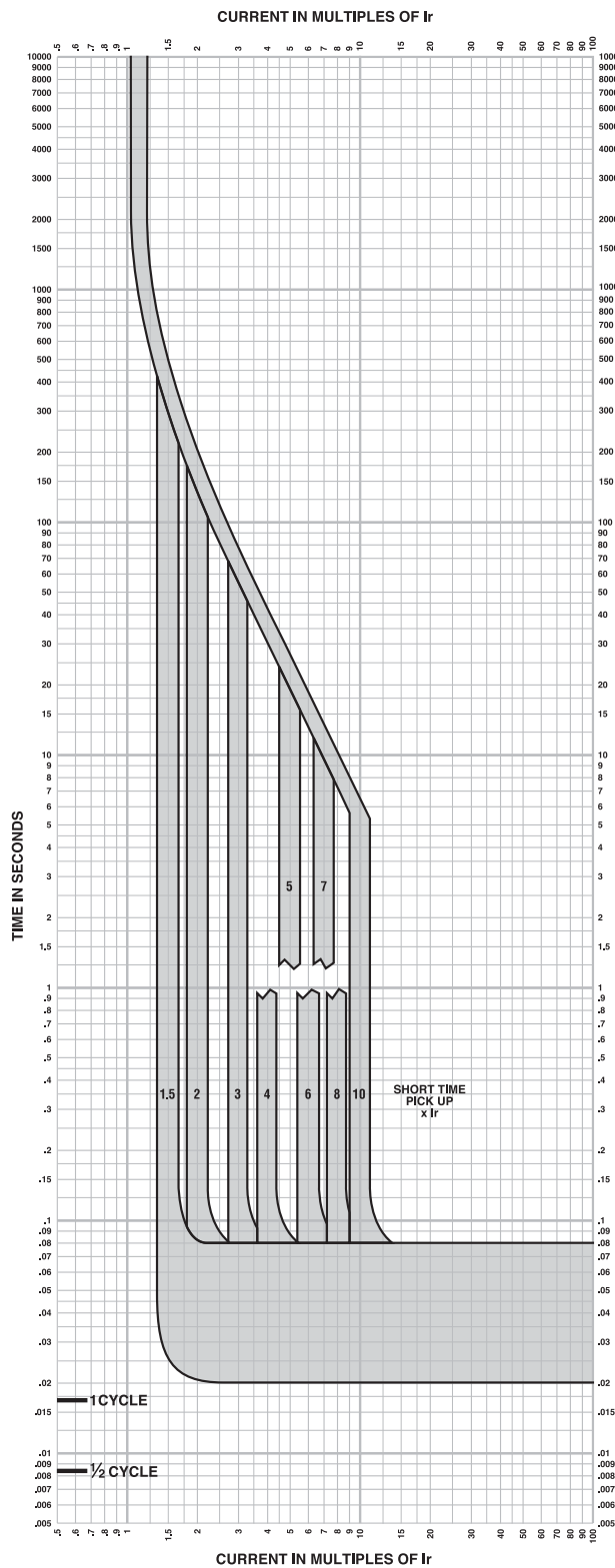
Figure 37: PowerPact L-Frame Circuit Breaker Mounting



- For 2 pole circuit breaker, the middle holes are not required.
- For rear connected circuit breakers only.
- V is ≤ 78 in. (20 mm) on C-frame circuit breakers with secondary disconnecting blocks.

PowerPact H-, J-, and L-Frame Circuit Breakers
Trip Curves

Figure 125: Micrologic 3.3S and 3.3S-W Electronic Trip Unit Long Time/Short Time Trip Curve



MICROLOGIC™ ELECTRONIC TRIP UNITS
Micrologic™ 3.3S and 3.3S-W
Long Time/Short Time Trip Curve
600A L-Frame



The time-current curve information is to be used for application and coordination purposes only.

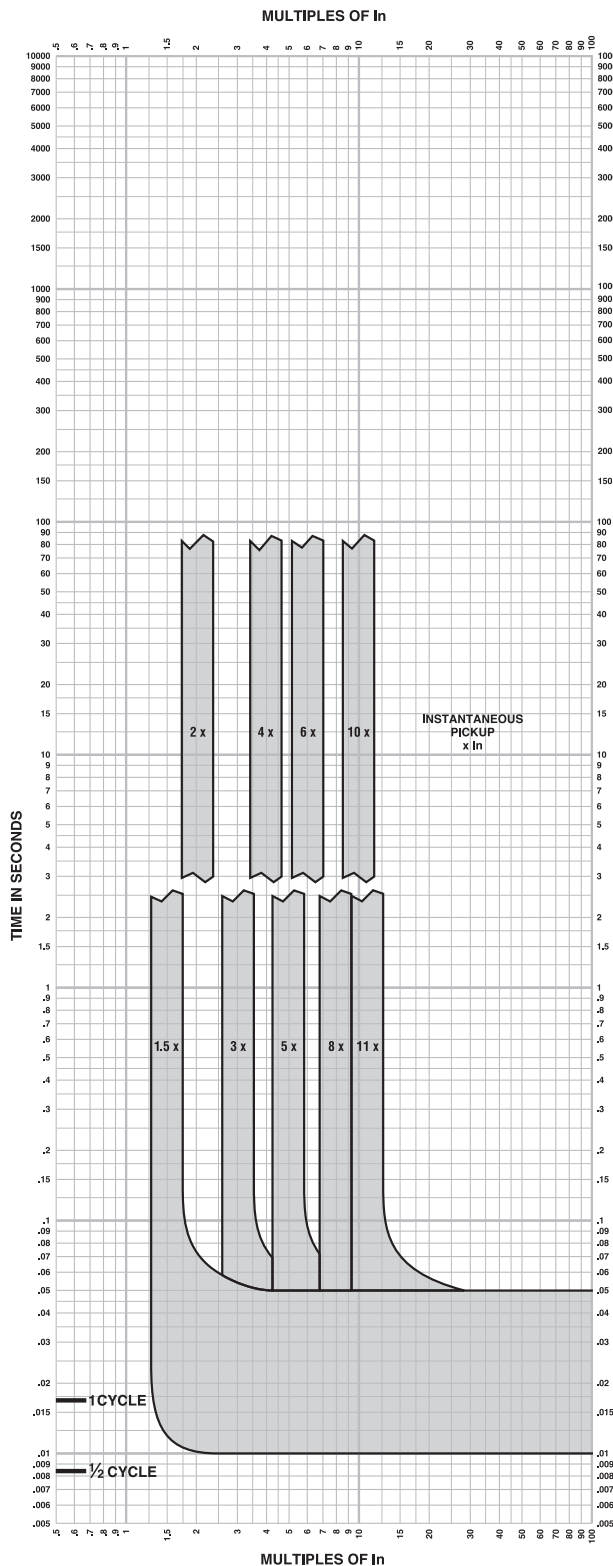
Notes:

1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
2. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.

Curves apply from -35°C to +70°C (-31°F to +158°F) ambient temperature.

PowerPact H-, J-, and L-Frame Circuit Breakers Trip Curves

Figure 126: Micrologic 3.3, 3.3-W, 3.3S, 3.3S-W, 5.3A, 5.3A-W, 5.3E, 5.3E-W, 6.3A, 6.3A-W, 6.3E, and 6.3E-W Electronic Trip Unit Instantaneous Trip Curve



MICROLOGIC™ ELECTRONIC TRIP UNITS
Micrologic™ 3.3, 3.3-W, 3.3S, 3.3S-W,
5.3A, 5.3A-W, 5.3E, 5.3E-W, 6.3A, 6.3A-W,
6.3E, and 6.3E-W
Instantaneous Trip Curve
600A L-Frame

The time-current curve information is to be used for application and coordination purposes only.

Notes:

1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
 2. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
 3. I_n = Maximum dial setting of I_r .
600A L-Frame: $I_n = 600A = \text{Max } I_r \text{ setting}$
- Curves apply from -35°C to $+70^\circ\text{C}$ (-31°F to $+158^\circ\text{F}$) ambient temperature.

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0611CT1001 R12/15 Replaces / Remplace 0611CT1001 R05/15

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Alternator heaters

A292 and A293

> Specification sheet

Our energy working for you.™



Alternator heaters

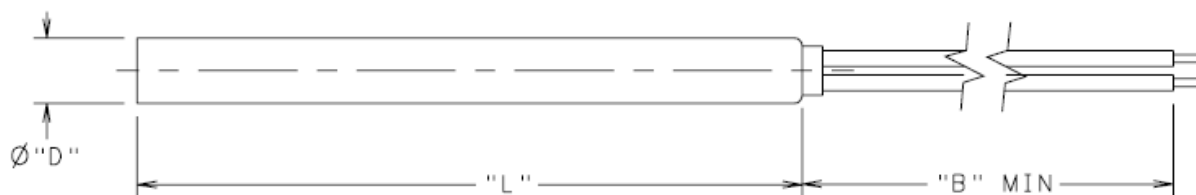
Alternator heaters help prevent corrosive damage of electrical and mechanical components in high humidity environments.

Alternator heater kit	Feature	Corresponding production part	Critical component	Voltage (AC)	Wattage	Instructions
0179-5074-02	A292-2	0179-5074-01	0333-0438-07	120	100	NA
0300-4434	A292-2	0179-2699-01	0333-0550-01	120	100	000C-0449
0300-4435	A293-2	0179-2699-02	0333-0550-02	240	100	000C-0449
0333-0443	A292-2	0179-2285-09	0333-0438-03 (qty 2)	120	150	000C-0437
0333-0444	A293-2	0179-2285-02	0333-0438-04 (qty 2)	240	150	000C-0437
0333-0445	A292-2	0179-2286-01	0333-0438-07	120	100	000C-0437
0333-0445	A292-2	0179-2667-01	0333-0438-07	120	100	000C-0437
0333-0446	A293-2	0179-2286-02	0333-0438-08	240	100	000C-0437
0333-0446	A293-2	0179-2667-02	0333-0438-08	240	100	000C-0437
0333-0447	A292-2	0179-2285-10	0333-0438-05	120	300	000C-0437
0333-0447	A292-2	0179-2285-03	0333-0438-05	120	300	000C-0437
0333-0448	A293-2	0179-2285-04	0333-0438-06	240	300	000C-0437

Component drawings

Cartridge Heater

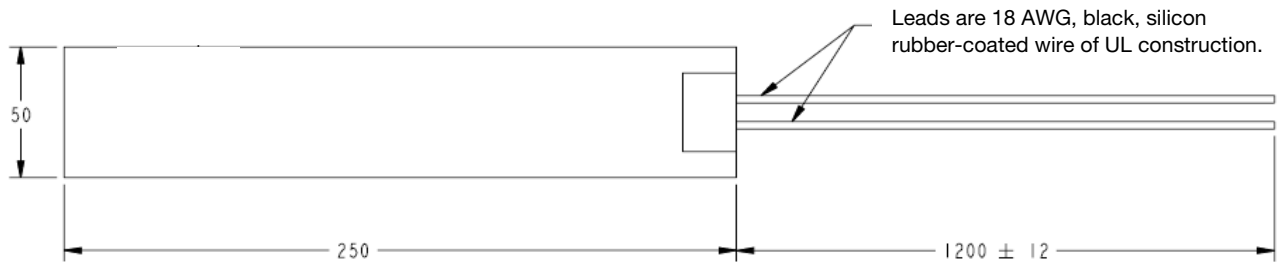
Component # 0333-0438-xx



Part #	Ø "D"	Dim "L"	Dim "B"
0333-0438-01	15.8	160	1200
0333-0438-02	15.8	160	1200
0333-0438-03	25.4	160	2200
0333-0438-04	25.4	160	2200
0333-0438-05	25.4	260	2200
0333-0438-06	25.4	260	2200
0333-0438-07	19	134	250
0333-0438-08	19	134	250

Flexible Heater

Component 0300-0550-01, 02



Alternator heater compatibility

Genset	Spec Level	Production Part #	Accessory Kit #			Also required
			A292 120 V AC	A293* 240 V AC	A416 120/240 V AC	
DFAB; DFAC	N; N	0179-2285-09	0333-0443			Frame 4
DFAB; DFAC	N; N	0179-2285-02		0333-0444		Frame 4
DFCB; DFCC	Z; Z; J	0179-2285-09	0333-0443			Frame 4
DFCB; DFCC	Z; Z; J	0179-2285-02		0333-0444		Frame 4
DFCB; DFCC; DFCE	Z; Z; J	0179-2285-10	0333-0447			HC5 to HC7 Alternator
DFCB; DFCC; DFCE	Z; Z; J	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DFEC; DFED	L; H	0179-2285-10	0333-0447			HC5 to HC7 Alternator
DFEC; DFED	L; H	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DFEG; EH; EJ; EK	F; F; F; F	0179-2285-10	0333-0447			HC5 to HC7 Alternator
DFEG; EH; EJ; EK	F; F; F; F	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DFGB; DFGE	K; C	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DFGB; DFGE	K; C	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DFHA, HB, HC, HD	H; H; G; E	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DFHA, HB, HC, HD	H; H; G; E	0179-2285-04		0333-0448		0335-0173-03 Cable Assembly
DFLC; DFLE	W; F	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DFLC; DFLE	W; F	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DGBB; DGBC; DGCA	M; L; V; V; C	0179-2667-01	0333-0445			UCD22 Alternator
DGBB; DGBC; DGCA	M; L; V; V; C	0179-2667-02		0333-0446		UCD22 Alternator
DGBC; DGCA; DGCB; DGCG	M; L; V; V; C	0179-2286-01	0333-0445			UC27 Alternator
DGBC; DGCA; DGCB; DGCG	M; L; V; V; C	0179-2286-02		0333-0446		UC27 Alternator
DGDB; DGDK	S; D	0179-2286-01	0333-0445			UC27 Alternator
DGDB; DGDK	S; D	0179-2286-02		0333-0446		UC27 Alternator
DGFA; FB; FC; FS	S; S; N; C	0179-2286-01	0333-0445			UC27 Alternator
DGFA; FB; FC; FS	S; S; N; C	0179-2286-02		0333-0446		UC27 Alternator
DGGD; DGHD; DGHE	E; E; E	0179-2667-01	0333-0445			UCD22 Alternator
DGGD; DGHD; DGHE	E; E; E	0179-2667-02		0333-0446		UCD22 Alternator
DGHD; DGHE	E; E; E	0179-2286-01	0333-0445			UC27 Alternator
DGHD; DGHE	E; E; E	0179-2286-02		0333-0446		UC27 Alternator
DKAC; AE; AF	C; D; E	0179-2699-01	0300-4434			
DKAC; AE; AF	C; D; E	0179-2699-02		0300-4435		
DQAD; AE; AF	E	0179-2285-09	0333-0443			Frame 4
DQAD; AE; AF	E	0179-2285-02		0333-0444		Frame 4
DQCA; CB; CC	B	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DQCA; CB; CC	B	0179-2285-04		0333-0448		HC4 to HC7 Alternator
DQDAA; AB; AC	B	0179-2285-09	0333-0443			Frame 4
DQDAA; AB; AC	B	0179-2285-02		0333-0444		Frame 4
DQFAA; AB; AC; AD	A	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DQFAA; AB; AC; AD	A	0179-2285-04		0333-0448		0335-0173-03 Cable Assembly
DQGAA; DQGAB	A	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DQGAA; DQGAB	A	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DQHAA; DQHAB	A	0179-2285-09	0333-0443			Frame 4
DQHAA; DQHAB	A	0179-2285-02		0333-0444		Frame 4
DQKAA; DQKAB	A	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DQKAA; DQKAB	A	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DQKAA; DQKAB	A	NA**			NA**	LVSI804 or MVSI804 or HVSI804 or MV7
DQKB; KC; KH	G; G; C	0179-2285-03	0333-0447			HC5 to HC7 Alternator or P7
DQKB; KC; KH	G; G; C	0179-2285-04		0333-0448		HC5 to HC7 Alternator or P7
DQKB; KC; KH	G; G; C	NA**			NA**	LVSI804 or MVSI804 or HVSI804 or MV7
DQLC	A	NA**			NA**	LVSI804 or MVSI804 or HVSI804 or MV7
DSFAA; AB; AC; AD; AE	D	0179-2667-01	0333-0445			UCD22 Alternator
DSFAA; AB; AC; AD; AE	D	0179-2667-02		0333-0446		UCD22 Alternator
DSFAD; AE	D	0179-2286-01	0333-0445			UC27 Alternator
DSFAD; AE	D	0179-2286-02		0333-0446		UC27 Alternator

Alternator heater compatibility (continued)

Genset	Spec Level	Production Part #	Accessory Kit #			Also required
			A292 120 V AC	A293* 240 V AC	A416 120/240 V AC	
DSGAA; AB; AC	B	0179-5074-01	0179-5074-02			
DSHAA; AE; AF	C; C; B	0179-2286-01	0333-0445			UC27 Alternator
DSHAA; AE; AF	C; C; B	0179-2286-02		0333-0446		UC27 Alternator
DSHAB; AC; AD	D; D; B	0179-2286-01	0333-0445			UC27 Alternator
DSHAB; AC; AD	D; D; B	0179-2286-02		0333-0446		UC27 Alternator
DSKAA; AB; BA; CA	B	0179-2699-01	0300-4434			
GGFD; GGFE	K	0179-2667-01	0333-0445			UCD22 Alternator
GGFD; GGFE	K	0179-2667-02		0333-0446		UCD22 Alternator
GGFE	K	0179-2286-01	0333-0445			UC27 Alternator
GGFE	K	0179-2286-02		0333-0446		UC27 Alternator
GGHE; HF; HG; HH	J	0179-2286-01	0333-0445			UC27 Alternator
GGHE; HF; HG; HH	J	0179-2286-02		0333-0446		UC27 Alternator
GGKB; KC; KD	D	0179-2286-01	0333-0445			UC27 Alternator
GGKB; KC; KD	D	0179-2286-02		0333-0446		UC27 Alternator
GGLA	G	0179-2286-01	0333-0445			UC27 Alternator
GGLB	G	0179-2286-02		0333-0446		UC27 Alternator
GGMA; MB; MC	B	NA				

* A293 is not for use with AC Distribution Panel H657-2.

** A416 Heaters are supplied with the Alternators.

Certification



ISO9001 - This product was designed and manufactured in facilities certified to ISO9001.

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TT International Tradepark
Singapore 608838
Phone 65 6417 2388
Fax 65 6417 2399

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect generator sets to any building electrical system except through an approved device or after building main switch is open.

Warning: For professional use only. Must be installed by a qualified service technician. Improper installation presents hazards of electrical shock and improper operation, resulting in severe personal injury and/or property damage.

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Equipment Submittal
Rev-0

Coolant heaters

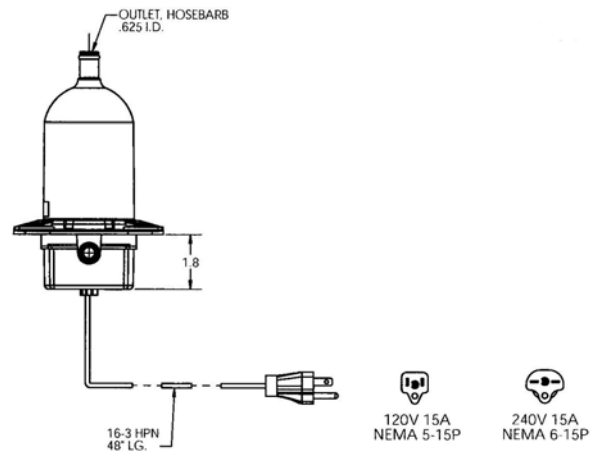
> Specification sheet

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**Power
Generation**

Control Thermostat Range	ON @ 80° F (27° C) OFF @ 100° F (38° C)
Control Thermostat Tolerance	±7.0° F (4° C) on close (ON) ±5.0° F (3° C) on open (OFF)
Approvals	UL Listed CSA Compliant CE Compliant



Coolant Heater Kit	Critical Component	Voltage	Wattage	Heater Amps	Instruction Sheet
0333-0632-01	0333-0588-01	120	1000	8.3	000G-0406
0333-0632-01	0333-0588-01	120	1000	8.3	000G-0406
0541-0802-01	0333-0588-01	120	1000	8.3	000G-0539
0333-0548	0333-0588-01	120	1000	8.3	000G-0190
0179-4755-03	0333-0588-01	120	1000	8.3	000C-0703
0179-4938-03	0333-0588-01	120	1000	8.3	000G-0714
0333-0632-02	0333-0588-02	208/ 240	750/ 1000	3.6/ 4.16	000G-0406
0333-0632-02	0333-0588-02	208/ 240	750/ 1000	3.6/ 4.16	000G-0406
0541-0802-02	0333-0588-02	208/ 240	750/ 1000	3.6/ 4.16	000G-0539
0333-0549	0333-0588-02	208/ 240	750/ 1000	3.6/ 4.16	000G-0190
0179-4755-04	0333-0588-02	208/ 240	750/ 1000	3.6/ 4.16	000C-0703
0179-4938-04	0333-0588-02	208/ 240	750/ 1000	3.6/ 4.16	000G-0714
0300-5420-01	0333-0588-03	120	1500	12.5	000G-0447
0333-0631-01	0333-0588-03	120	1500	12.5	000G-0406
0333-0630-01	0333-0588-03	120	1500	12.5	000G-0406
0333-0631-01	0333-0588-03	120	1500	12.5	000G-0406
0300-5422-01	0333-0588-03	120	1500	12.5	000G-0453
0300-5422-01	0333-0588-03	120	1500	12.5	000G-0453
0333-0631-01	0333-0588-03	120	1500	12.5	000G-0406
0179-4902-03	0333-0588-03	120	1500	12.5	
0179-4908-03	0333-0588-03	120	1500	12.5	
0333-0713-03	0333-0588-03	120	1500	12.5	000G-0664

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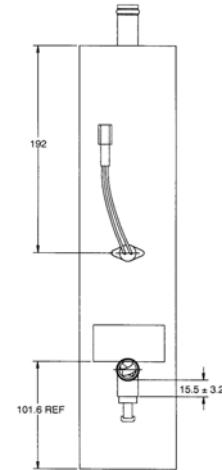
Coolant Heater Kit	Critical Component	Voltage	Wattage	Heater Amps	Instruction Sheet
0300-5420-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0447
0333-0631-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0406
0333-0630-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0406
0333-0631-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0406
0300-5422-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0453
0300-5422-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0453
0333-0631-02	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0406
0179-4902-04	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	
0179-4908-04	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	
0333-0713-04	0333-0588-04	208/ 240	1125/ 1500	5.4/ 6.25	000G-0664

Heater Phase Single Phase Heater Voltage

Element Diameter .315 IN

Pressure Tested by Vendor 75 PSIG Hydrostatic

Approvals UL Listed
CSA Compliant



Coolant Heater Kit	Critical Component	Voltage	Wattage	Heater Amps	Heater Qty	Element Wire Gauge	Instruction Sheet
0179-3087-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	23.1/ 26.8/ 13.4	2	24	000G-0617
0179-3268-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	2	24	000G-0618
0179-3325-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	2	24	000G-0616
0179-3536-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0615
0179-3577-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	2	24	000G-0639
0179-3578-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0638
0179-3579-05	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0641
0179-3579-07	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0641
0179-3817-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0640
0179-3850-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0637
0179-4299-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	2	24	000G-0662
0179-4329-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	23.1/ 26.8/ 13.4	2	24	000G-0657
0179-4606-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	2	24	000G-0617
0179-4966-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0638
0179-5536-03	0333-0677-01	208/ 240/ 480	3744/ 4990/ 4990	18.0/ 20.8/ 10.4	1	24	000G-0640
0179-3087-04	0333-0677-02	208/ 240/ 480	4815 / 6420/ 6420	23.1/ 26.8/ 13.4	2	23	000G-0617
0179-3268-04	0333-0677-02	208/ 240/ 480	4325/ 6420/ 6420	23.2/ 26.75/ 13.375	2	23	000G-0618
0179-3325-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	2	23	000G-0616
0179-3536-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0615
0179-3577-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	2	23	000G-0639
0179-3578-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0638
0179-3579-06	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0641
0179-3579-08	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0641
0179-3817-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0640
0179-3850-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0637
0179-4299-04	0333-0677-02	208/ 240/ 480	4325/ 6420/ 6420	23.2/ 26.75/ 13.375	2	23	000G-0662
0179-4329-04	0333-0677-02	208/ 240/ 480	4325/ 6420/ 6420	23.2/ 26.75/ 13.375	2	23	000G-0657
0179-4606-04	0333-0677-02	208/ 240/ 480	4815 / 6420/ 6420	23.1/ 26.8/ 13.4	2	23	000G-0617
0179-4966-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0638
0179-5536-04	0333-0677-02	208/ 240/ 480	4825/ 6420/ 6420	23.2/ 26.75/ 13.375	1	23	000G-0640

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Equipment Submittal
Rev-0

Model	Spec Level	Production Part #	Coolant Heater Kit – by feature option					Applicable Compatability Rule/s		Coolant Heater Interface Outline
			H036-2	H074-2	H540-2	H556-2	H557-2	Also Required	Not for use with	
DFAB	N	0179-3578-01				0179-3578-03				0500-3873
DFAB	N	0179-3578-02					0179-3578-04			0500-3873
DFAC	N	0179-3578-01				0179-3578-03				0500-3873
DFAC	N	0179-3578-02					0179-3578-04			0500-3873
DFCB	Z	0179-3579-01				0179-3579-05			E079-2 (Heat Exchanger)	0500-3850
DFCB	Z	0179-3579-03				0179-3579-07		E079-2 (Heat Exchanger)		0500-3850
DFCB	Z	0179-3579-02					0179-3579-06		E079-2 (Heat Exchanger)	0500-3850
DFCB	Z	0179-3579-04					0179-3579-08	E079-2 (Heat Exchanger)		0500-3850
DFCC	Z	0179-3579-01				0179-3579-05			E079-2 (Heat Exchanger)	0500-3850
DFCC	Z	0179-3579-03				0179-3579-07		E079-2 (Heat Exchanger)		0500-3850
DFCC	Z	0179-3579-02					0179-3579-06		E079-2 (Heat Exchanger)	0500-3850
DFCC	Z	0179-3579-04					0179-3579-08	E079-2 (Heat Exchanger)		0500-3850
DFCE	J	0179-3579-01				0179-3579-05			E079-2 (Heat Exchanger)	0500-3850
DFCE	J	0179-3579-03				0179-3579-07		E079-2 (Heat Exchanger)		0500-3850
DFCE	J	0179-3579-02					0179-3579-06		E079-2 (Heat Exchanger)	0500-3850
DFCE	J	0179-3579-04					0179-3579-08	E079-2 (Heat Exchanger)		0500-3850
DFEC	L	0179-3817-01				0179-3817-03				0500-3989
DFEC	L	0179-3817-02					0179-3817-04			0500-3989
DFED	H	0179-3817-01				0179-3817-03				0500-3989
DFED	H	0179-3817-02					0179-3817-04			0500-3989
DFEG	F	0179-3536-01				0179-3536-03				0500-3820
DFEG	F	0179-3536-02					0179-3536-04			0500-3820
DFEH	F	0179-3536-01				0179-3536-03				0500-3820
DFEH	F	0179-3536-02					0179-3536-04			0500-3820
DFEJ	F	0179-3536-01				0179-3536-03				0500-3820
DFEJ	F	0179-3536-02					0179-3536-04			0500-3820
DFEK	F	0179-3536-01				0179-3536-03				0500-3820
DFEK	F	0179-3536-02					0179-3536-04			0500-3820
DFGB	K	0179-3325-01				0179-3325-03				0500-3136
DFGB	K	0179-3325-02					0179-3325-04			0500-3136
DFGE	C	0179-3325-01				0179-3325-03				0500-3136
DFGE	C	0179-3325-02					0179-3325-04			0500-3136
DFHA	H	0179-3577-01				0179-3577-03				0500-3846
DFHA	H	0179-3577-02					0179-3577-04			0500-3846
DFHB	H	0179-3577-01				0179-3577-03				0500-3846
DFHB	H	0179-3577-02					0179-3577-04			0500-3846

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TT International Tradepark
Singapore 608838
Phone 65 6417 2388
Fax 65 6417 2399

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect generator sets to any building electrical system except through an approved device or after building main switch is open.

Warning: For professional use only. Must be installed by a qualified service technician. Improper installation presents hazards of electrical shock and improper operation, resulting in severe personal injury and/or property damage.

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PowerCommand[®] Annunciator

Discrete Input or PCCNet



> Specification sheet

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**Power
Generation**

Description

The Universal Annunciator Module provides visual and audible indication of up to 20 separate alarm or status conditions, based on discrete (relay) inputs or network inputs. Each LED can be controlled by either a discrete wire input or by a signal on the PCCNet network sent from an external device, such as a PCC1301 or PCC2100 (version 2.4 or later) control.

In addition to the LEDs, the annunciator can control four custom relays based on signals received over the PCCNet. When one of the annunciator's discrete inputs is activated, the annunciator will broadcast that information over the network. By taking advantage of the network, discrete inputs and custom relays, the annunciator can be used as expanded I/O for a genset controller.

Easily installed in a location to give immediate notification of an alarm or warning status. Designed to give operating/monitoring personnel quick-glance status information. The module directly senses battery voltage to provide green/yellow/red alarm and status information for that parameter.

Genset controller complies with NFPA level two requirements when used with the display but without the annunciator panel. When used with the annunciator it meets NFPA level one requirements (emergency and standby power systems). The annunciator module can also be used for monitoring of transfer switch or other equipment status.

Features

- Visual and audible warnings of up to 20 separate alarm or status conditions.
- LEDs can be controlled either via PCCNet or discrete input.
- Status of discrete inputs is broadcast on network.
- Four custom relays can be controlled over the PCCNet network.
- Configurable LED color (red, yellow or green) and selectable horn operation allows maximum flexibility.
- Standard NFPA 110 label, field configurable for other alarm status and conditions.
- Each audible alarm is annunciated, regardless of the number of existing alarm conditions displayed.
- Sealed membrane panel design provides environmental protection for internal components and is easy to clean.
- Configurable for negative (ground) input or positive input.
- Integral DC voltage sensing.
- Flush or surface mount provisions.
- UL Listed and labeled; CSA certified; CE marked.

Specifications

Signal requirements

Positive - Input impedance is 1.82 kOhms to ground; maximum input voltage = 31 VDC.

Negative - Input impedance is 1.82 kOhms to Bat+: inputs are at Bat+ level when open.

Sink/source current threshold for detection - 150 uA minimum, 3 mA maximum.

Typical conductor size: 16 ga for 304.8 m (1000 ft)

Max conductor size for terminal: 12 ga

Relay outputs

0.2 A at 125 VAC and 1 A at 30 VDC

Network connections

Use Belden 9729 two pair, stranded, shielded 24 AWG twisted pair cable for all PCCNet connections. Total network length can not exceed 1219 m (4000 ft). Up to 20 nodes can be connected to the network.

Note: Any communications wire connected to the generator set should be stranded cable.

Power

Maximum consumption: 15 watts

Battery voltage

Functional range - Audible and visual conditions operational from 6.5 to 31 VDC.

Low voltage setting - 12.0 VDC for 12 Volt nominal systems; 24.0 for 24 Volt nominal systems.

High voltage setting - 16.0 Volt for 12 Volt nominal systems; 32.0 Volt for 24 Volt nominal systems.

Alarm horn

Sound level: 90 dB at 30 cm

Physical

Weight (with enclosure): 1.4 kg (3.0 lbs)

Temperature

-20 °C to +70 °C (-4 °F to +158 °F)

Humidity

10% to 95% RH (non-condensing)

Default lamp configurations

Can be configured for current NFPA 110 standard or as a replacement for Legacy (pre-2001) NFPA 110 annunciator (300-4510 or 300 4511)

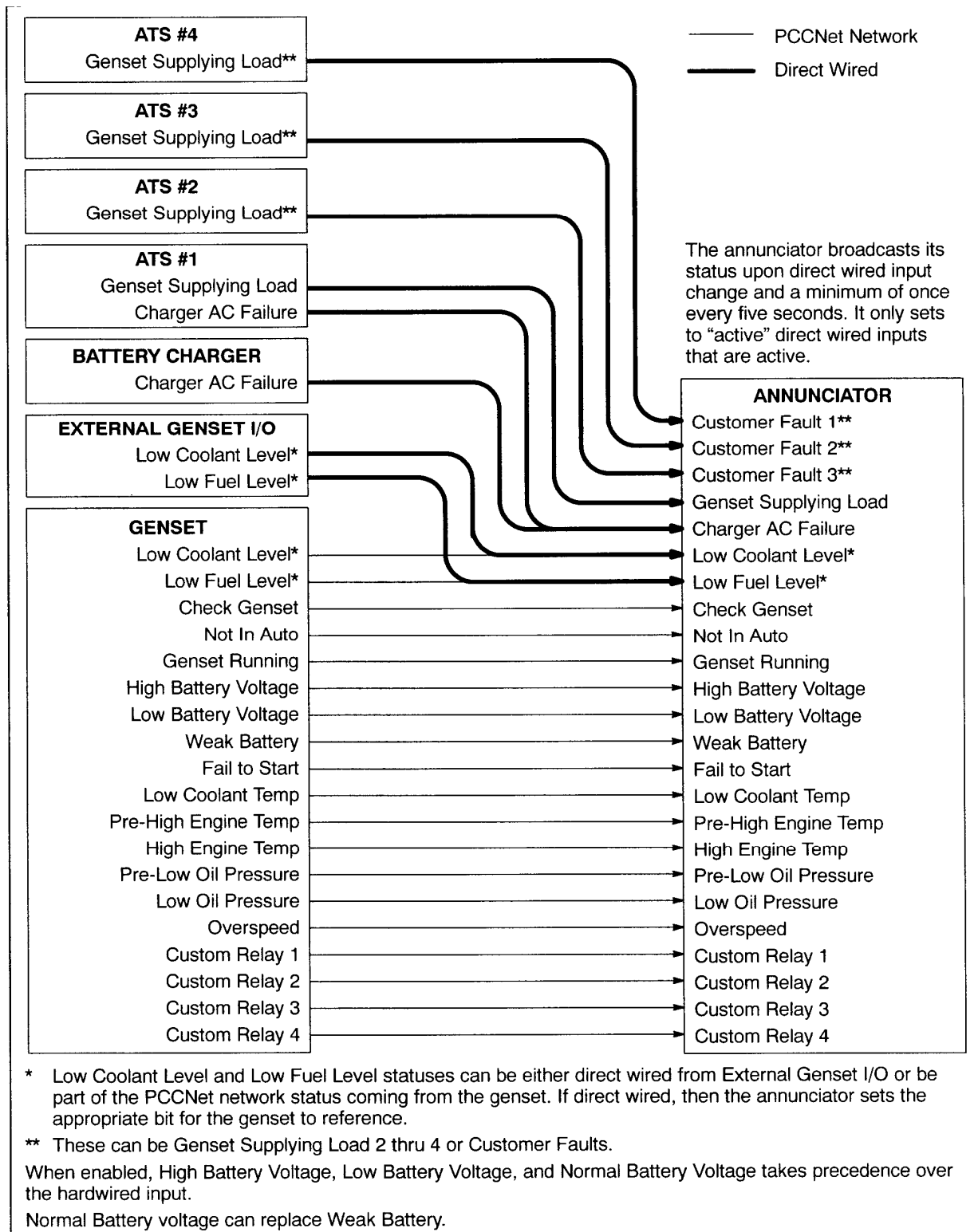
Lamp	Description	NFPA 110		
		Color	Horn	Flash
DS1	Customer fault 1	Green	No	No
DS2	Customer fault 2	Amber	No	No
DS3	Customer fault 3	Red	No	No
DS4	Genset supplying load	Amber	No	No
DS5	Charger AC failure	Amber	Yes	No
DS6	Low coolant level	Amber	Yes	No
DS7	Low fuel level	Red	Yes	No
DS8	Check generator set	Amber	No	No
DS9	Not in auto	Red	Yes	Yes
DS10	Generator set running	Amber	No	No
DS11	High battery voltage	Amber	Yes	No
DS12	Low battery voltage	Red	Yes	No
DS13	Weak battery	Red	Yes	No
DS14	Fail to start	Red	Yes	No
DS15	Low coolant temp	Red	Yes	No
DS16	Pre-high engine temp	Amber	Yes	No
DS17	High engine temp	Red	Yes	No
DS18	Pre-low oil pressure	Red	Yes	No
DS19	Low oil pressure	Red	Yes	No
DS20	Overspeed	Red	Yes	No

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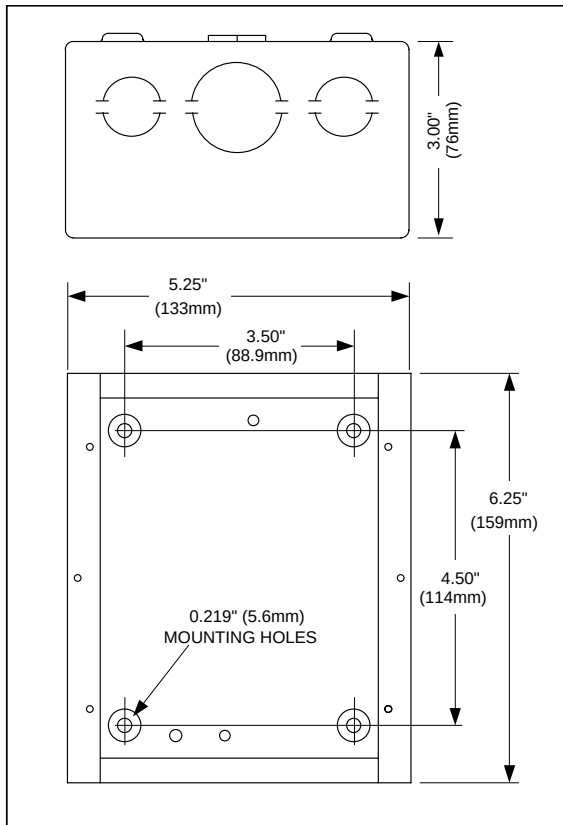
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Typical installation



Dimensions



Dimensions: in (mm)

Ordering information

Part number	Description
0300-5929-01	Panel mount
0300-5929-02	Panel with enclosure

PCCNet
COMPATIBLE

See your distributor for more information.

Cummins Power Generation

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Cummins **Power Generation**
Equipment Submittal
Rev-0



FTT-10 NETWORK CABLE SELECTIONS:

All the following cables (Table 1) have been approved and verified for use by Echelon (FTT-10 Network). Network cable recommended by Cummins Power Generation is included.

TABLE 1: TP/FTT-10 NETWORK CABLE SELECTION:

Cable Type P/N	# of Pairs	Size AWG	Detail	Manufacturer/Supplier
0334-1350*	2	22	Non Plenum, Twisted Pair, Unshielded	Cummins Power Generation
0334-1351	2	22	Plenum, Twisted pair, Unshielded	Cummins Power Generation
**Belden 8471	1	16	PVC Jacket, Twisted Pair, Unshielded	Belden Wire & Cable Co.
**Belden 85102	2/c	16	Unshielded, High Temperature, Tfel Jacket	Belden Wire & Cable Co.

* Cummins Power Generation specified FTT-10 network cables can also be ordered from **Connect-Air International**. Part Number **W221P-2001**, 2/C #22AWG NEMA Level 4 Stranded, Unshielded, non plenum.

** Belden cables maximum node to node distance 1300ft. Maximum total wire length 1600ft.

PCC NET NETWORK CABLE SELECTIONS:

Cummins Power Generation recommends Belden cable 9729 for PCC net. West Penn Wire cable equivalent to Belden cable is added into this list. Total Network Length can't exceed 4000ft.

TABLE 2: PCC NET NETWORK CABLE SELECTION:

Cable Type Part No.	# of Pairs	Size AWG	Detail	Manufacturer/Supplier
*Belden 9729	2	24	PVC Jacket, Stranded, Twisted Pair, Shielded	Belden Wire & Cable Company
DA2402	2	24	PVC Jacket, Stranded, Twisted Pair, Shielded	West Penn Wire Company

*Factory Recommended Wire.

MODBUS PLUS (MB+) NETWORK CABLE SELECTIONS:

Cummins Power Generation specifies the following cables for Modicon Modbus Plus network.

TABLE 3: MODICON MODBUS PLUS NETWORK CABLE SELECTION:

Cable Type Part No.	Detail	Manufacturer/Supplier
0326-0149-03	TP-PVC Standard Modbus Plus Cables (300 Meters)	Cummins Power Generation
490 NAA 271 03	TP-PVC Standard Modbus Plus Cables (300 Meters)	Square_D
Belden YM29560	Gray PVC, 22AWG, 1pair, RS-485; Equivalent to Square-D Modicon Modbus plus cable.	Belden Wire & Cable Co.

LOAD SHARE & LOAD GOVERN CABLE SELECTIONS:

Cummins Power Generation specifies all load shares & govern cables to be stranded, twisted and overall shielded. Cables shown in Table 4 and 5 are within the specification of Cummins Power Generation (CPG).

TABLE 4: LOAD SHARE CABLE SELECTION:

Cable Type Part No.	# of Cond.	Size AWG	Detail	Manufacturer/Supplier
Belden 9418	4/C	18	PVC Jacket, Stranded, Twisted Pair, Shielded	Belden Wire & Cable Company

TABLE 5: LOAD GOVERN CABLE SELECTION:

Cable Type Part No.	# of Pairs	Size AWG	Detail	Manufacturer/Supplier
Belden 8760	1	18	PVC Jacket, Stranded, Twisted Pair, Shielded	Belden Wire & Cable Company

IMPORTANT NOTES:

- Cummins Power South recommends all control wires shall be #14 AWG minimum.
- DC Wires varies per application and distance (See Factory Interconnection drawings).
- Network Cable Must Be Run In Separate Conduit.
- All AC & DC Circuits Should Be Run In Separate.
- All Cabling Must Be Stranded.

TABLE 6: LOCAL IMPORTANT VENDORS AND CONTACT INFORMATION:

Vendor Name	Contact Information
Square D	Local Distributor: Georgia Control Center, 404-767-6677
Connect Air International	Contact Susan Christy; Phone # 678-430-0310
Belden Wire & Co.	Local Distributor: Allied Electronics; Contact Kim Reed, Phone # 770-406-5335 or Belden CO at: 1800-235-3361

Four-stage battery charger

15 amp @ 12 volt

12 amp @ 24 volt



> Specification sheet

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Description

Cummins Power Generation fully automatic battery chargers - using switched mode power electronics - are constant voltage/constant current chargers incorporating a 4-stage charging algorithm. Designed for use in applications where battery life and reliability are important; these chargers, complete with built-in equalize charge capability, are ideal for stationary or portable starting battery charging service.

To achieve optimum battery life, a 4-stage charging cycle is implemented. The four charging stages are trickle, bulk, absorption and float. The trickle stage safely charges overly discharged batteries. It protects a damaged or shorted battery from excessive current. During bulk charge a constant current is applied to quickly restore the maximum battery charge level in the shortest amount of time. The absorption stage applies a constant voltage to the battery to bring the battery to 100% capacity. The float stage tailors the constant voltage output to maintain the battery at full capacity while serving DC operated loads.

An optional temperature sensor may be used to adjust charging rate based on internal battery temperature in the absorption and float stages. Use of a battery temperature sensor helps to increase battery life by preventing over or under charging of the battery. The battery temperature sensor also protects the battery from overheating. Temperature compensation is recommended in all applications, but is particularly valuable for generator sets in outdoor applications.

Battery chargers are field-configurable for charging either 12 or 24 VDC battery systems and for operation at 50 or 60 Hz. Output voltage and battery type selection is done through the alphanumeric display.

Features

Protection - All models include a 20 amp DC output breaker. Re-settable breakers are used for input voltages 240 VAC and lower. For over 240 VAC branch circuit rated fuses are used.

Easy installation - Clearly marked terminal blocks and panel knockouts provide convenient connections of input and output leads.

User display - Output voltage and current, fault information and configuration options are indicated on the alphanumeric display.

Monitoring - An LED indicates the condition of the charger. Green indicates normal charging operation, amber indicates equalizing and red indicates a fault condition.

Adjustable float voltage - Float voltage can be set through the alpha-numeric display for optimum battery performance and life.

Temperature compensation - An optional external sensor is available for temperature compensated battery charging.

Faults - The charger senses and annunciates the following fault conditions: Input overvoltage, input undervoltage, AC power loss, battery overvoltage, battery undervoltage, charger circuitry over temperature, battery over temperature, unrecoverable battery and overload/overcurrent. Includes 30 volt/2 amp isolated contact for common alarm.

Parallel redundant operation - Chargers can be operated in parallel for redundant reliability or additional charging capacity.

Vibration resistant design - complies with UL 991 vibration resistance requirements.

UL 1236 (BBHH) Listing - for use with lead acid batteries in generator set installations. Also suitable for use with NiCad, gel and AGM batteries.

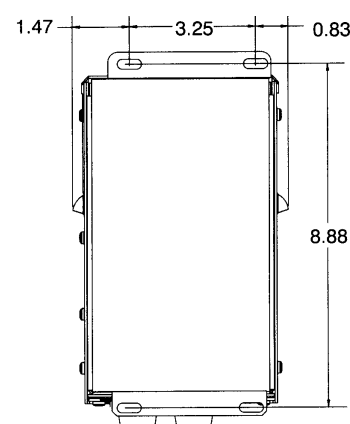
Specifications

Performance and physical characteristics

Output:	Nominal voltage	12 or 24 VDC
	Float voltage – 12 V batteries	12.8, 13.0, 13.3, 13.5, 13.6, 14.3
	Float voltage – 24 V batteries	25.7, 26.1, 26.6, 27.0, 27.2, 28.6
	Equalize-voltage	15.5 or 31.0 VDC
	Output voltage regulation	±1%
	Maximum output current	15 A @ 12 VDC or 12 A @ 24 VDC
Input:	Equalize charger time	0-12 hrs
	Voltage AC	120, 208, 240, 277, 380, 416, 480, 600
	Frequency	50 or 60 Hz
Approximate net weights:		11.6 lbs (5.3 Kg)
Approximate dimensions: height x width x depth - in (mm)		9.75 x 5.56 x 6.14 (248 x 141 x 156)
Ambient temperature operation:		-22 °F to 122 °F (-30 °C to 50 °C)



Input volts	Genset kit part number	ATS kit part number
120/208/240	0300-5878-01	0300-5878-13
277	0300-5878-02	0300-5878-14
380	0300-5878-03	0300-5878-15
416	0300-5878-04	0300-5878-16
480	0300-5878-05	0300-5878-17
600	0300-5878-06	0300-5878-18
Temperature sensor kit	0541-0918	0541-0918



Enclosure

The NEMA 1, corrosion resistant, aluminum enclosure is designed for wall mounting. When wall mounted, louvers protect cooling holes in the sides of the enclosure. Use 1/4 in (6.35 mm) diameter bolts for mounting.

Mounting dimensions – inches
Bottom view

RFI/EMI and voltage surge compliance

Charger complies with the requirements of EN61000-4-5 for voltage surge resistance, EN50082-2 (heavy industrial) for immunity, EN61000-4-2 for ESD, EN61000-4-3 for radiated immunity, ANSI/IEEE C62.41 Category B & EN 61000-4-4 for electrically fast transient, EN61000-4-6 for conducted, and FCC Part 15 Class A for emissions.

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Warning: For professional use only. Must be installed by a qualified service technician. Improper installation presents hazards of electrical shock and improper operation, resulting in severe personal injury and/or property damage.

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EMERGENCY DISCONNECT
OPERATOR STATION
BREAK GLASS TO RELEASE BUTTON
PILLA MODEL SERIES ST120

ST120SN3RSL-Emergency Generator Stop

A complete, finish-quality break glass station with a full range of factory installed options. Standard models include several NEMA ratings.

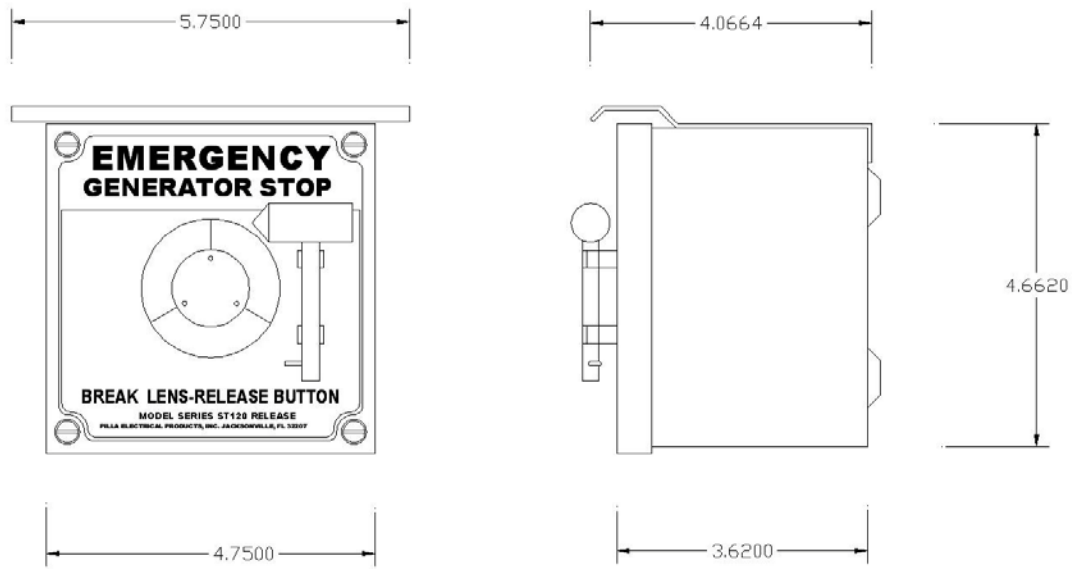


Description				
SURFACE MOUNT	NEMA 3R	RAINPROOF, ALL-METAL	1/2-3/4" KNOCKOUT ON BOTTOM AND BACK	1-6 CONTACT BLOCK CAPACITY

FEATURES

- Operator automatically releases when glass is broken (standard-Suffix BP1 / BP2 models require button to be manually depressed)
- Optional suffix TG / P3 / P3 / K1/K4 models are labeled: "Break Glass-Operate Switch"
- Contact blocks rated 10 AMP continuous up to 600 Volts*
- Accepts up to four contact blocks in 3.5 inch depth backbox
- Compact 4.5 x 4.5 inch metal backbox has red enamel finish with 1/2-3/4" inch knockout provided bothom and back
- Standard models: Type PILNCCB / PILNOCB contacts remain open/closed with glass intact--close/open when glass is broken
- Suffix BP1/BP2/TG/P1/P3/K1/K4 models: Type PILNCCB / PILNOCB contacts remain closed/open with glass intact--open/close when glass is broken and device manually actuted
- One extra replacement lens included with each ST120

MODEL SERIES ST120SN3RSL-EMERGENCY GENERATOR STOP



SURFACE MOUNT, NEMA 3R, RAINPROOF, ALL-METAL, 1/2"-3/4" KNOCKOUT BOTTOM AND BACK, 1-6 CONTACT BLOCK CAPACITY



Warranty Statement

Global Commercial Warranty Statement

Generator Set

Limited Warranty

Commercial Generating Set

This limited warranty applies to all Cummins Power Generation® branded commercial generating sets and associated accessories (hereinafter referred to as "Product").

This warranty covers any failures of the Product, under normal use and service, which result from a defect in material or factory workmanship.

Warranty Period:

The warranty start date[†] is the date of initial start up, first rental, demonstration or 18 months after factory ship date, whichever is sooner. See table for details.

Continuous Power (COP) is defined as being the maximum power which the generating set is capable of delivering continuously whilst supplying a constant electrical load when operated for an unlimited number of hours per year. No overload capability is available for this rating.

Prime Power (PRP) is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year. The permissible average power output over 24 hours of operation shall not exceed 70% of the PRP. For applications requiring permissible average output higher than stated, a COP rating should be used.

Limited-Time Running Power (LTP) is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year.

Emergency Standby Power (ESP) is defined as the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 500 hours of operation per year. The permissible average power output over 24 hours of operation shall not exceed 70% of the ESP.

Environmental Protection Agency – Stationary Emergency (EPA-SE) is defined as being the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generator set is capable of delivering in the event of a utility power outage or under test conditions and used in strict accordance with the EPA NSPS for stationary engines, 40 CFR part 60, subparts IIII and JJJJ, where a reliable utility must be present. The permissible average power output over 24 hours of operation shall not exceed 70% of the EPA-SE.

Data Center Continuous (DCC) is defined as the maximum power which the generator is capable of delivering continuously to a constant or varying electrical load for unlimited hours in a data center application.

**Base Warranty Coverage Duration
(Whichever occurs first)**

Rating	Months	Max. Hours
COP	12	Unlimited
PRP	12	Unlimited
LTP	12	500 hrs
ESP	24	1000 hrs
EPA-SE	24	Unlimited
DCC	24	Unlimited

[†] Warranty start date for designated rental and oil and gas model Products is determined to be date of receipt of Product by the end customer.

Cummins Power Generation® Responsibilities:

In the event of a failure of the Product during the warranty period due to defects in material or workmanship, Cummins Power Generation® will only be responsible for the following costs:

- All parts and labor required to repair the Product.
- Reasonable travel expenses to and from the Product site location.
- Maintenance items that are contaminated or damaged by a warrantable failure.

Owner Responsibilities:

The owner will be responsible for the following:

- Notifying Cummins Power Generation® distributor or dealer within 30 days of the discovery of failure.
- Installing, operating, commissioning and maintaining the Product in accordance with Cummins Power Generation®'s published policies and guidelines.
- Providing evidence for date of commissioning.
- Providing sufficient access to and reasonable ability to remove the Product from the installation in the event of a warrantable failure.
- Incremental costs and expenses associated with Product removal and reinstallation resulting from non-standard installations.
- Costs associated with rental of generating sets used to replace the Product being repaired.
- Costs associated with labor overtime and premium shipping requested by the owner.
- All downtime expenses, fines, all applicable taxes, and other losses resulting from a warrantable failure.

Limitations:

This limited warranty does not cover Product failures resulting from:

- Inappropriate use relative to designated power rating.
- Inappropriate use relative to application guidelines.
- Inappropriate use of an EPA-SE application generator set relative to EPA's standards.
- Normal wear and tear.
- Improper and/or unauthorized installation.
- Negligence, accidents or misuse.
- Lack of maintenance or unauthorized repair.
- Noncompliance with any Cummins Power Generation® published guideline or policy.
- Use of improper or contaminated fuels, coolants or lubricants.
- Improper storage before and after commissioning.
- Owner's delay in making Product available after notification of potential Product problem.
- Replacement parts and accessories not authorized by Cummins Power Generation®.
- Use of Battle Short Mode.
- Owner or operator abuse or neglect such as: operation without adequate coolant or lubricants; overfueling; overspeeding; lack of maintenance to lubricating, cooling or air intake systems; late servicing and maintenance; improper storage, starting, warm-up, run-in or shutdown practices, or for progressive damage resulting from a defective shutdown or warning device.

- Damage to parts, fixtures, housings, attachments and accessory items that are not part of the generating set.

This limited warranty does not cover costs resulting from:

- Difficulty in gaining access to the Product.
- Damage to customer property.

A "Data center" is defined as a dedicated facility that house computers and associated equipment for data storage and data handling.

Reliable utility is defined as utility power without routine or regularly scheduled black-outs.

Please contact your local Cummins Power Generation® Distributor for clarification concerning these limitations.

CUMMINS POWER GENERATION® RIGHT TO FAILED COMPONENTS:

Failed components claimed under warranty remain the property of Cummins Power Generation®. Cummins Power Generation® has the right to reclaim any failed component that has been replaced under warranty.

Extended Warranty:

Cummins Power Generation® offers several levels of Extended Warranty Coverage. Please contact your local Cummins Power Generation® Distributor for details.

www.power.cummins.com

THE WARRANTIES SET FORTH HEREIN ARE THE SOLE WARRANTIES MADE BY CUMMINS POWER GENERATION® IN REGARD TO THE PRODUCT. CUMMINS POWER GENERATION® MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT IS CUMMINS POWER GENERATION® LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

This limited warranty shall be enforced to the maximum extent permitted by applicable law. This limited warranty gives the owner specific rights that may vary from state to state or from jurisdiction to jurisdiction.

Product Model Number: _____
 Product Serial Number: _____
 Date in Service: _____



Warranty Statement

Transfer Switch Extended Warranty

Limited 5 Year Comprehensive Extended Warranty – G007

Transfer Switch and Paralleling Systems

When purchased, this limited extended warranty applies to all Cummins Power Generation® branded Transfer Switches, Paralleling Systems and associated accessories (hereinafter referred to as "Product").

This warranty covers any failures of the Product, under normal use and service, which result from a defect in material or factory workmanship.

Warranty Period:

The warranty start date is the date of initial start up, first rental, demonstration or 18 months after factory ship date, whichever is sooner. The coverage duration is 5 years from warranty start date.

Cummins Power Generation®

Responsibilities:

In the event of a failure of the Product during the extended warranty period due to defects in material or workmanship, Cummins Power Generation® will only be responsible for the following costs:

- All parts and labor required to repair the Product.
- Reasonable travel expenses to and from the Product site location.
- Maintenance items that are contaminated or damaged by a warrantable failure.

Owner Responsibilities:

The owner will be responsible for the following:

- Notifying Cummins Power Generation® distributor or dealer within 30 days of the discovery of failure.
- Installing, operating, commissioning and maintaining the Product in accordance with Cummins Power Generation®'s published policies and guidelines.
- Providing evidence for date of commissioning.
- Providing sufficient access to and reasonable ability to remove the Product from the installation in the event of a warrantable failure.

In addition, the owner will be responsible for:

- Incremental costs and expenses associated with Product removal and reinstallation resulting from non-standard installations.
- Costs associated with rental of generating sets used to replace the Product being repaired.
- Costs associated with labor overtime and premium shipping requested by the owner.
- All downtime expenses, fines, all applicable taxes, and other losses resulting from a warrantable failure.

Limitations:

This limited extended warranty does not cover Product failures resulting from:

- Inappropriate use relative to designated power rating.
- Inappropriate use relative to application guidelines.
- Failures due to normal wear, corrosion, varnished fuel system parts, lack of reasonable and necessary maintenance, unauthorized modifications and/or repair, and use of add-on or modified parts.
- Improper and/or unauthorized installation.
- Owner's or operator's negligence, accidents or misuse.
- Noncompliance with any Cummins Power Generation® published guideline or policy.
- Improper storage before and after commissioning.
- Owner's delay in making Product available after notification of potential Product problem.

Limitations Continued:

- Replacement parts and accessories not authorized by Cummins Power Generation®.
- Use of Battle Short Mode
- Owner or operator abuse or neglect such as: operation without adequate coolant or

lubricants; overfueling; overspeeding; lack of maintenance to lubricating, cooling or air intake systems; late servicing and maintenance; improper storage, starting, warm-up, run-in or shutdown practices, or for progressive damage resulting from a defective shutdown or warning device.

- Damage to parts, fixtures, housings, attachments and accessory items that are not part of the generating set.

This limited extended warranty does not cover costs resulting from:

- Difficulty in gaining access to the Product.
- Damage to customer property.
- Repair of cosmetic damage to enclosures.

www.cumminspower.com

CUMMINS POWER GENERATION® RIGHT TO FAILED COMPONENTS:

Failed components claimed under warranty remain the property of Cummins Power Generation®. Cummins Power Generation® has the right to reclaim any failed component that has been replaced under warranty.

THE WARRANTIES SET FORTH HEREIN ARE THE SOLE WARRANTIES MADE BY CUMMINS POWER GENERATION ® IN REGARD TO THE PRODUCT. CUMMINS POWER GENERATION® MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT IS CUMMINS POWER GENERATION® LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

This limited extended warranty shall be enforced to the maximum extent permitted by applicable law. This limited extended warranty gives the owner specific rights that may vary from state to state or from jurisdiction to jurisdiction.

Product Model Number: _____

Product Serial Number: _____

Date in Service: _____

power.cummins.com

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Cummins Power Generation, the "C" logo, and Cummins are trademarks of Cummins Inc.

PowerCommand, AmpSentry, InPower and "Our energy working for you." are trademarks of Cummins Power Generation Inc.

Other company, product, or service names may be trademarks or service marks of others.

Specifications are subject to change without notice.



**BRENTWOOD PLANNING
COMMISSION**

5.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-010

PROJECT DESCRIPTION

Revised Building Elevations – Wellington Place, 209 Ward Circle

Dr. Raj Kaushal requests approval of revised building elevations that paint the existing red brick an oyster white color.

ZONING OF PROPERTY

Zoning C-2

APPLICANT NAME/ADDRESS

Dr. Raj Kaushal, GerAssist Concepts LLC, 209 Ward Circle, Brentwood, TN 37027

Attachments

Final Staff Report

Location Map

Existing Exterior

Revised Exterior Elevations

Exterior Paint Colors

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

CONSENT AGENDA -- ITEM 5:

REQUEST: **REVISED BUILDING ELEVATIONS – WELLINGTON PLACE, 209 WARD CIRCLE**

PROJECT NUMBER: **BPC2006-010**

CURRENT ZONING: **C-2 -- COMMERCIAL RETAIL**

GENERAL INFORMATION:

Dr. Raj Kaushal requests approval of revised building elevations that paint the existing red brick an oyster white color.

PROJECT LOCATION:

The subject property is located at 209 Ward Circle.

APPROVAL HISTORY:

There has been no recent Planning Commission action related to the subject property.

CONDITIONS OF APPROVAL

Staff recommends that the following condition be attached to the approval of the request.

1. A site plan shall be vested for a period of three years from the date of the original approval.

STANDARD REQUIREMENTS:

*Staff recommends that the following **nine** standard requirements be attached to the approval of the request.*

1. Add the following note to the site plan;

This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other

*than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **July 6, 2023**, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.*

2. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
3. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
4. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
5. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
6. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
7. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
8. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.

9. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed revised building elevations, subject to the requirements of the staff report.































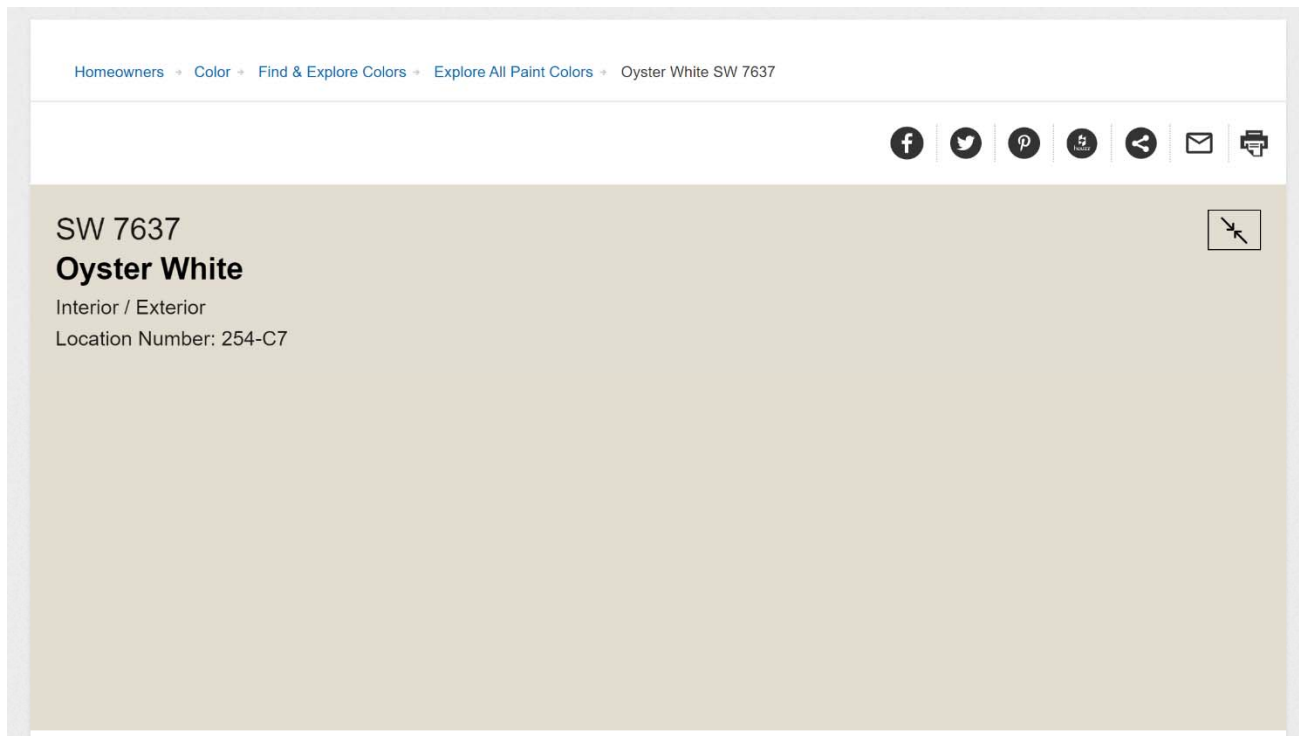
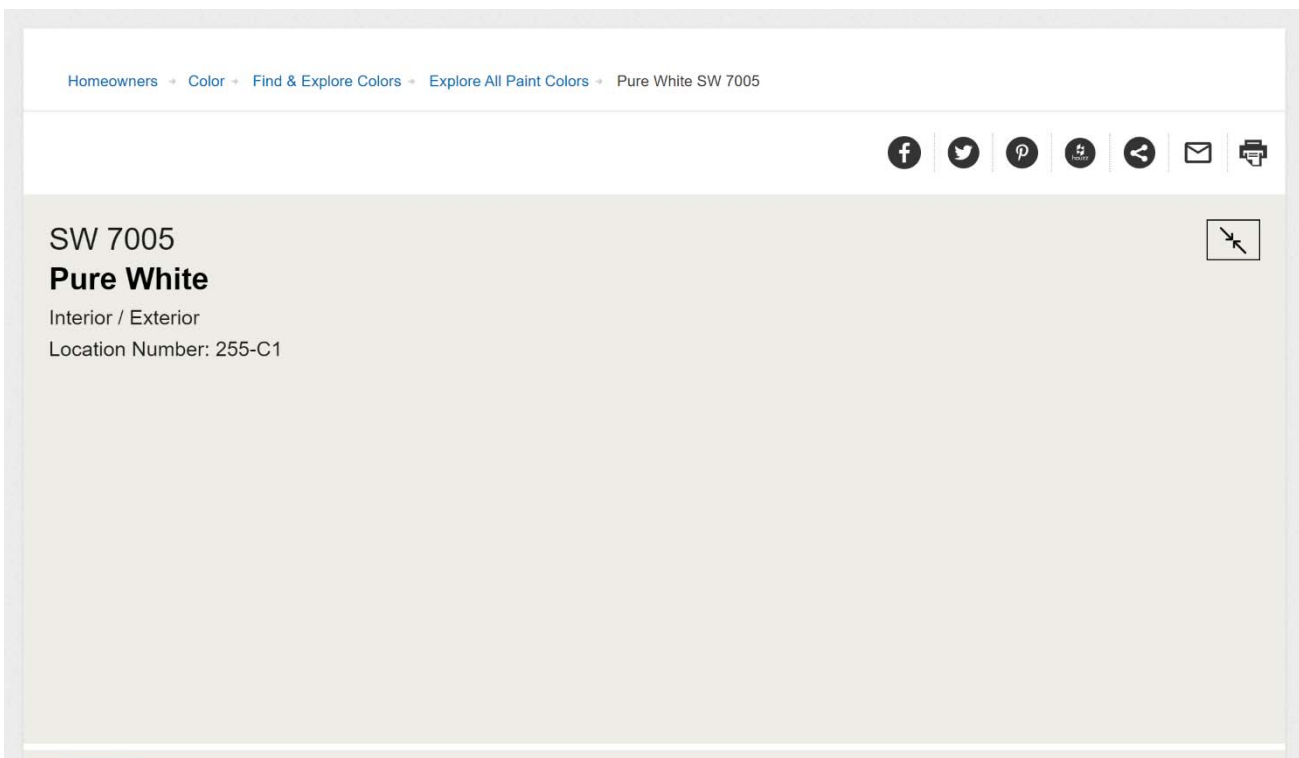






SHERWIN WILLIAMS EXTERIOR PAINT COLORS

WELLINGTON PLACE



**BRENTWOOD PLANNING
COMMISSION**

6.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-012

PROJECT DESCRIPTION

Hillside Protection Overlay Site Plan Review – Taramore Subdivision, Phase 12, Lot 189, 1918 New Bristol Lane

Wilson & Associates, PC requests approval of a revised hillside protection overlay site plan that proposes the following:

<i>TARAMORE, LOT 189 – 1918 NEW BRISTOL LANE</i>	
<i>Lot Area (ac)</i>	<i>1.00</i>
<i>Building Footprint (sf)</i>	<i>3,738</i>
<i>Heated Area (sf)</i>	<i>3,786</i>
<i>Impervious Area (sf)</i>	<i>5,566</i>
<i>Green Space Provided (%)</i>	<i>82.7</i>
<i>Green Space Required (%)</i>	<i>40%</i>

The exterior of the proposed home will be beige brick, with beige horizontal siding and trim accents.

ZONING OF PROPERTY

Zoning OSRD

APPLICANT NAME/ADDRESS

Mr. Joey Wilson, Wilson & Associates, 108 Beasley Drive, Franklin, TN 37024

Attachments

Final Staff Report

Location Map

Transitional Lot Plan

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

CONSENT AGENDA -- ITEM 6:

REQUEST: **HILLSIDE PROTECTION OVERLAY SITE PLAN REVIEW –
TARAMORE SUBDIVISION, PHASE 12, LOT 189, 1918
NEW BRISTOL LANE**

PROJECT NUMBER: **BPC2006-012**

CURRENT ZONING: **OSRD -- OPEN SPACE RESIDENTIAL DEVELOPMENT**

GENERAL INFORMATION:

Wilson & Associates, PC requests approval of a revised hillside protection overlay site plan that proposes the following:

TARAMORE, LOT 189 – 1918 NEW BRISTOL LANE	
<i>Lot Area (ac)</i>	<i>1.00</i>
<i>Building Footprint (sf)</i>	<i>3,738</i>
<i>Heated Area (sf)</i>	<i>3,786</i>
<i>Impervious Area (sf)</i>	<i>5,566</i>
<i>Green Space Provided (%)</i>	<i>82.7</i>
<i>Green Space Required (%)</i>	<i>40%</i>

The exterior of the proposed home will be beige brick, with beige horizontal siding and trim accents.

PROJECT LOCATION:

The subject property is located at 1918 New Bristol Lane.

APPROVAL HISTORY:

There has been no recent Planning Commission action related to the subject property.

CONDITIONS OF APPROVAL:

Staff recommends that the following condition be attached to the approval of the request.

1. A hillside protection overlay site plan shall be vested for a period of three years from the date of the original approval.

STANDARD REQUIREMENTS:

Staff recommends that the following **ten** standard requirements be attached to the approval of the request.

1. Add the following note to the Hillside Protection Overlay site plan;

*This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **July 6, 2023**, unless extended by the City of Brentwood. Persons relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.*

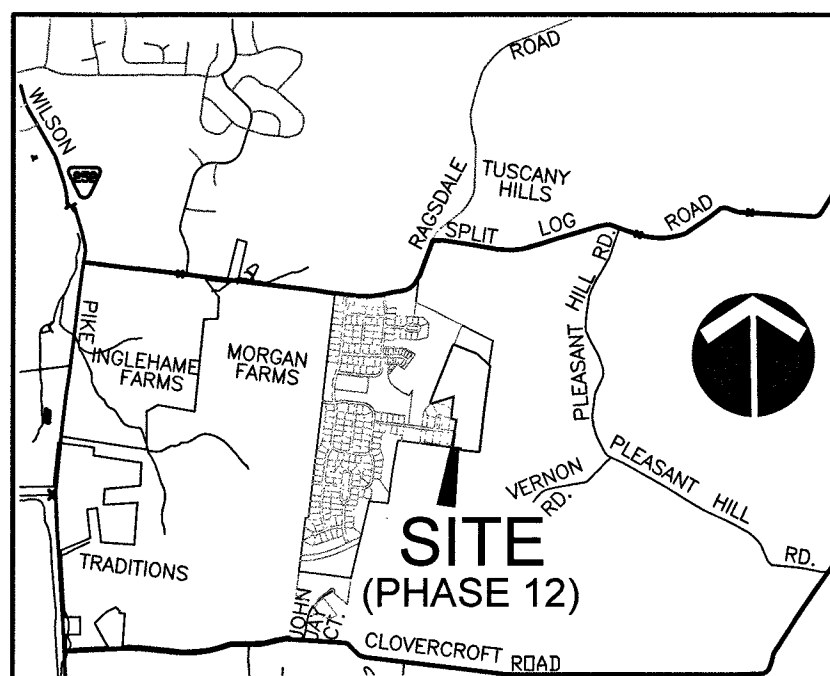
2. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
3. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
4. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
5. Pending HP approval by Planning Commission, a Grading Permit and Building Permit will be required prior to construction. An NOI and SWPPP will be required prior to these permit approvals
6. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees.
7. Deviations from the approved plan/plat in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning

Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.

8. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun. Additionally, all required electrical permits, issued by the State of Tennessee must be received before any work is begun.
9. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
10. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed hillside protection overlay site plan, subject to the requirements of the staff report.



VICINITY MAP
(NOT TO SCALE)

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
187	43,658	1.00
188	43,508	1.00
189	43,500	1.00
190	43,500	1.00
191	43,500	1.00
192	42,585	0.98
193	43,075	0.99
204	43,320	0.99
205	32,942	0.76
206	29,700	0.68
207	29,700	0.68
208	32,400	0.74
209	42,660	0.98
210	27,576	0.63
211	28,144	0.65
212	41,773	0.96
213	34,247	0.79
214	37,286	0.86
215	42,637	0.98
216	43,762	1.00
217	43,671	1.00
276	43,573	1.00
277	43,332	0.99
TOTAL		900,049 20.66

OPEN SPACE AREA TABLE		
LOT	SQ. FT.±	ACRES±
N	18,004	0.41
GGG	8,075	0.19
HHH	443,026	10.17
TOTAL		469,105 10.77

LEGEND
R.O.W.C. REGISTER'S OFFICE FOR WILLIAMSON COUNTY
OS OPEN SPACE

OWNER / DEVELOPER:
PULTE HOMES TENNESSEE LIMITED PARTNERSHIP
C/O DAVID CUMMING
370 MALLORY STATION RD., SUITE 500
FRANKLIN, TENNESSEE 37067
(615) 794-1901

SURVEYOR:
RAGAN-SMITH ASSOCIATES, INC.
TOM DARNALL, RLS
315 WOODLAND STREET
NASHVILLE, TENNESSEE 37206
(615) 244-8591

SUBJECT PROPERTY

GENERAL NOTES

1. THE PURPOSE OF RECORDING THIS PLAT IS TO CREATE 23 SINGLE FAMILY LOTS AND 3 OPEN SPACE TRACTS AS SHOWN HEREON.

2. BEARINGS SHOWN HEREON ARE BASED ON TENNESSEE COORDINATE SYSTEM OF 1983.

3. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES, ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE. PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA. EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO. MADE AVAILABLE AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE IT IS A REQUIREMENT, PER "THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN (3) THREE NOR MORE THAN (10) TEN WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL, DIAL 811.

4. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THE PROPERTY LIES WITHIN FLOOD ZONE "X" AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47187C0230F WITH AN EFFECTIVE DATE OF SEPTEMBER 29, 2006, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 470424, PANEL NO. 0230, SUFFIX F, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

5. THIS PROPERTY IS CURRENTLY ZONED OSRD AND OSRD-IP MINIMUM BUILDING SETBACKS (UNLESS SHOWN OTHERWISE):
FRONT - 50'
SIDE - 15'
SIDE ABUTTING A STREET - 30'
REAR - 20'
ADJACENT TO PROJECT BOUNDARY LINE - 35'

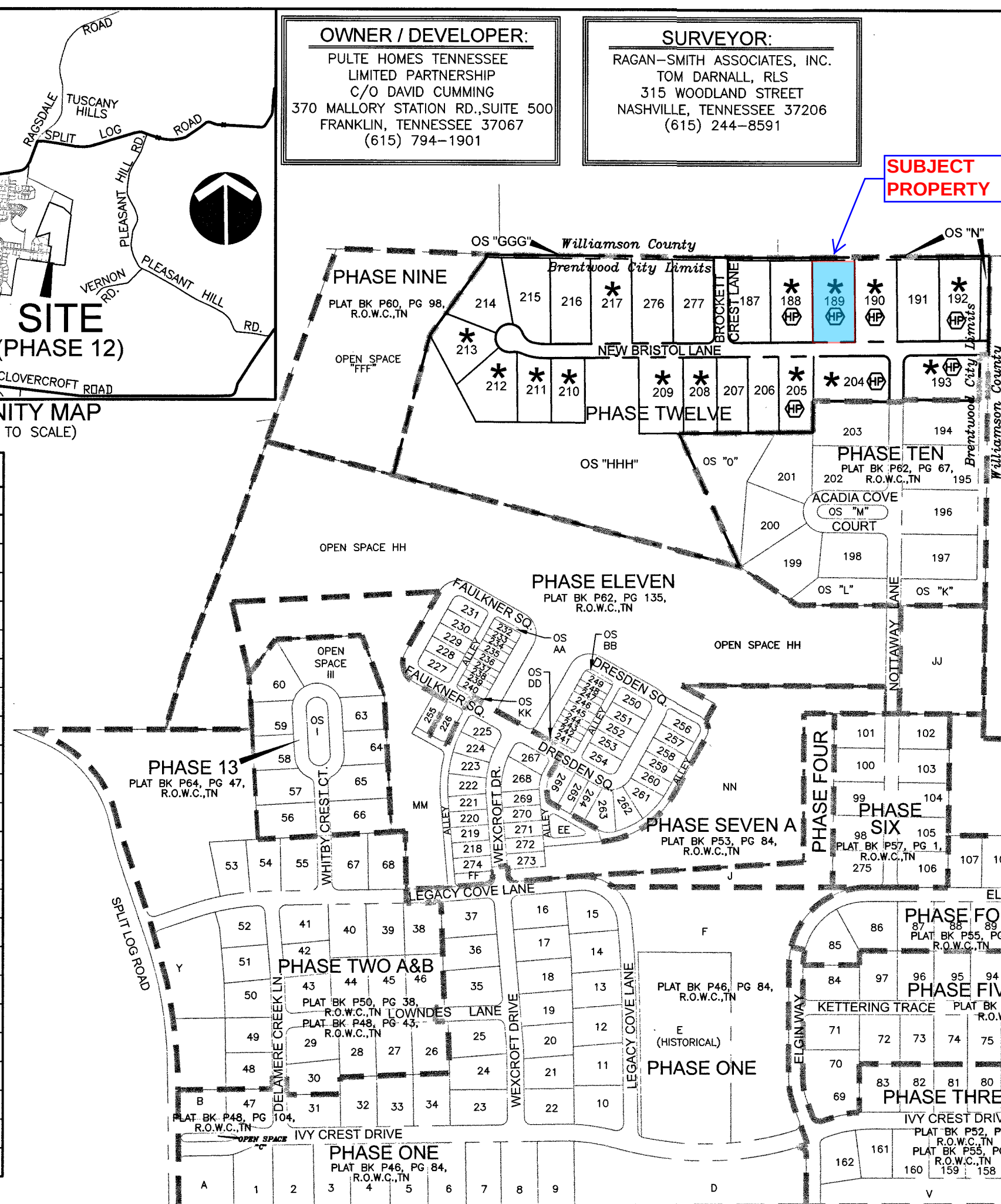
6. ALL ENTRANCE FEATURES, MEDIANS AND ASSOCIATED PLANTINGS SHALL BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

7. OPEN SPACE AREAS "N", "GGG", AND "HHH," EXCLUDING SCENIC EASEMENTS, ARE ALSO A PUBLIC UTILITY, AND DRAINAGE EASEMENT.

8. ALL CORNER LOTS SHALL BE REQUIRED TO SUBMIT AN ACCESS PLAN TO THE PLANNING & CODES DEPARTMENT FOR REVIEW AND APPROVAL BEFORE THE ISSUANCE OF ANY PERMITS. ACCESS TO CORNER LOTS SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN ARTICLE VII, VEHICLE ACCESS CONTROL, OF THE BRENTWOOD MUNICIPAL CODE.

9. I HEREBY STATE THAT THIS SURVEY WAS DONE IN COMPLIANCE WITH THE CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE AND THIS IS A CATEGORY I SURVEY AND THE RATE OF PRECISION OF THE UNADJUSTED SURVEY IS 1 : 51,735 AS SHOWN HEREON.

BY: *John T. Darnall* DATE: AUGUST 14, 2019
JOHN T. DARNALL, RLS NO. 1571



OSRD TABLE (Phase 12 Calculations)

OSRD TABLE (Phase 12 Calculations)	
Total Site Area	34.08
Total Split Log ROW Dedication	0.00
Total McEwen ROW Dedication	0.00
Total Internal ROW Dedication	2.64
Total	31.44
Less Area in slopes over 25%	3.31
Plus 25% of Areas of Slopes over 25%	0.83
Less Areas in Floodways	0.00
Plus 25% of Areas in Floodways	0.00
Less Areas in Electrical & Natural Gas Easements	0.00
Plus 25% of Areas in Electrical & Natural Gas Easements	0.00
Total Usable Land	28.96
Less Area in Lots > 1.0 Acre	0.01
Total Land Area Available	28.95
Total Land Area Required @ 1 DUPA	23.00
Land Area in Lots	20.66
Open Space Required	2.34
Open Space Provided	10.77
Excess Open Space	8.43
Total Open Space From Previous Phases	5.97
Plus Credit for Historic Preservation Area	0.00
Total Excess Open Space	14.40

RECORDING INFORMATION

10/23/2019 - 09:31:00 AM
19044146
1 PGS:AL-PLAT
BATCH: 624798
PLAT BOOK: P72
PAGE: 57
REC FEE 30.00
DP FEE 2.00
TOTAL 32.00
STATE OF TENNESSEE, WILLIAMSON CO
SHERRY ANDERSON

PROPERTY MAP REFERENCE

BEING PARCEL NUMBER 7.14 AS SHOWN ON WILLIAMSON COUNTY PROPERTY MAP NUMBER 60.

DEED REFERENCE

BEING A PORTION OF THE PROPERTY CONVEYED TO PULTE HOMES TENNESSEE LIMITED PARTNERSHIP BY SPECIAL WARRANTY DEED FROM JW HOMES, LLC, OF RECORD IN BOOK 6657, PAGE 86, REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE.

TOTAL AREA = 1,484,332 SQ. FT. OR 34.08 ACRES ±

CERTIFICATE OF PROVISION OF ELECTRICAL SERVICE

I HEREBY CERTIFY THAT THE REQUIREMENTS SET FORTH IN RULES, REGULATIONS, BY-LAWS, POLICY AND OPERATIONAL BULLETINS, PLAT APPROVAL CHECKLIST AND TREE PLANTING GUIDELINES HAVE BEEN MET FOR THE ELECTRICAL PROVIDER NAMED BELOW. ANY APPROVAL IS AT ALL TIMES CONTINGENT UPON CONTINUING COMPLIANCE WITH THE AFOREMENTIONED REQUIREMENTS.

DATE: 8/16/19

CERTIFICATE OF APPROVAL OF SUBDIVISION NAME

I HEREBY CERTIFY THAT THE CITY OF BRENTWOOD PLANNING DEPARTMENT HAS APPROVED THE SUBDIVISION NAME.

DATE: 10/17/2019

CERTIFICATE OF APPROVAL OF STREET NAMES

I HEREBY CERTIFY THAT THE WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS HAS APPROVED THE STREET NAMES.

DATE: 8/16/19

CERTIFICATE OF OWNERSHIP & DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES, AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS, AND OTHER OPEN SPACES TO PUBLIC OR PRIVATE USE AS NOTED.

OWNER NAME: PULTE HOMES TENNESSEE LIMITED PARTNERSHIP

BY: *David Cumming*

DATE: 8/24/19

CERTIFICATE OF ACCURACY

I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON IS A TRUE AND CORRECT SURVEY TO THE ACCURACY REQUIRED BY THE SPECIFICATIONS OF THE BRENTWOOD PLANNING COMMISSION

NAME: *John T. Darnall*

DATE: 8/14/19

CERTIFICATE OF APPROVAL OF WATER AND SEWER SYSTEMS

I HEREBY CERTIFY THAT THE FOLLOWING UTILITY SYSTEMS OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "TARAMORE, PHASE 12" HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS.

SEWER SYSTEM 10/6/2019

WATER SYSTEM 10/6/2019

DATE: 10-9-19

CERTIFICATE OF APPROVAL OF STREETS

I HEREBY CERTIFY THAT ALL STREETS DESIGNATED ON THE FINAL SUBDIVISION PLAT HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS.

DATE: 10-9-19

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS OF THE CITY OF BRENTWOOD, WITH THE EXCEPTION OF SUCH VARIANCES AND/OR MODIFICATIONS, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION.

DATE: 10/17/2019

FINAL SUBDIVISION PLAT

CITY OF BRENTWOOD

WILLIAMSON COUNTY, TENNESSEE

NET AREA: 34.08 Acres± TOTAL LOTS: 23

ACRES NEW ROAD: 2.64 AC± CIVIL DISTRICT: 16th

MILES NEW ROAD: 0.41± CLOSURE ERROR: 1.51735±

OWNER: PULTE HOMES TENNESSEE LIMITED PARTNERSHIP

SURVEYOR: RAGAN - SMITH - ASSOCIATES, INC.

SCALE: 1"=400'

REVIS: AUGUST 14, 2019
REVISED: JUNE 18, 2019

TARAMORE

PHASE 12

LOTS 187-193, 204-217, 276, 277 AND OPEN SPACE

DRAWN BY: AMR DATE: JUNE 3, 2019
SCALE: 1" = 400' JOB NO: 04-150 W.C: 7997

OWNER: PULTE HOMES TENNESSEE LIMITED PARTNERSHIP
SURVEYOR: RAGAN - SMITH - ASSOCIATES, INC.
SCALE: 1"=400'

6:\04150-7997\1-SURVEY\PLATS\PHASE 12\PH 12 FINAL PLAT.DWG

SHEET 1 OF 2

**BRENTWOOD PLANNING
COMMISSION**

1.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-004

PROJECT DESCRIPTION

Final Plat – Broad Oaks Subdivision, Wilson Pike

Ragan Smith Associates requests approval of a final plat that shows eight lots on approximately 24 acres.

The Geotechnical report notes that the existing fill materials appear to be suitable for support of the roads and parking lots. Each lot is labeled “Transitional” and, as part of the plan submitted for building permit review, a licensed geotechnical engineer shall complete an inspection and prepare a report, which will be provided with the submittal of a plan for building permit review.

ZONING OF PROPERTY

Zoning R-2

APPLICANT NAME/ADDRESS

*Mr. Chris Mabery, Ragan Smith Associates, 100 East Vine Street, Suite 402,
Murfreesboro, TN 37130*

Attachments

Final Staff Report

Vicinity Map

Proposed Final Plat

Previously Approved preliminary Plan

Geotechnical Report -- 2016

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

REGULAR AGENDA -- ITEM 1:

REQUEST: **FINAL PLAT – BROAD OAKS SUBDIVISION, WILSON PIKE**

PROJECT NUMBER: **BPC2006-004**

CURRENT ZONING: **R-2 -- SUBURBAN RESIDENTIAL**

GENERAL INFORMATION:

Ragan Smith Associates requests approval of a final plat that shows eight lots on approximately 24 acres.

The Geotechnical report notes that the existing fill materials appear to be suitable for support of the roads and parking lots. Each lot is labeled “Transitional” and, as part of the plan submitted for building permit review, a licensed geotechnical engineer shall complete an inspection and prepare a report, which will be provided with the submittal of a plan for building permit review.

PROJECT LOCATION:

The subject property is located on Wilson Pike south of Concord Road.

APPROVAL HISTORY:

At its May 7, 2020 meeting the Brentwood Planning Commission voted to approve a revised preliminary plan for the Broad Oaks Subdivision. The plan proposes the following changes:

1. Added entrance signage / features to consist of:
 - a. A freestanding wall flanked by two columns with planters on top. An oak tree design cut into Corten steel (a material that weathers to a rust like finish);
 - b. Three additional columns with planters on the other side of the street, for a total of five.
 - c. Installation of a connecting sidewalk;
2. A slight lot re-configuration of Lots 5, 6, & 8, and
3. A slight realignment of Lawson Way.

At its November 5, 2018 meeting, the Brentwood Planning Commission voted to approve a preliminary plan for the Lawson Property, showing eight lots on approximately 24 acres.

As part of the request, the Planning Commission also approved the additional length of the cul-de-sac (1,460 lf), per Articles 6.3 and 9.7 of the Subdivision Regulations. The maximum length of a cul-de-sac is 1,000 feet, per the Subdivision Regulations. The additional cul-de-sac length is necessary to provide access to the properties south of the project in the event that they develop in the future.

CONDITIONS OF APPROVAL:

*Staff recommends that the following **three** conditions be attached to the approval of the request.*

1. Add the following note to the plat: "All lots designated with an asterisk (*) are transitional and subject to the requirements of the geotechnical report."
2. Remove the references to "Critical Lot" and replace with "Transitional Lot" on all pages of the plat.
3. Approval of a final plat by the Planning Commission shall become effective upon the date of the last signature required on the plat for recording. The initial vesting period shall be for five years after approval.

STANDARD REQUIREMENTS:

*Staff recommends that the following **nine** standard requirements be attached to the approval of the request.*

1. Add the following note to all pages of the final plat:

This final plat is subject to a vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. Upon expiration of the vesting period, development of the property shown on this plat may be subject to standards other than those that were applicable during the vesting period. The vesting period for this plat expires on _____, unless extended by the City of Brentwood. Persons relying on this plat after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.

(Planning and Codes Department staff will insert the expiration year for the plat at the time the plat is ready for recording and may also make changes to the wording of the above note as necessary to carry out the intent of Standard Requirements 1, 2 and 3 below.)

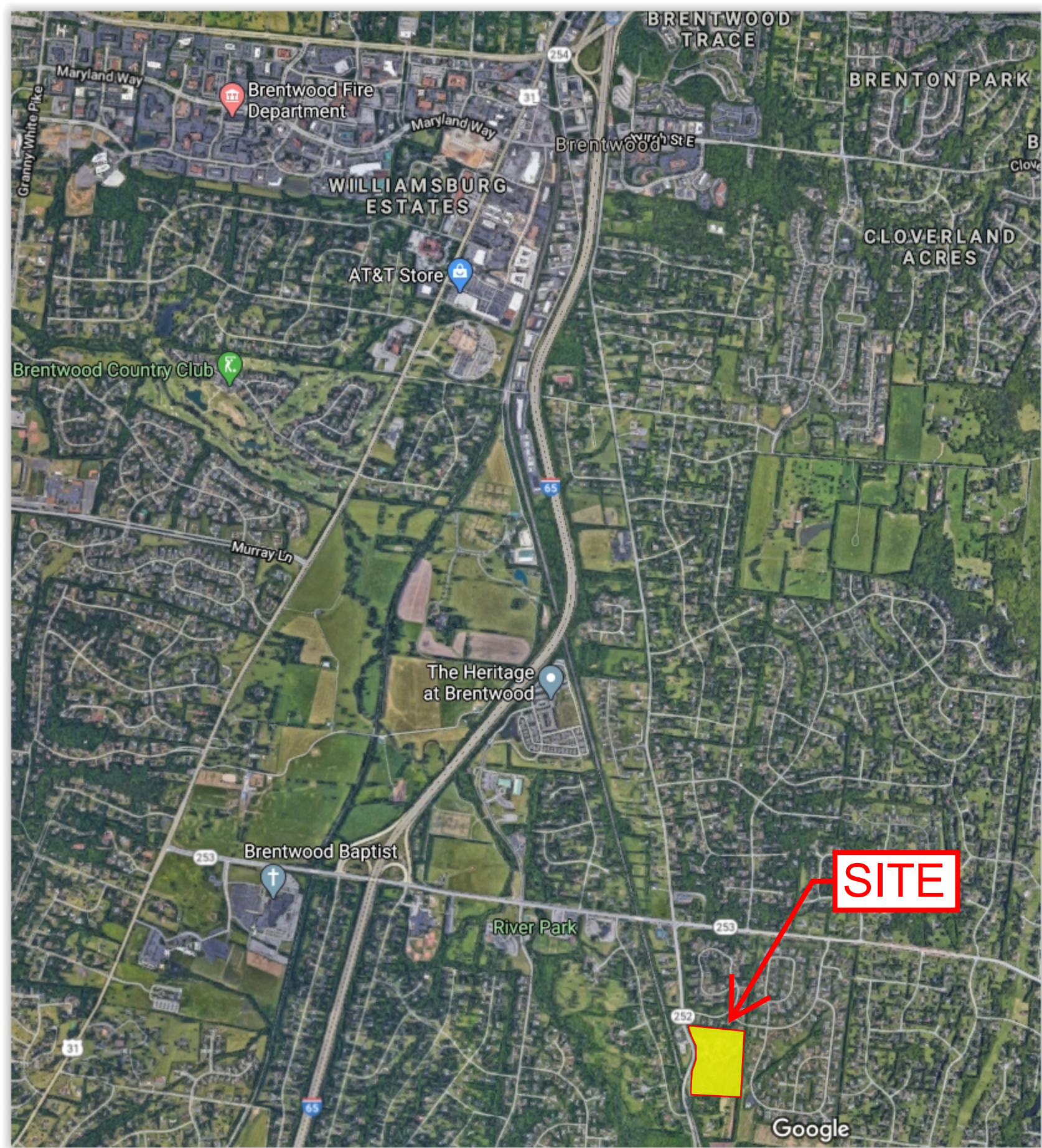
2. Prior to signing of plat by water services department, the following must be submitted for review and approval: Water and Sewer Construction As-builts (CAD, PDF, Paper); CCTV inspection videos of all gravity sewers with software database file; Water and sewer infrastructure construction cost breakdown summary.
3. Provide the Planning staff with a digital copy of the proposed subdivision. This request is consistent with Article 2.3 of the Brentwood Subdivision Regulations. The file should be in AutoCAD .DWG or .DXF compatible format and CD-ROM. The file shall use the

Tennessee State Plane coordinate system, FIPS Zone 4100, NAD 83 datum. The digital copies must be received before the plat may be recorded.

4. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
5. Adequate security that meets the requirements of Article VIII of the Brentwood Subdivision Regulations must be provided for all improvements – roadway, drainage, utilities, water, sewer, landscaping, street trees, and signage improvements must be provided for staff review before the plat may be released for recording. The landscaping amount shall be provided at 110% of the total amount of all materials, installation and irrigation improvements.
6. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
7. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
8. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.
9. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed final plat, subject to the requirements of the staff report.





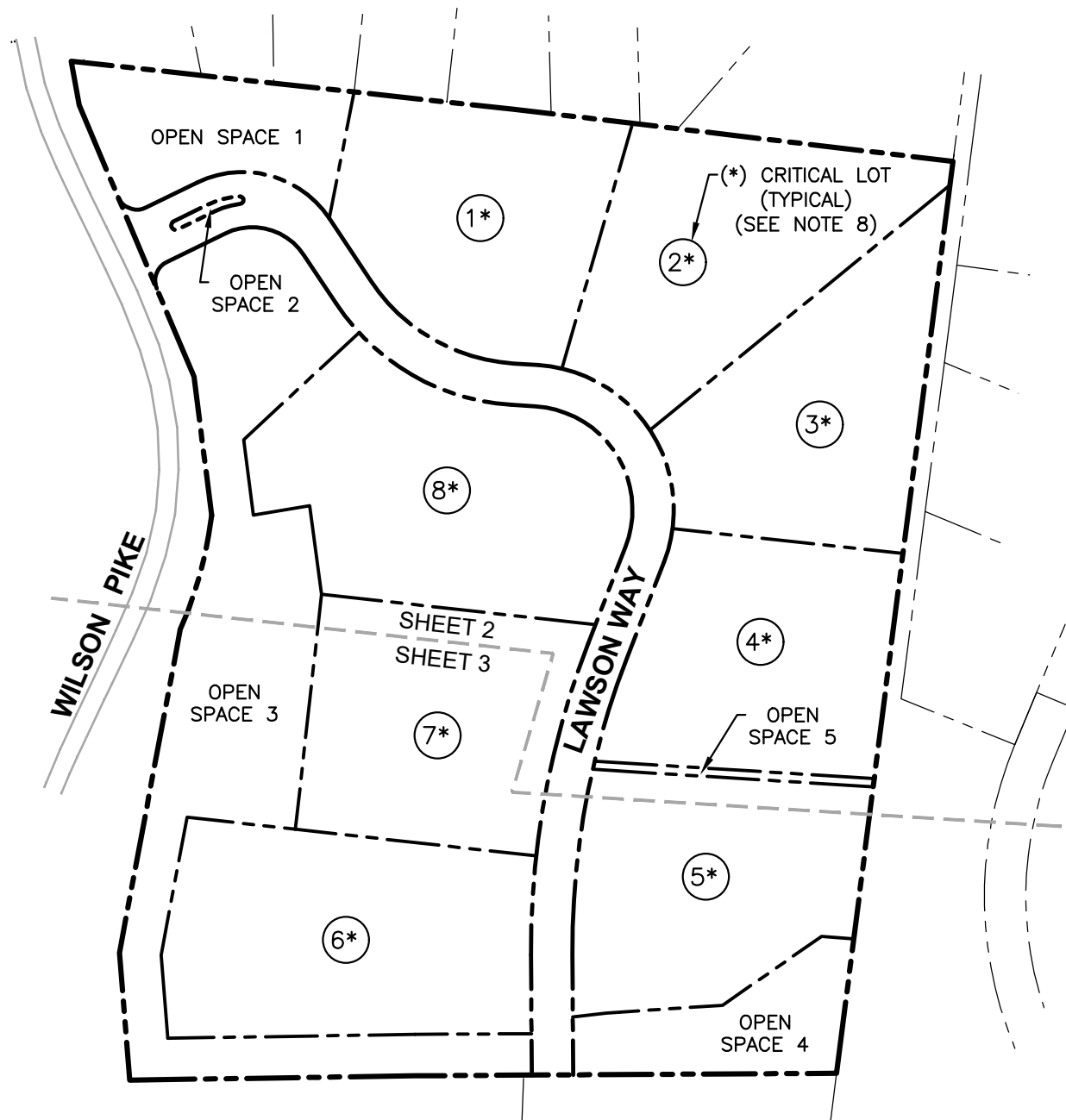
1. THE PURPOSE OF THIS PLAT IS TO CREATE 8 LOTS, 5 AREAS OF OPEN SPACE AND TO DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983. GPS EQUIPMENT WAS USED TO DETERMINE THE POSITION OF TWO (2) CONTROL POINTS FOR THE SURVEYED PROPERTY TO ESTABLISH AS BASIS FOR BEARING FOR THE SURVEY. TYPE OF GPS EQUIPMENT USED: SPECTRA PRECISION SP80. TYPE OF GPS SURVEY: TDOT NETWORK ADJUSTED REAL TIME KINEMATIC. THE AVERAGE POSITIONAL QUALITY IS 0.05'.
3. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES, PUBLIC RECORDS, AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE, IT IS A REQUIREMENT, PER "THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS NO LESS THAN THREE (3) NOR MORE THAN TEN (10) WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL, DIAL 811
4. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47187C0207F, WITH AN EFFECTIVE DATE OF SEPTEMBER 29, 2006, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 47205, PANEL NO. 0207, SUFFIX F, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
5. THIS PROPERTY IS CURRENTLY ZONED R-2 - (SUBURBAN RESIDENTIAL) AND AR - (AGRICULTURAL/RESIDENTIAL ESTATE). MINIMUM BUILDING SETBACKS ARE AS FOLLOWS

FRONT = 75'
SIDE = 20'
REAR = 30'
SETBACK ADJOINING PERIMETER = 35'
SETBACK ABUTTING BUFFER STRIP = 100'
6. ALL ELECTRIC SERVICE FOR THE PROPOSED DEVELOPMENT SHALL BE UNDERGROUND. ALL PUBLIC UTILITIES SHALL BE SUBJECT TO THE APPROVAL OF THE APPLICABLE UTILITY COMPANIES.
7. I HEREBY STATE THAT THIS SURVEY WAS DONE IN COMPLIANCE WITH THE CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE AND THIS IS A CATEGORY I SURVEY AND THE RATIO OF PRECISION OF THE UNADJUSTED SURVEY IS < 1:15,000 AS SHOWN HEREON.

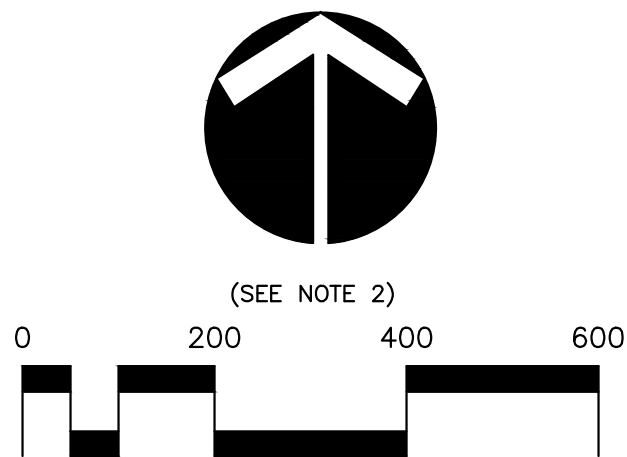
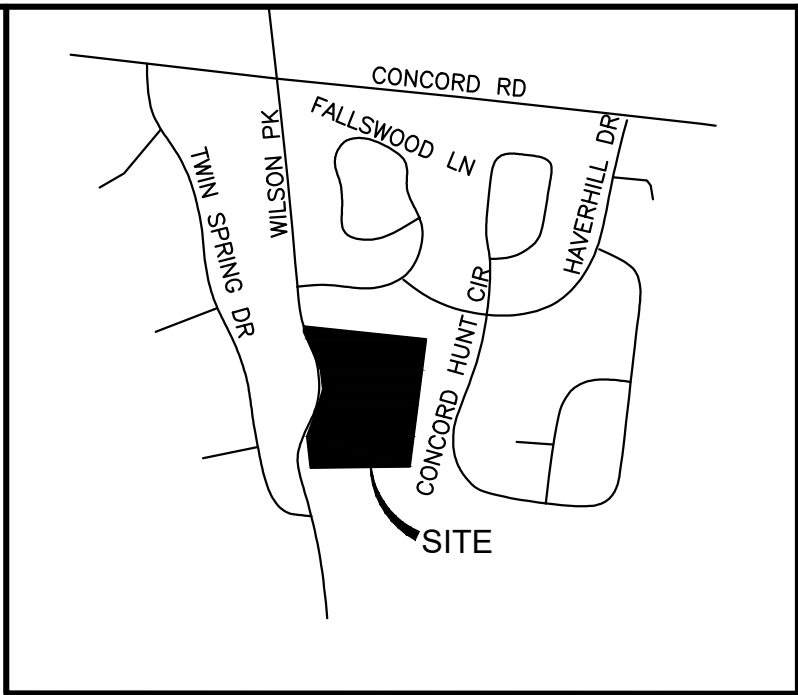
8. LOTS DESIGNATED WITH AN ASTERISK (*) HAVE NATURAL SLOPES OF GREATER THAN 15%. PRIOR TO THE ISSUANCE OF A BUILDING PERMIT FOR A RESIDENTIAL LOT WITH A SLOPE OF 15% OR GREATER, A PLAN SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER FOR APPROVAL BY THE CITY ENGINEER SHOWING EXISTING TOPOGRAPHIC INFORMATION FROM FIELD RUN SURVEY DATA, BOUNDARY AND SETBACK LINES, UTILITY AND DRAINAGE EASEMENTS, EXISTING AND PROPOSED DRAINAGE PIPES, DITCHES AND SWALES TO BE CONNECTED TO PUBLIC DRAINAGE LINES AND/OR TO DIRECT OR RE-DIRECT STORMWATER RUNOFF, THE PROPOSED BUILDING FOOTPRINT AND THE DRIVEWAY PLAN, INCLUDING THE FINISHED FLOOR ELEVATIONS AND FINISHED GRADES OF PAVEMENTS AND GROUND LINES, IDENTIFICATION OF EXISTING TREES IN EXCESS OF FOUR-INCH CALIPER AND TREES TO BE PRESERVED, AND THE LOCATION AND TIMING OF INSTALLATION OF EROSION CONTROL FEATURES. NO CLEAR CUTTING OF TREES OR GRADING OF THE LOT SHALL BE PERMITTED UNTIL APPROVAL OF THE SITE PLAN BY THE CITY ENGINEER.

BEING PARCEL NUMBER 9.00 AS SHOWN ON WILLIAMSON COUNTY PROPERTY MAP
NUMBER 35.

BEING THE SAME PROPERTY CONVEYED TO PARTNERS IN BUILDING OF TENNESSEE, LLC FROM BOBBY LAWSON II AND MEREDITH LAWSON O'BRIEN, BY SPECIAL WARRANTY DEED OF RECORD IN BOOK 7501, PAGE 214, REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE.



THIS FINAL PLAT IS SUBJECT TO A VESTING PERIOD, DURING WHICH THE DEVELOPMENT STANDARDS IN EFFECT ON THE DATE OF APPROVAL WILL REMAIN THE STANDARDS APPLICABLE TO THIS PLAN. UPON EXPIRATION OF THE VESTING PERIOD, DEVELOPMENT OF THE PROPERTY SHOWN ON THIS PLAT MAY BE SUBJECT TO THE STANDARDS OF OTHER CHARTERS THAT WERE ADOPTED DURING THE VESTING PERIOD. THE VESTING PERIOD FOR THIS PLAT EXPIRES ON _____, 20____, UNLESS EXTENDED BY THE CITY OF BRENTWOOD. PERSONS RELYING ON THIS PLAT AFTER SAID DATE SHOULD CONTACT THE CITY OF BRENTWOOD TO DETERMINE IF DEVELOPMENT MAY CONTINUE AS DEPICTED ON THE PLAN.



VICINITY MAP

(NOT TO SCALE)

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
1	87,264	2.00
2	93,705	2.15
3	87,519	2.01
4	86,986	2.00
5	87,116	2.00
6	105,555	2.42
7	87,368	2.01
8	108,146	2.48

OPEN SPACE AREA TABLE		
OS	SQ. FT.±	ACRES±
1	41,684	0.96
2	970	0.02
3	142,200	3.26
4	33,478	0.77
5	3,387	0.08

RIGHT-OF-WAY AREA TABLE		
RIGHT-OF-WAY	SQ. FT.±	ACRES±
LAWSON WAY	78,503	1.80

DRAWN BY: B. BUSCHLING
 JOB NO: 16-058 W.O: 1203

REVISED: JUNE 16, 2020
 DATE: JUNE 1, 2020
 SCALE: 1" = 200'

<h2 style="margin: 0;">FINAL SUBDIVISION PLAT</h2> <h3 style="margin: 0;">CITY OF BRENTWOOD</h3> <p style="margin: 0;">WILLIAMSON COUNTY, TENNESSEE</p>			
NET AREA:	<u>23.96 ACRES±</u>	TOTAL LOTS:	<u>8</u>
ACRES NEW ROAD:	<u>1.80±</u>	CIVIL DISTRICT:	<u>15TH</u>
MILES NEW ROAD:	<u>0.28</u>	CLOSURE ERROR:	<u>1:15000±</u>
OWNER: <u>PARTNERS IN BUILDING OF TENNESSEE, LLC</u>			
SURVEYOR: <u>RAGAN - SMITH - ASSOCIATES, INC.</u>			
SCALE: 1"=200'			

<p align="center">CERTIFICATE OF APPROVAL OF SUBDIVISION NAME</p> <p>I HEREBY CERTIFY THAT THE CITY OF BRENTWOOD HAS APPROVED THE SUBDIVISION NAME.</p> <hr/> <p>SECRETARY, PLANNING COMMISSION _____ DATE _____</p>	<p align="center">CERTIFICATE OF APPROVAL OF STREET NAMES</p> <p>I HEREBY CERTIFY THAT THE WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS HAS APPROVED THE STREET NAMES.</p> <hr/> <p>WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS _____ DATE _____</p>	<p align="center">CERTIFICATE OF PROVISION OF ELECTRICAL SERVICE</p> <p>I HEREBY CERTIFY THAT THE REQUIREMENTS SET FORTH IN RULES, REGULATIONS, BY-LAWS, POLICY AND OPERATIONAL BULLETINS, PLAT APPROVAL CHECKLIST AND TREE PLANTING GUIDELINES HAVE BEEN MET FOR THE ELECTRICAL PROVIDER NAMED BELOW. ANY APPROVAL IS AT ALL TIMES CONTINGENT UPON CONTINUING COMPLIANCE WITH THE FOREMENTIONED REQUIREMENTS.</p> <hr/> <p>NASHVILLE ELECTRIC SERVICE _____ DATE _____</p>
<p align="center">CERTIFICATE OF OWNERSHIP & DEDICATION</p> <p>I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES, AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS, AND OTHER OPEN SPACES TO PUBLIC OR PRIVATE USE AS NOTED.</p> <hr/> <p>OWNER NAME: PARTNERS IN BUILDING OF TENNESSEE, LLC</p> <hr/> <p>OWNER: CREGG McGAHA _____ DATE: _____</p>	<p align="center">CERTIFICATE OF ACCURACY</p> <p>I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON IS A TRUE AND CORRECT SURVEY TO THE ACCURACY REQUIRED BY THE SPECIFICATIONS OF THE</p> <div style="text-align: center;">  <p>BRENTWOOD MUNICIPAL PLANNING COMMISSION</p> </div> <hr/> <p>NAME: RAGAN-SMITH-ASSOCIATES, INC.</p> <hr/> <p>BY: CHRISTOPHER J. MABERY, RLS. _____ DATE: 06/16/2020</p>	<p align="center">CERTIFICATE OF APPROVAL OF UTILITY SYSTEMS</p> <p>I HEREBY CERTIFY THAT THE FOLLOWING UTILITY SYSTEMS OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "BROAD OAKS SUBDIVISION" HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS.</p> <hr/> <p>SEWER SYSTEM _____ 20____ (CITY OF BRENTWOOD) AUTHORIZED APPROVING AGENT _____</p> <hr/> <p>WATER SYSTEM _____ 20____ (CITY OF BRENTWOOD) AUTHORIZED APPROVING AGENT _____</p>

PARTNERS IN BUILDING OF TN, LLC
CONTACT: CREGG McGAHA
8119 ISABELLA LANE
BRENTWOOD, TENNESSEE 37027
(713) 452-1305

RAGAN-SMITH ASSOCIATES, INC.
CHRIS MABERY, RLS
100 E. VINE STREET, SUITE 402
MURFREESBORO, TENNESSEE
(615) 546-6050

CERTIFICATE OF APPROVAL OF STREETS	CERTIFICATE OF APPROVAL FOR RECORDING
<p>I HEREBY CERTIFY THAT ALL STREETS DESIGNATED ON THE FINAL SUBDIVISION PLAT ENTITLED "BROAD OAKS SUBDIVISION" HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS.</p> <p>_____ 20____</p> <p>DATE</p> <p>_____ CITY OF BRENTWOOD DIRECTOR OF ENGINEERING</p>	<p>I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS OF THE CITY OF BRENTWOOD, WITH THE EXCEPTION OF SUCH VARIANCES AND/OR MODIFICATIONS, IF ANY, AS ARE NOTED IN THE _____ MINUTES OF THE PLANNING COMMISSION, AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE CITY RECORDER.</p> <p>_____ 20____</p> <p>DATE</p> <p>_____ SECRETARY, PLANNING COMMISSION</p>

NOTE

1. SEE SHEET 1 FOR ALL NOTES AND PROPERTY REFERENCES.

NOTE

THIS FINAL PLAT IS SUBJECT TO A VESTING PERIOD, DURING WHICH THE DEVELOPMENT STANDARDS IN EFFECT ON THE DATE OF APPROVAL WILL REMAIN THE STANDARDS APPLICABLE TO THIS PLAN. UPON EXPIRATION OF THE VESTING PERIOD, DEVELOPMENT OF THE PROPERTY SHOWN ON THIS PLAT MAY BE SUBJECT TO STANDARDS OTHER THAN THOSE THAT WERE APPLICABLE DURING THE VESTING PERIOD. THE VESTING PERIOD FOR THIS PLAT EXPIRES ON UNLESS EXTENDED BY THE CITY OF BRENTWOOD. PERSONS RELYING ON THIS PLAT AFTER SAID DATE SHOULD CONTACT THE CITY OF BRENTWOOD TO DETERMINE IF DEVELOPMENT MAY CONTINUE AS DEPICTED ON THE PLAN.

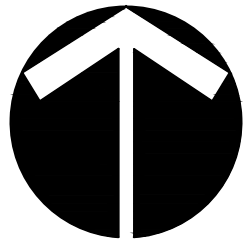
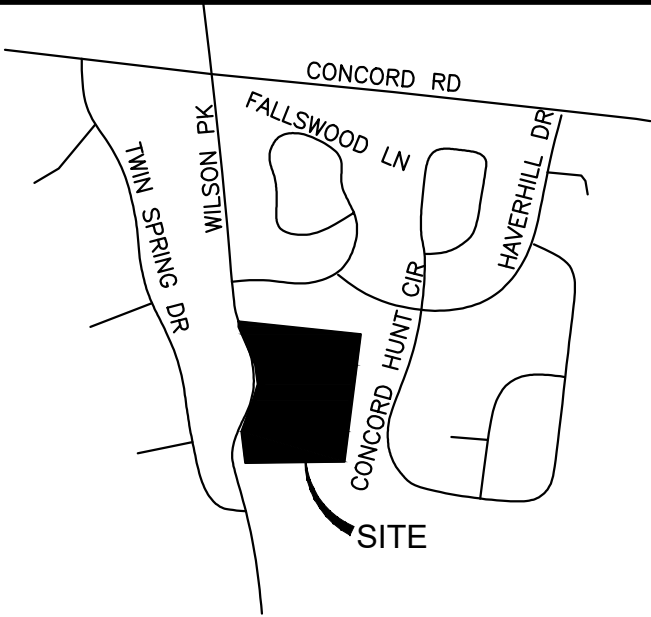
CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHD BRG
C1	25.00'	40.61'	93°04'55"	26.38	36.29'	S69°28'11"E
C2	125.00'	179.92'	82°28'17"	109.57	164.79'	S74°46'30"E
C3	225.00'	207.16'	52°45'11"	111.58	199.92'	S59°54'57"E
C4	175.00'	328.14'	107°26'01"	238.38	282.14'	S32°34'32"E
C5	975.00'	365.67'	21°29'20"	185.01	363.53'	S10°23'49"W
C6	1025.00'	384.43'	21°29'20"	194.50	382.18'	N10°23'49"E
C7	125.00'	234.38'	107°26'01"	170.27	201.53'	N32°34'32"W
C8	275.00'	253.20'	52°45'11"	136.37	244.35'	N59°54'57"W
C9	75.00'	107.95'	82°28'17"	65.74	98.87'	N74°46'30"W
C10	25.00'	37.93'	86°55'05"	23.69	34.39'	S20°31'49"W
C11	5.50'	17.28'	180°00'00"	INFINITY	11.00'	N26°00'38"W
C12	96.50'	39.15'	23°14'49"	19.85	38.89'	N75°36'46"E
C13	4.50'	13.75'	175°03'55"	104.43	8.99'	S05°13'51"E
C14	103.50'	33.08'	18°18'45"	16.68	32.94'	S73°08'43"W
C15	975.00'	225.60'	13°15'27"	113.31	225.10'	N06°16'52"E
C16	975.00'	10.14'	0°35'46"	5.07	10.14'	N13°12'29"E
C17	975.00'	129.93'	7°38'07"	65.06	129.83'	N17°19'25"E
C18	175.00'	41.53'	13°35'48"	20.86	41.43'	N14°20'35"E
C19	175.00'	124.75'	40°50'36"	65.16	122.12'	N12°52'37"W
C20	175.00'	133.09'	43°34'24"	69.95	129.90'	N55°05'08"W
C21	175.00'	28.77'	9°25'13"	14.42	28.74'	N81°34'56"W
C22	275.00'	44.89'	9°21'07"	22.49	44.84'	S38°12'55"E
C23	275.00'	208.31'	43°24'04"	109.44	203.37'	S64°35'30"E
C24	1025.00'	264.79'	14°48'05"	133.14	264.06'	S13°44'26"W
C25	1025.00'	119.63'	6°41'14"	59.88	119.57'	S02°59'46"W

LEGEND

□	CONCRETE MONUMENT (OLD)	○	UTILITY POLE
○	IRON ROD (OLD)	○→	UTILITY POLE W/ ANCHOR
●	IRON ROD (NEW) (1/2" x 18" W/CAP STAMPED "RAGAN SMITH & ASSOCIATES")	○→	UTILITY POLE W/ LIGHT
⊙	FIRE HYDRANT	○	GAS VALVE
⊗	WATER VALVE	-P&T-	OVERHEAD POWER AND TELEPHONE LINES
⊠	WATER METER	-SA-	SANITARY SEWER LINE
⊡	CATCH BASIN	-W-	WATER LINE
⊙	SANITARY SEWER MANHOLE	-UGE-	UNDERGROUND ELECTRIC LINE
—●—	SIGN	-X-X-	FENCE
123	STREET ADDRESS	-RCP-	REINFORCED CONCRETE PIPE
R.O.W.C.T.	REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE	P.U.D.E.	PUBLIC UTILITY & DRAINAGE EASEMENT
M.B.S.L.	MINIMUM BUILDING SETBACK LINE	PROPOSED CONCRETE SURFACE	

TOTAL AREA = 1,043,881 SQUARE FEET OR 23.96 ACRES ±

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N63°59'22"E	69.08'
L2	S33°32'21"E	90.32'
L3	S86°17'32"E	29.71'
L4	S21°08'28"W	125.16'
L7	N21°08'28"E	125.16'
L8	N86°17'32"W	29.71'
L9	N33°32'21"W	70.14'
L10	S63°59'22"W	78.19'
L11	S63°59'22"W	48.85'
L12	N63°59'22"E	46.47'



VICINITY MAP
(NOT TO SCALE)

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
1	87,264	2.00
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2	970	0.02
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RIGHT-OF-WAY AREA TABLE		
RIGHT-OF-WAY	SQ. FT.±	ACRES±
LAWSON WAY	78,503	1.80

RECORDER'S INFORMATION

BROAD OAKS
SUBDIVISION

DRAWN BY: B. BUSCHLING
JOB NO: 16-058 W.O: 1203
REVISED: JUNE 16, 2020
DATE: JUNE 1, 2020
SCALE: 1" = 100'

CERTIFICATE OF APPROVAL OF SUBDIVISION NAME I HEREBY CERTIFY THAT THE CITY OF BRENTWOOD HAS APPROVED THE SUBDIVISION NAME. _____ SECRETARY, PLANNING COMMISSION DATE: _____	CERTIFICATE OF APPROVAL OF STREET NAMES I HEREBY CERTIFY THAT THE WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS HAS APPROVED THE STREET NAMES. _____ WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS DATE: _____	CERTIFICATE OF PROVISION OF ELECTRICAL SERVICE I HEREBY CERTIFY THAT THE REQUIREMENTS SET FORTH IN RULES, REGULATIONS, BY-LAWS, POLICY AND OPERATIONAL BULLETINS, PLAT APPROVAL CHECKLIST AND TREE PLANTING GUIDELINES HAVE BEEN MET FOR THE ELECTRICAL PROVIDER NAMED BELOW. ANY APPROVAL IS AT ALL TIMES CONTINGENT UPON CONTINUING COMPLIANCE WITH THE AFOREMENTIONED REQUIREMENTS. _____ NASHVILLE ELECTRIC SERVICE DATE: _____
CERTIFICATE OF OWNERSHIP & DEDICATION I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES, AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS, AND OTHER OPEN SPACES TO PUBLIC OR PRIVATE USE AS NOTED. OWNER NAME: PARTNERS IN BUILDING OF TENNESSEE, LLC OWNER: CREGG MCGAHA DATE: _____	CERTIFICATE OF ACCURACY I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON IS A TRUE AND CORRECT SURVEY TO THE ACCURACY REQUIRED BY THE SPECIFICATIONS OF THE BRENTWOOD MUNICIPAL PLANNING COMMISSION NAME: RAGAN SMITH ASSOCIATES, INC. BY: CHRISTOPHER J. MABERY, RLS DATE: 06/16/2020	CERTIFICATE OF APPROVAL OF UTILITY SYSTEMS I HEREBY CERTIFY THAT THE FOLLOWING UTILITY SYSTEMS OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "BROAD OAKS SUBDIVISION" HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS. SEWER SYSTEM _____ 20' _____ (CITY OF BRENTWOOD) AUTHORIZED APPROVING AGENT WATER SYSTEM _____ 20' _____ (CITY OF BRENTWOOD) AUTHORIZED APPROVING AGENT

OWNER
PARTNERS IN BUILDING OF TN, LLC
CONTACT: CREGG MCGAHA
8119 ISABELLA LANE
BRENTWOOD, TENNESSEE 37027
(713) 452-1305

SURVEYOR
RAGAN-SMITH ASSOCIATES, INC.
CHRIS MABERY, RLS
100 E. VINE STREET, SUITE 402
MURFREESBORO, TENNESSEE
(615) 546-6050

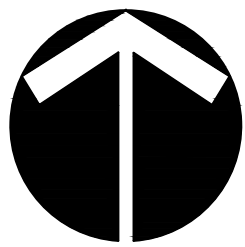
CERTIFICATE OF APPROVAL OF STREETS I HEREBY CERTIFY THAT ALL STREETS DESIGNATED ON THE FINAL SUBDIVISION PLAT ENTITLED "BROAD OAKS SUBDIVISION" HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS. _____ DATE: _____ _____ CITY OF BRENTWOOD DIRECTOR OF ENGINEERING	CERTIFICATE OF APPROVAL FOR RECORDING I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS OF THE CITY OF BRENTWOOD, WITH THE EXCEPTION OF SUCH VARIANCES AND/OR MODIFICATIONS, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION, AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE CITY RECORDER. _____ DATE: _____ _____ SECRETARY, PLANNING COMMISSION	FINAL SUBDIVISION PLAT CITY OF BRENTWOOD WILLIAMSON COUNTY, TENNESSEE NET AREA: 23.96 ACRES± TOTAL LOTS: 8 ACRES NEW ROAD: 1.80± CIVIL DISTRICT: 15TH MILES NEW ROAD: 0.28 CLOSURE ERROR: 1:15000± OWNER: PARTNERS IN BUILDING OF TENNESSEE, LLC SURVEYOR: RAGAN - SMITH - ASSOCIATES, INC. SCALE: 1"=100' 0 50' 100' 200'
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NOTE

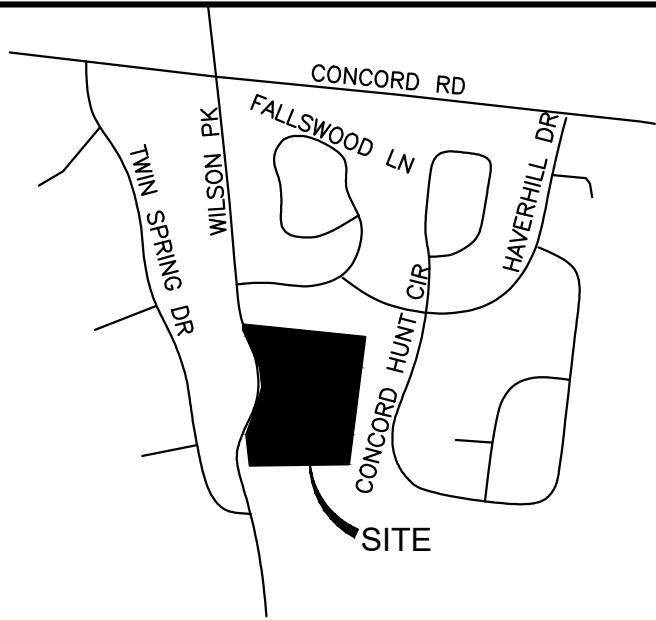
1. SEE SHEET 1 FOR ALL NOTES AND PROPERTY REFERENCES.

NOTE

THIS FINAL PLAT IS SUBJECT TO A VESTING PERIOD, DURING WHICH THE DEVELOPMENT STANDARDS IN EFFECT ON THE DATE OF APPROVAL WILL REMAIN THE STANDARDS APPLICABLE TO THIS PLAN. UPON EXPIRATION OF THE VESTING PERIOD, DEVELOPMENT OF THE PROPERTY SHOWN ON THIS PLAT MAY BE SUBJECT TO STANDARDS OTHER THAN THOSE THAT WERE APPLICABLE DURING THE VESTING PERIOD. THE VESTING PERIOD FOR THIS PLAT EXPIRES ON UNLESS EXTENDED BY THE CITY OF BRENTWOOD. PERSONS RELYING ON THIS PLAT AFTER SAID DATE SHOULD CONTACT THE CITY OF BRENTWOOD TO DETERMINE IF DEVELOPMENT MAY CONTINUE AS DEPICTED ON THE PLAN.



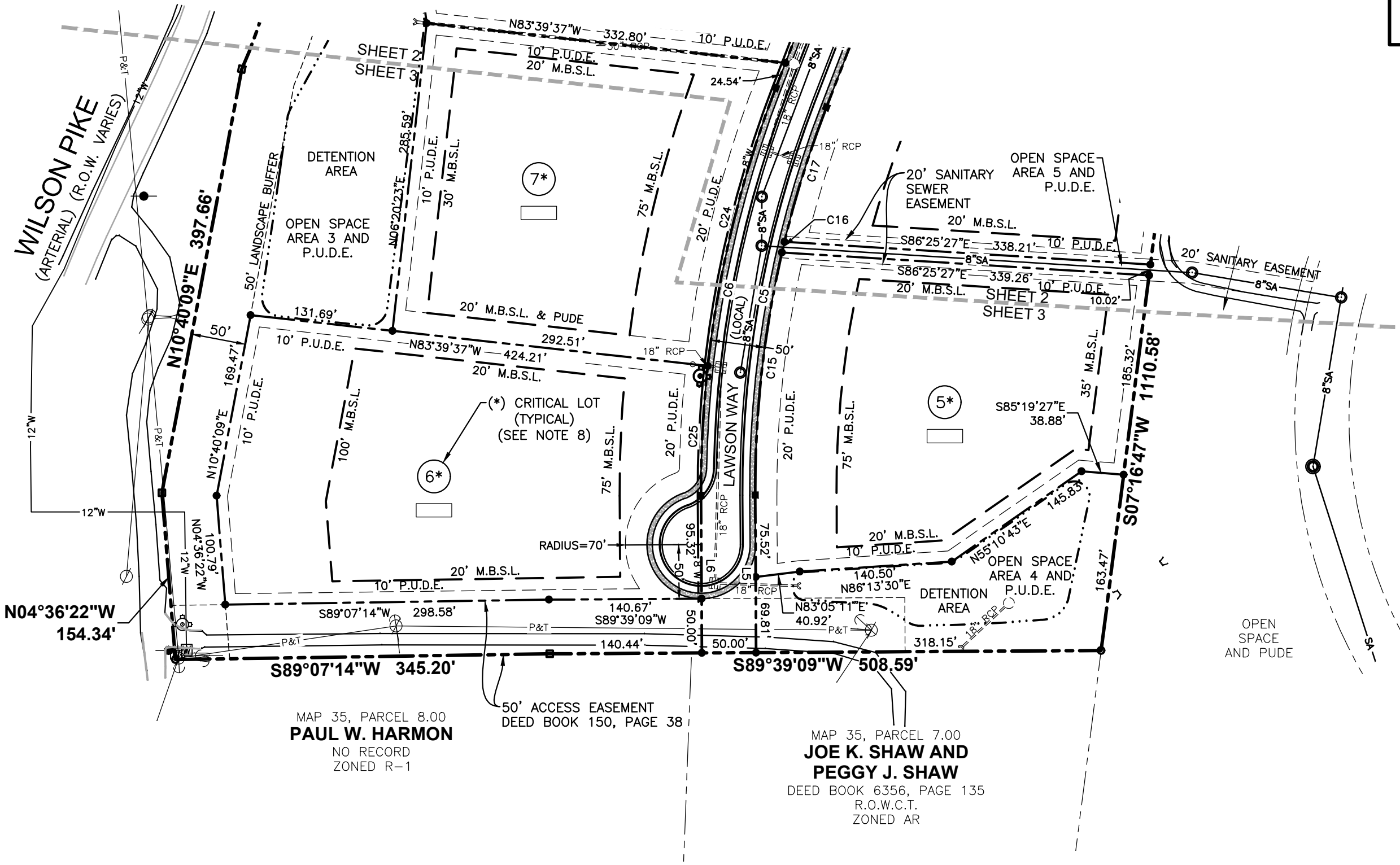
(SEE NOTE 2)



VICINITY MAP
(NOT TO SCALE)

LINE TABLE		
LINE	BEARING	DISTANCE
L5	S00°20'51"E	145.32'
L6	N00°20'51"W	145.32'

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHD BRG
C5	975.00'	365.67'	21°29'20"	185.01	363.53'	S10°23'49"W
C6	1025.00'	384.43'	21°29'20"	194.50	382.18'	N10°23'49"E
C15	975.00'	225.60'	13°15'27"	113.31	225.10'	N06°16'52"E
C25	1025.00'	119.63'	6°41'14"	59.88	119.57'	S02°59'46"W



LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
1	87,264	2.00
2	93,705	2.15
3	87,519	2.01
4	86,986	2.00
5	87,116	2.00
6	105,555	2.42
7	87,368	2.01
8	108,146	2.48

OPEN SPACE AREA TABLE		
OS	SQ. FT.±	ACRES±
1	41,684	0.96
2	970	0.02
3	142,200	3.26
4	33,478	0.77
5	3,387	0.08

RIGHT-OF-WAY AREA TABLE		
RIGHT-OF-WAY	SQ. FT.±	ACRES±
LAWSON WAY	78,503	1.80

LEGEND

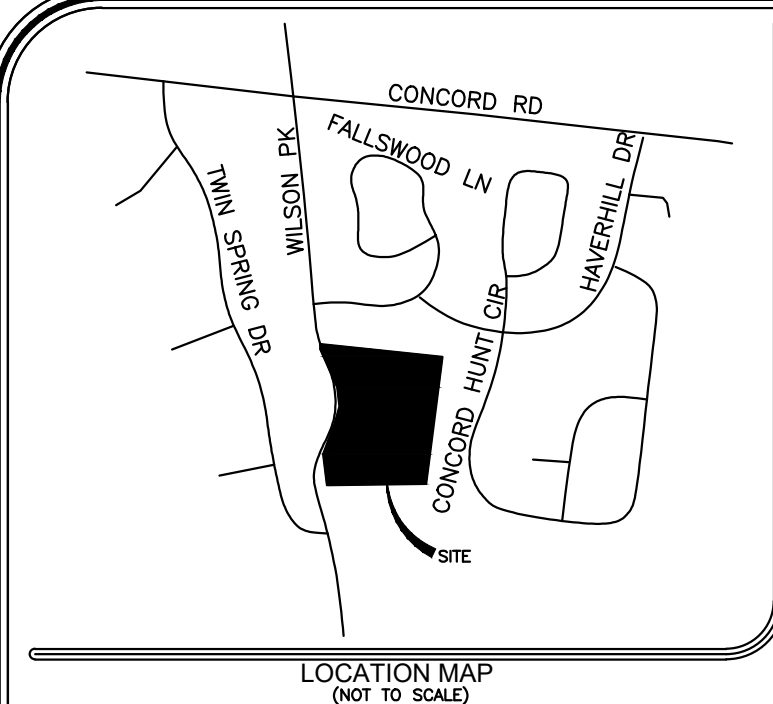
□	CONCRETE MONUMENT (OLD)	Ø	UTILITY POLE
○	IRON ROD (OLD)	Ø→	UTILITY POLE W/ ANCHOR
●	IRON ROD (NEW) (1/2" x 18" W/CAP STAMPED "RAGAN SMITH & ASSOCIATES")	Ø↗	UTILITY POLE W/ LIGHT
⊕	FIRE HYDRANT	⊙	GAS VALVE
⋈	WATER VALVE	-P&T-	OVERHEAD POWER AND TELEPHONE LINES
⊞	WATER METER	-SA-	SANITARY SEWER LINE
▤	CATCH BASIN	-W-	WATER LINE
⊙	SANITARY SEWER MANHOLE	-UGE-	UNDERGROUND ELECTRIC LINE
—●—	SIGN	-X-X-	FENCE
[123]	STREET ADDRESS	-RCP-	REINFORCED CONCRETE PIPE
R.O.W.C.T.	REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE	P.U.D.E.	PUBLIC UTILITY & DRAINAGE EASEMENT
M.B.S.L.	MINIMUM BUILDING SETBACK LINE	▨	PROPOSED CONCRETE SURFACE

TOTAL AREA = 1,043,881 SQUARE FEET OR 23.96 ACRES ±

CERTIFICATE OF APPROVAL OF SUBDIVISION NAME I HEREBY CERTIFY THAT THE CITY OF BRENTWOOD HAS APPROVED THE SUBDIVISION NAME. _____ SECRETARY, PLANNING COMMISSION DATE	CERTIFICATE OF APPROVAL OF STREET NAMES I HEREBY CERTIFY THAT THE WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS HAS APPROVED THE STREET NAMES. _____ WILLIAMSON COUNTY DEPARTMENT OF EMERGENCY COMMUNICATIONS DATE	CERTIFICATE OF PROVISION OF ELECTRICAL SERVICE I HEREBY CERTIFY THAT THE REQUIREMENTS SET FORTH IN RULES, REGULATIONS, BY-LAWS, POLICY AND OPERATIONAL BULLETINS, PLAT APPROVAL CHECKLIST AND TREE PLANTING GUIDELINES HAVE BEEN MET FOR THE ELECTRICAL PROVIDER NAMED BELOW. ANY APPROVAL IS AT ALL TIMES CONTINGENT UPON CONTINUING COMPLIANCE WITH THE AFOREMENTIONED REQUIREMENTS. _____ NASHVILLE ELECTRIC SERVICE DATE	OWNER PARTNERS IN BUILDING OF TN, LLC CONTACT: CREGG McGAHA 8119 ISABELLA LANE BRENTWOOD, TENNESSEE 37027 (713) 452-1305	SURVEYOR RAGAN-SMITH ASSOCIATES, INC. CHRIS MABERY, RLS 100 E. VINE STREET, SUITE 402 MURFREESBORO, TENNESSEE (615) 546-6050	
CERTIFICATE OF OWNERSHIP & DEDICATION I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES, AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS, AND OTHER OPEN SPACES TO PUBLIC OR PRIVATE USE AS NOTED. OWNER NAME: PARTNERS IN BUILDING OF TENNESSEE, LLC OWNER: CREGG McGAHA DATE: _____	CERTIFICATE OF ACCURACY I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON IS A TRUE AND CORRECT SURVEY TO THE ACCURACY REQUIRED BY THE SPECIFICATIONS OF THE BRENTWOOD MUNICIPAL PLANNING COMMISSION NAME: RAGAN-SMITH ASSOCIATES, INC. BY: CHRISTOPHER J. MABERY, RLS DATE: 06/16/2020	CERTIFICATE OF APPROVAL OF UTILITY SYSTEMS I HEREBY CERTIFY THAT THE FOLLOWING UTILITY SYSTEMS OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "BROAD OAKS SUBDIVISION" HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS. SEWER SYSTEM _____ 20 _____ (CITY OF BRENTWOOD) AUTHORIZED APPROVING AGENT WATER SYSTEM _____ 20 _____ (CITY OF BRENTWOOD) AUTHORIZED APPROVING AGENT	CERTIFICATE OF APPROVAL OF STREETS I HEREBY CERTIFY THAT ALL STREETS DESIGNATED ON THE FINAL SUBDIVISION PLAT ENTITLED "BROAD OAKS SUBDIVISION" HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS. _____ DATE _____ CITY OF BRENTWOOD DIRECTOR OF ENGINEERING	CERTIFICATE OF APPROVAL FOR RECORDING I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS OF THE CITY OF BRENTWOOD, WITH THE EXCEPTION OF SUCH VARIANCES AND/OR MODIFICATIONS, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION, AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE CITY RECORDER. _____ DATE _____ SECRETARY, PLANNING COMMISSION	FINAL SUBDIVISION PLAT CITY OF BRENTWOOD WILLIAMSON COUNTY, TENNESSEE NET AREA: 23.96 ACRES± TOTAL LOTS: 8 ACRES NEW ROAD: 1.80± CIVIL DISTRICT: 15TH MILES NEW ROAD: 0.28 CLOSURE ERROR: 1:15000± OWNER: PARTNERS IN BUILDING OF TENNESSEE, LLC SURVEYOR: RAGAN - SMITH - ASSOCIATES, INC. SCALE: 1"=100' 0 50' 100' 200'

BROAD OAKS
SUBDIVISION

DRAWN BY: B. BUSCHLING
JOB NO: 16-058 W.O: 1203
REVISED: JUNE 16, 2020
DATE: JUNE 1, 2020
SCALE: 1" = 100'

PROPERTY MAP REFERENCE

BEING PARCEL NUMBER 9.00 AS SHOWN ON WILLIAMSON COUNTY PROPERTY MAP
NUMBER 35.

DEED REFERENCE

BEING THE SAME PROPERTY CONVEYED TO PARTNERS IN BUILDING OF TENNESSEE LLC FROM BOBBY LAWSON II AND MEREDITH LAWSON O'BRIEN, BY SPECIAL WARRANTY DEED OF RECORD IN BOOK 7501, PAGE 214, REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE.

GENERAL NOTES

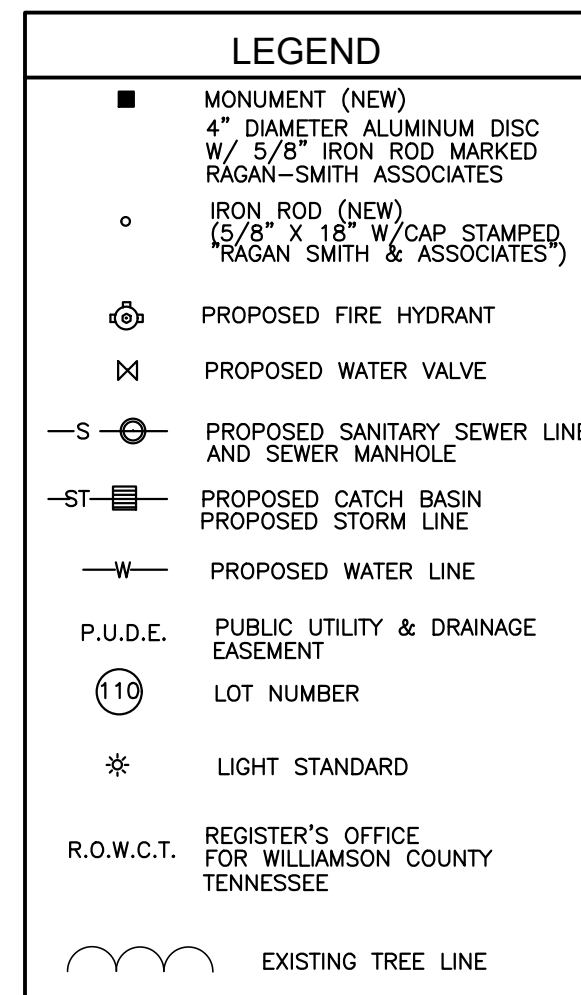
1. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983. GPS EQUIPMENT WAS USED TO DETERMINE THE POSITION OF TWO CONTROL POINTS ON THE BEARING PROPERTY IN ORDER TO ESTABLISH THE BEARING BASE FOR THE SURVEY. GPS EQUIPMENT USED: LEICA, MODEL GX1230, DUAL FREQUENCY RECEIVER. THE TYPE OF SURVEY: NETWORK ADJUSTED REAL TIME KINEMATIC. THE RELATIVE POSITIONAL ACCURACY IS 0.05".
2. ELEVATIONS SHOWN HEREON ARE TAKEN FROM THE CITY OF BRENTWOOD GIS.
3. THIS PROPERTY IS CURRENTLY ZONED R-2 - (SUBURBAN RESIDENTIAL) AND AR - (AGRICULTURAL/RESIDENTIAL ESTATE). MINIMUM BUILDING SETBACKS ARE AS FOLLOWS

FRONT = 75'
SIDE = 20'
REAR = 30'
SETBACK ADJOINING PERIMETER = 35'
SETBACK ABUTTING BUFFER STRIP = 100'

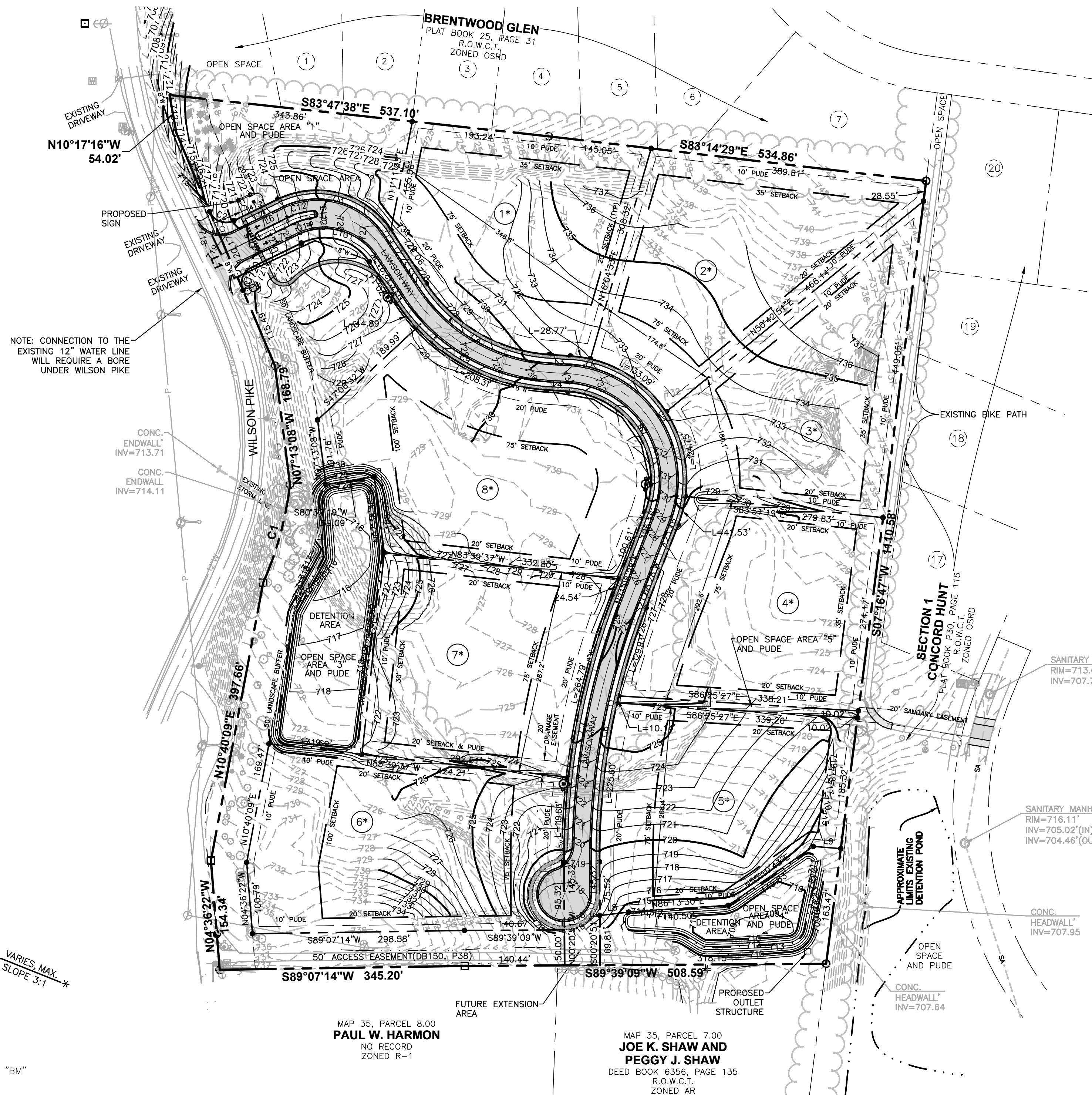
4. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FLOODING EMERGENCY MANAGEMENT AGENCY MAP NO. 47187C0207F, WITH AN EFFECTIVE DATE OF SEPTEMBER 29, 2006, WHICH MAKES UP A PORTION OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 47205, PANEL NO. 0207, SUFFIX F, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

5. THIS SITE PLAN IS SUBJECT TO A THREE-YEAR VESTING PERIOD, DURING WHICH THE DEVELOPMENT STANDARDS IN EFFECT ON THE DATE OF APPROVAL WILL REMAIN THE APPLICABLE STANDARDS. IF THE APPLICANT DOES NOT OBTAIN A FINAL SITE PLAN DURING THE FIRST THREE YEARS, THE ORIGINAL SITE PLAN IS CONSIDERED A PRELIMINARY SITE PLAN AND THE APPLICANT MUST OBTAIN APPROVAL OF A FINAL SITE PLAN. DEVELOPMENT OF THE PROPERTY SHOWN ON THIS SITE PLAN SHALL BE SUBJECT TO STANDARDS OTHER THAN THOSE WHICH WERE APPLICABLE DURING THE VESTING PERIOD. THE VESTING PERIOD FOR THIS PERIOD FOR THIS PLAN EXPIRES ON MAY 4, 2023, UNLESS EXTENDED BY THE CITY OF BRENTWOOD. PERSONS RELYING ON THIS PLAN AFTER SAID DATE SHOULD CONTACT THE CITY OF BRENTWOOD TO DETERMINE IF DEVELOPMENT MAY CONTINUE AS DEPICTED ON THE PLAN.

6. LOTS DESIGNATED WITH AN ASTERISK (*) HAVE NATURAL SLOPES OF GREATER THAN 15% PRIOR TO THE ISSUANCE OF A BUILDING PERMIT FOR A RESIDENTIAL LOT WITH A SLOPE OF 15% OR GREATER. A PLAN SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT FOR APPROVAL BY THE CITY ENGINEER. THE PLAN SHALL CONTAIN INFORMATION FROM FIELD RUN SURVEY DATA, BOUNDARY AND SETBACK LINES, UTILITY AND DRAINAGE EASEMENTS, EXISTING AND PROPOSED DRAINAGE PIPES, DITCHES AND CULVERTS, AND THE LOCATION AND TIMING OF THE PROPOSED CONSTRUCTION. TO PREVENT RE-DIRECT STORMWATER RUNOFF, THE PROPOSED BUILDING FOOTPRINT AND THE DRAINWAY PLAN, INCLUDING THE FINISHED FLOOR ELEVATIONS AND FINISHED GRADES OF EXISTING AND PROPOSED DRAINAGE PIPES, DITCHES AND CULVERTS, SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE CITY ENGINEER. FOUR-INCH CALIPER AND TREES TO BE PRESERVED, AND THE LOCATION AND TIMING OF INSTALLATION OF EROSION CONTROL FEATURES. NO CLEAR CUTTING OF TREES OR GRASS SHALL BE PERMITTED UNTIL APPROVAL OF THE SITE PLAN BY THE CITY ENGINEER.



NOTE: CONNECTION TO THE
EXISTING 12" WATER LINE
WILL REQUIRE A BORE
UNDER WILSON PIKE



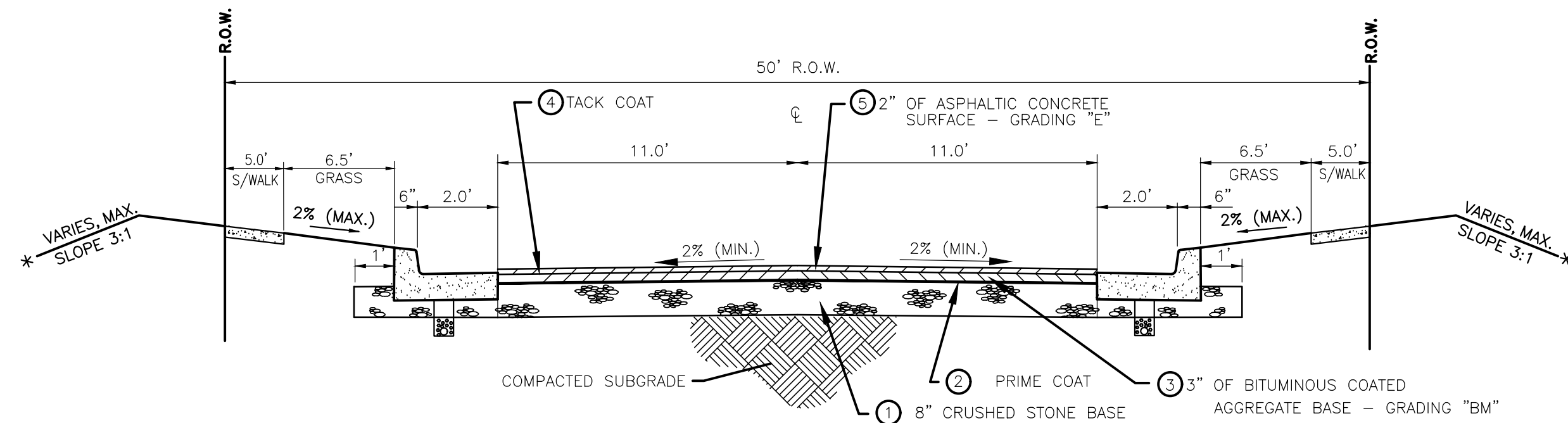
CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHD BRG
C1	484.41'	143.42'	16°57'47"	72.24	142.89'	N15°18'45"E
C2	25.00'	40.61'	93°04'55"	26.38	36.29'	S69°28'11"E
C3	125.00'	179.92'	82°28'17"	109.57	164.79'	S74°46'30"E
C4	225.00'	207.16'	52°45'11"	111.58	199.92'	S59°54'57"E
C5	175.00'	328.14'	107°26'01"	238.38	282.14'	S32°34'32"E
C6	975.00'	365.67'	21°29'20"	185.01	363.53'	N10°23'49"E
C7	1025.00'	384.43'	21°29'20"	194.50	382.18'	S10°23'49"E
C8	125.00'	234.38'	107°26'01"	170.27	201.35'	S32°34'32"E
C9	275.00'	253.20'	52°45'11"	136.37	244.53'	N59°54'57"E
C10	75.00'	107.95'	82°28'17"	65.74	98.87'	N74°46'30"E
C11	25.00'	37.93'	86°55'05"	23.69	34.39'	S20°31'49"E
C12	95.60'	39.15'	23°14'49"	19.85	38.83'	N75°36'46"E
C13	4.50'	13.75'	175°03'55"	104.43	8.99'	S05°13'51"E
C14	103.50'	33.08'	18°18'45"	16.68	32.94'	S73°08'43"E
C15	5.50'	17.28'	180°00'00"	INFINITY	11.00'	N26°00'38"E

LINE TABLE		
LINE	BEARING	DISTANCE
L2	N63°59'22"E	69.08'
L3	S86°17'32"E	29.71'
L4	N86°17'32"W	29.71'
L5	S63°59'22"W	78.19'
L6	N63°59'22"E	46.47'
L7	S63°59'22"W	48.85'
L8	N83°05'11"E	40.92'
L9	S85°19'27"E	38.88'

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
1	87,264	2.00
2	93,705	2.15
3	87,519	2.01
4	86,986	2.00
5	87,116	2.00
6	105,555	2.42
7	87,368	2.01
8	108,146	2.48

OPEN SPACE AREA TABLE		
LOT	SQ. FT.±	ACRES±
1	41,684	0.96
2	970	0.02
3	142,200	3.26
4	33,478	0.77
5	3,387	0.08

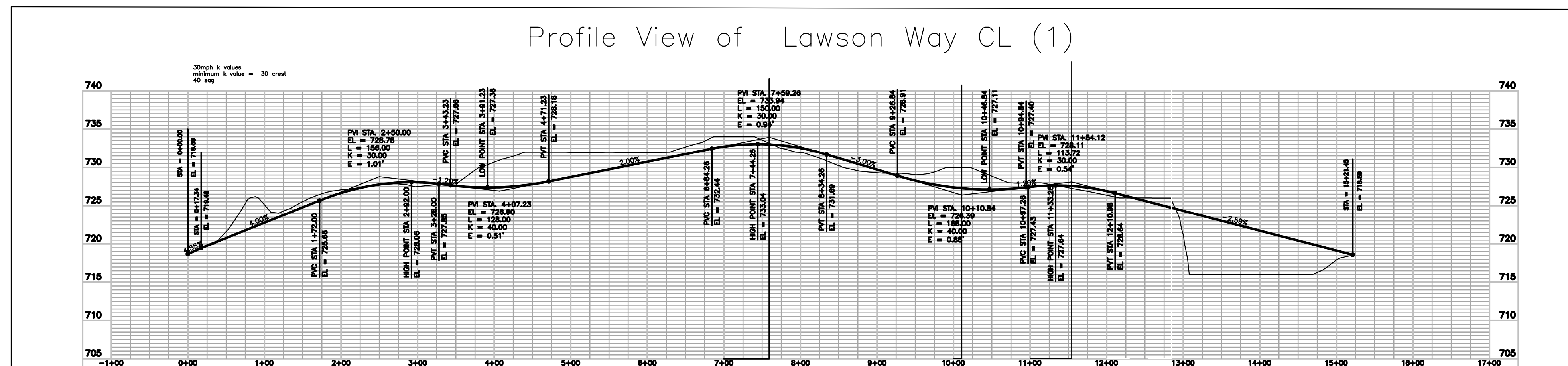
RIGHT-OF-WAY AREA TABLE		
RIGHT-OF-WAY	SQ. FT.±	ACRES±
LAWSON WAY	78,503	1.80



ROADWAY CROSS SECTION 50' R.O.W.

UTILITY NOTE

THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES, ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPEARANCES AT THE SITE, PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES SHOWN ARE CORRECT, COMPLETE, ACCURATE, OR CURRENT. THE SURVEYOR DOES NOT KNOW IF ANY UTILITIES ARE ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF ANY UTILITIES SHOWN SHOULD BE MADE AT THE USER'S RISK. A PROFESSIONAL ENGINEER'S DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY CONSTRUCTION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE DETERMINED PRIOR TO ANY CONSTRUCTION. THE USER SHALL BE RESPONSIBLE TO COMPLY WITH THE "UNDERGROUND UTILITY DAMAGE PREVENTION ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN (3) THREE OWNERS, PRIOR TO ANY EXCAVATION. THE USER SHALL BE RESPONSIBLE TO PROTECT ANY EXISTING UTILITIES, EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD, OR CONFLICT. TENNESSEE ONE CALL 811.



TOTAL AREA = 1,043,881 SQUARE FEET OR 23.96 ACRES ±



Know what's **below**.
Call before you dig.

PRELIMINARY PLAN

**LAWSON
PROPERTY
SUBDIVISION**

FIFTEENTH CIVIL DISTRICT
CITY OF BRENTWOOD, WILLIAMSON COUNTY TN.

OWNER / DEVELOPER

PARTNERS IN BUILDING
8119 ISABELLA LANE
BRENTWOOD, TN 37027
PHONE: (713) 452-1305
CONTACT: CREGG MCGAHA
cregg.mcgaaha@partnersinbuilding.com

SCALE: 1"=100'
DATE: OCTOBER 16TH, 2018
REVISED: APRIL 6, 2020
REVISED: APRIL 21, 2020
REVISED: APRIL 29, 2020

JOB NO. 16-058 W.O. 1203

RAGAN-SMITH

LAND PLANNERS • CIVIL ENGINEERS
LANDSCAPE ARCHITECTS • SURVEYORS

RAGAN-SMITH-ASSOCIATES, INC.
100 E. VINE ST., SUITE 402 MURFREESBORO, TN. 37130
(615) 546-6050 FAX (615) 244-6739 WWW.RAGANSMITH.COM
CONTACT: CHRIS MABERY, RLS
SHEET 1 OF 2



American
Geotechnical and
Environmental, Inc.

June 27, 2016

Mr. Rob Pease
East Brentwood Investment Partners
202 Thornhill Crescent
Brentwood, Tennessee 37027

RE: Lawson Property
Brentwood, Tennessee
AG & E File Number: 2014-054

Dear Mr. Pease,

As requested, we have reviewed the most recent development concept plan for the above referenced property. Following is a restatement of the previous work performed in addition to our recommendations for the proposed residential structures and underground utilities.

The proposed development includes the development of a sixteen (16) lot subdivision as shown on Figure 1. The proposed development will include 1.0 acre lots with a stormwater detention pond within the middle portion of the development.

The Subject Property includes a 24.5 acre tract of land identified on Map 035, Parcel 9.00 that is located on the east side of Wilson Pike about 200 feet south of its intersection with Fallswood Lane as shown on Figure 1. The Subject Property is vacant with a history of fill placement over most of the parcel. Therefore, the purpose of our services was to evaluate the condition of these fill materials and to provide preliminary recommendations for the construction of a new single-family residential subdivision.

The land has a gently rolling terrain with a steep sideslope around the perimeter of the fill area. The fill area is shown on Figure 1 and also includes several stockpiles of fill that apparently was not spread out after it was placed on the property. The majority of the property is grass covered with numerous trees around the perimeter of the fill. The remaining land on the parcel that has not been filled, mostly along the south property line, is heavily wooded.

The fill materials were explored by the excavation of fifteen (15) exploratory test pits with a large track mounted hoe in July 2014. These test pit excavations were performed at the locations shown in Figure 1.

P. O. Box 681237 • Franklin, TN 37068-1237

(615) 791-9768 • Email: agande@comcast.net

The fill materials were found to include a random mixture soil, rock, topsoil, building debris in the form of brick and concrete, and trace amounts of miscellaneous trash. The rock content of the fill ranges trace amounts to more than 50 percent. The limestone rock is typically between 1 to 6 inches in size with numerous boulders that can be up to 9 feet in size. The southern portion of the property also contains a layer of fill beneath the surface that is organic and very soft. This fill material is a dark gray silty clay with variable amounts of rock and trash mixed with the fill. Test Pit No. 9 also found an old filled-in pond. The depth of fill has a wide range of 4.0 to 17.0 feet. The moisture content is mostly in a moist range with some pockets of very moist soil.

The consistency of the fill ranges from soft to medium stiff. Based upon our observations of the test pit excavations, it is our opinion these fill materials have been placed in an uncontrolled manner.

The majority of the test pit excavations extended through the fills to encounter the underlying natural soils. Test Pits No. 4 and 15 were terminated within what appeared to be the fill materials upon limestone boulders that were too large for the trackhoe to remove.

The natural soils include two general conditions. The first condition can be found at Test Pits No. 1 to 3 and No. 8 where the natural soils above the rock are very thin. These test pit excavation found the soil to be 0.7 to 3.5 feet above the limestone rock.

The second condition is a deeper deposit of soil above the rock that has a residual origin, soil that has weathered in-place from the parent bedrock. These test pits include Test Pits No. 5, 6, 7 and No. 9 to 14. The natural residual soils range from soft orangish brown silty clays at Test Pit No. 5 and soft dark gray pond sediment at Test Pit No. 9 to reddish brown to yellowish red colored silty clays at the remaining test pits. These soils typically extend beyond a depth of 19.0 feet below the existing ground surface and exhibit a medium stiff to stiff consistency.

Review of the geologic map for the Franklin Quadrangle identifies the underlying bedrock formation as the Bigby-Cannon Limestone. The Bigby-Cannon Limestone Formation includes 3 facies or sections; the Cannon Limestone, the Dove-Colored limestone and the Bigby Limestone. Based on the presence of the phosphatic soils found in some of the test pits, the site appears to be underlain by the Bigby Limestone. This formation is reported to be a medium to light gray to brownish-gray, coarse grained limestone, medium bedded and phosphatic. The surface of this formation is usually variable due to a high degree of weathering and filled-in solution channels. It should be expected that the bedrock surface elevation will be somewhat inconsistent over the length of the proposed building site.

We presume the final site grading plan will include proposed cut and fill depths of 3 to 10 feet to reshape the erratic ground surface from the uncontrolled fill placement.

The wooded portions of the property around the perimeter of the fill materials represents areas that have not been filled and should not require any special preparations to build a house. The lots that include the majority of the proposed building envelope within non-filled area include Lots 6 to 12.

In general, the fill materials encountered in this study are random mixtures of soil, rock, and other debris that were not placed and compacted in a controlled manner. The random placement of the limestone boulders and the variable compaction of the clay portion of the upper fill materials indicate excessive differential settlement of the building foundations can be expected. Therefore, these fill materials are not suitable for the support of the proposed building foundations in their current condition.

In order to provide more uniform support to the building foundations the structures in the northern portion of the site, where the dark gray fill materials are not present, can be prepared by undercutting and backfilling the dirty shot rock fill as illustrated on Figure 2. This includes Lots 1, 2, and 13 to 16.

The depth of undercut below the design bottom of footing elevation will range from two times the width of the wall footings to one times the width of the column footings. The width of the undercut excavation is to be widened one foot for each foot of undercut depth. The purpose of this part of the recommendation is to be sure the lateral forces from the foundation load distribution is completely contained within the controlled backfill. The resulting excavation can then be backfilled with a properly placed and compacted crushed limestone, such as a crusher run. The foundations can then be dimensioned for a maximum net allowable soil bearing pressure of 2,500 pounds per square foot (psf) for isolated column footings and conventional wall or strip footings.

Should the interior foundations be relatively close together, it may be more economical to mass excavate the entire building area. Should a mass excavation be used, the contractor can backfill with a clean shot rock fill with a maximum particle size of one foot.

The fill soils in the area shown in Figure 1 and explored by Test Pits No. 9, 10, 11, 13, and 14, and within Lots 3 to 5, contain a layer of dark gray soil that is generally soft with an organic odor and also contains limestone boulders and some trash. This creates a concern for excessive settlement and/or differential settlement of these soils. The soft condition of these fill materials will require the building foundation loads to extend below these soils to the more firm natural soils.

This can be accomplished by one of the following methods;

- 1) The unsuitable fill can be completely undercut and backfilled from each building area. We consider this option as unfeasible because of the depth of fill, 7.5 to 17.0 feet below the existing ground surface.

- 2) Extend the building foundation loads through the fill material to be supported by either the natural soil or sound limestone rock. This can be accomplished by the installation of micro-piles or a drilled pier foundation system. The design of a deep foundation system will require the drilling of several exploratory test borings to better define the strength and depth of a suitable bearing stratum. Other design considerations that will be needed with a deep foundation system is negative skin friction on the foundation elements due to future settlements of the fill and the design of the structural grade beams that will be supported by the deep foundations.
- 3) Soil improvement techniques such as rammed aggregate piers can be considered. The depth of the unsuitable fill underlying the proposed buildings ranges from 7.5 to 17.0 feet below the existing ground surface. The installation of rammed aggregate piers improves the subsurface soil conditions to allow for increased bearing capacities and reduce total and differential settlement.

Rammed aggregate piers is a soil improvement technology that improves the strength and stiffness of the supporting soils. The rammed aggregate piers are constructed by building successive layers of densely compacted aggregate in a drilled shaft. The resulting bulb of aggregate in the shaft and the spacing of the shafts displace soil and help to compact the softer soils that are left in place. This soil improvement helps to improve the bearing capacity of the treated soils and to also limit total and differential settlements.

The use of this soil improvement system will allow the foundations to be designed as a conventional foundation system. The final allowable bearing pressure can be determined by the supplier as they provide their own designs. We anticipate the building foundations can be designed using an allowable bearing pressure of 3,000 to 4,000 pounds per square feet (psf). Following is contact information for two suppliers;

Matt Caskey, P.E.
Geopier Foundation Company
5087 Brian Ridge Road
Arlington, TN 38002
Office: 901-867-5369
Cell: 901-289-1414

Mike Marasa, P.E.
Hayward Baker, Inc.
P. O. Box 6
Hermitage, TN 37076-0006
Office: (615)883-6445
Cell: (615) 838-9014

We would also like to point out the presence of the larger limestone boulders within the fill materials will make the drilling of the rammed aggregate piers difficult. The rammed aggregate pier contractors are not normally equipped with rock coring tools and when they encounter refusal they will often relocate the pier to see if they can drill below the

obstruction. The larger rocks that cannot be removed or displaced by the drill rig will require the general contractor to excavate and remove the boulders as needed. The excavation can then be backfilled and compacted with most of the fill materials that were removed, but without the larger boulders. Therefore, some additional funds will be needed for this activity as it is needed.

The existing fill materials currently appear to be suitable for the support of the roads and parking lots. The fill soils possess a normal moisture content that should allow the road subgrade to properly support the loads from a proofroll test. Should soft areas be encountered during construction, they will need to be properly undercut and backfilled to support these pavements.

The use of the fill materials to support building floor slabs-on-grade can be problematic because the floor subgrade can potentially settle more than the building foundations. As a result, the floor slabs will either need to be independent of the building foundations, or the slabs will need to be supported in a similar manner as the foundations.

The limestone rock in the fill indicates any trench deeper than a few feet will need to be properly laid back or braced. Also, all excavations should be properly braced or laid back to meet applicable Occupational Safety and Health Administration (OSHA) requirements. Specifically, OSHA classifies the fill soils as Type C soils. OSHA regulations require the sideslopes of any excavation to be properly braced or laid back on a sideslope of 1.5 horizontal to 1 vertical (1.5:1).

Thank you for the opportunity to be of service to you in this matter. If you should have any questions concerning this or any other matter, please feel free to contact us at your convenience.

Sincerely yours,

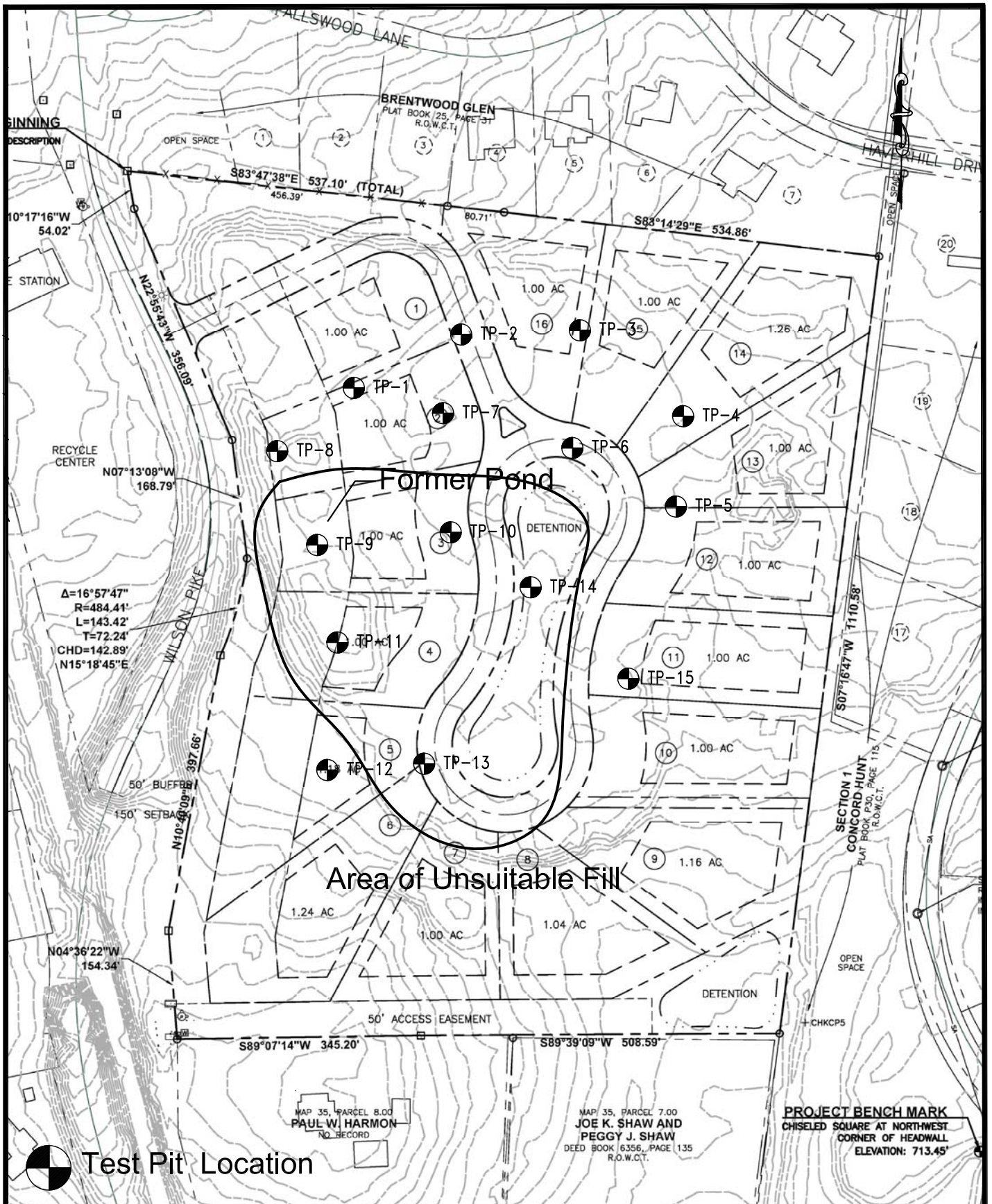
AMERICAN GEOTECHNICAL & ENVIRONMENTAL, INC.



Robert T. Stickney, P.E.
President



Enclosure



TEST PIT LOCATION PLAN

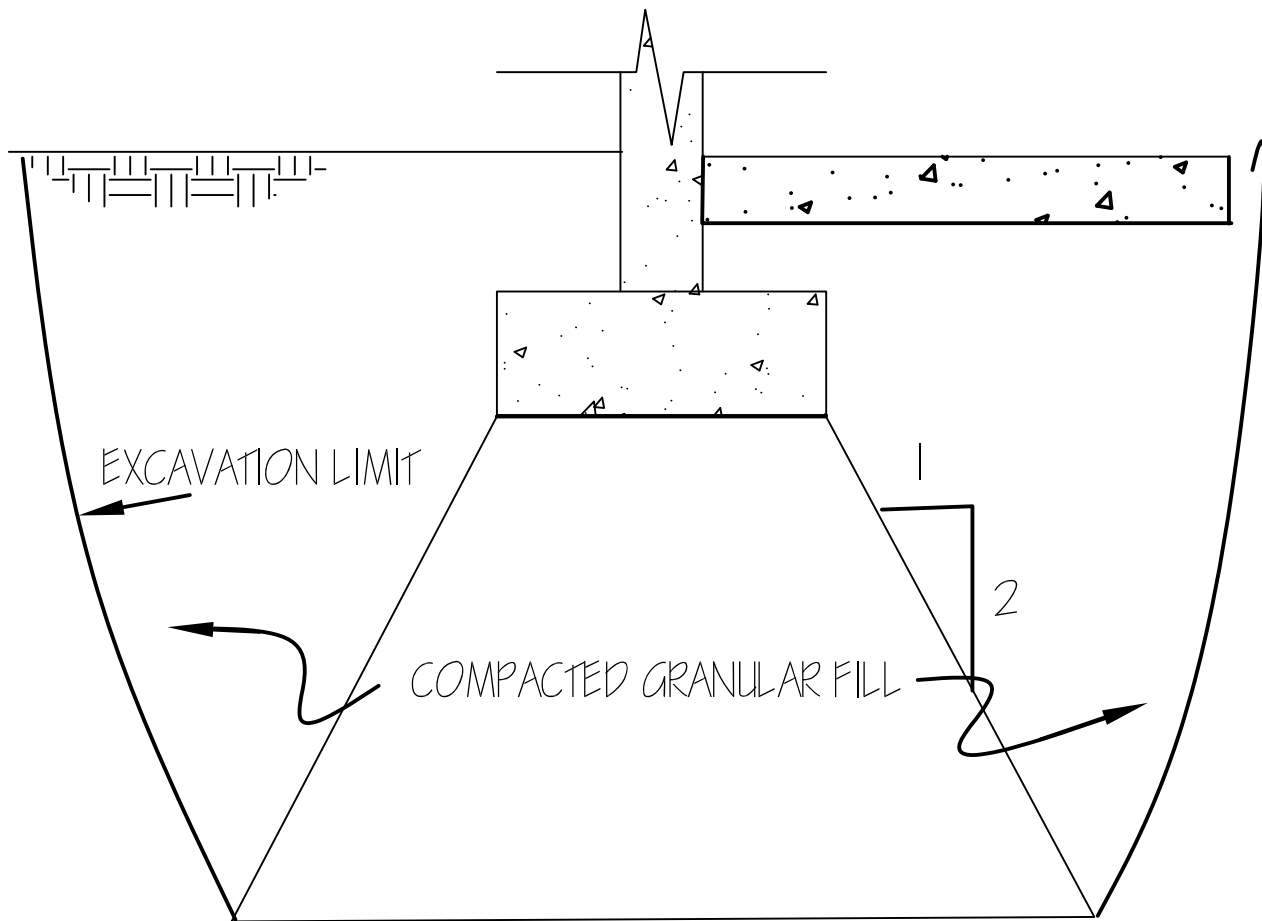
Lawson Property
Brentwood, Tennessee

PROJECT NO.
2014-054

SCALE
1" = 200'

FIGURE NO.
1

**AG
& E**



INCREASE THE WIDTH OF THE FOOTING EXCAVATION 1 FOOT
FOR EACH FOOT OF UNDERCUT DEPTH

UNDERCUT AND BACKFILL ILLUSTRATION

Lawson Property
Brentwood, Tennessee

PROJECT NO.
2014-054

SCALE

FIGURE NO.
2

**AG
& E**



Project: Lawson Property		Project Number: 2014-054		Test Pit No. 1		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 6.3		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay and limestone rock with trace amounts of concrete and brick. Limestone boulders up to 3 feet in size. Moist, medium stiff.			
	4.7					
			Yellowish brown silty clay, moist, stiff.			
	6.3					
			Test Pit discontinued at 6.3 feet on limestone rock.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 2		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 6.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay and limestone rock with trace amounts of concrete and brick. Limestone boulders up to 3 feet in size. Moist, medium stiff.			
	5.3					
	6.0		Yellowish brown silty clay, moist, stiff.			
			Test Pit discontinued at 6.0 feet on limestone rock.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 3		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 12.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Limestone rock and boulders and Brown silty clay. Limestone boulders up to 5 feet in size. Moist, medium stiff.			
	10.5					
			Yellowish brown silty clay, moist, stiff.			
	12.0					
			Test Pit discontinued at 12.0 feet on limestone rock.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 4		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 8.0		Elevation:	Inspector: RTS		Starting Date: 7/24/14	
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay and layers limestone rock. Limestone boulders up to 3 feet in size. Moist, medium stiff.			
	8.0		Test Pit discontinued at 8.0 feet on the apparent top of rock. No residual soil was found so this may also be a very large limestone boulder in the fill.			



Project: Lawson Property		Project Number: 2014-054		Test Pit No. 5		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 18.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay with some topsoil and limestone rock up to 4 feet in size. Moist, soft to medium stiff.			
	4.0					
			Orangish brown to brown silty clay with trace to some fine grained sand, moist, soft to medium stiff.			
	14.0					
			Dark brown phosphatic sandy silty clay, very moist, soft.			
	18.5					
			Test Pit discontinued at 18.5 feet.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 6		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 18.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay and limestone rock up to 5 feet in size. Moist, medium stiff.			
	5.0					
	6.0		Topsoil			
			Yellowish red and reddish brown silty clay, moist, stiff to very stiff.			
	16.5					
	18.0		Dark brown phosphatic sandy silty clay, very moist, soft.			
			Test Pit discontinued at 18.0 feet.			



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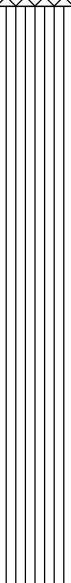
TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 7		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 19.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay with some topsoil and limestone rock up to 4 feet in size. Moist, soft to medium stiff.			
	7.0					
	8.0		Topsoil			
			Reddish brown silty clay, moist, stiff to very stiff.			
	19.0					
			Test Pit discontinued at 19.0 feet.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 9		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 19.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown to dark brown silty clay with some topsoil and limestone rock up to 3 feet in size. Moist, soft to medium stiff.			
	7.0		Dark gray and gray silty clay, moist to very moist, soft. (Pond sediment)			
	16.5		Brown silty clay, moist, stiff.			
	19.0		Test Pit discontinued at 19.0 feet.			



Project: Lawson Property		Project Number: 2014-054		Test Pit No. 10		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 19.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
	7.0		FILL - Dark brown and brown silty clay with topsoil, wood, asphalt, and limestone rock up to 2 feet in size. Moist, soft to medium stiff.			
	9.0		FILL - Dark gray silty clay, with an organic odor and some brick and concrete, very moist, soft.			
	19.0		Orangish brown silty clay, with trace chert, moist, stiff.			
			Test Pit discontinued at 19.0 feet.			



Project: Lawson Property		Project Number: 2014-054		Test Pit No. 11		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 19.5		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Brown silty clay and limestone rock up to 3 feet in size. Moist, medium stiff.			
	7.0					
			FILL - Dark brown and gray silty clay, with some topsoil and limestone rock up to 5 feet in size. Moist, medium stiff.			
	13.0					
			FILL - Dark brown and gray silty clay, with some topsoil, limestone rock up to 5 feet in size, and some miscellaneous trash. Moist, medium stiff.			
	17.0					
			Yellowish brown silty clay, moist, stiff.			
	19.5					
			Test Pit discontinued at 19.5 feet.			



Project: Lawson Property				Project Number: 2014-054		Test Pit No. 12		
Client: Land Innovations, LLC						Sheet No. 1 of 1		
Test Pit Depth (ft.): 12.5		Elevation:		Inspector: RTS		Starting Date: 7/24/14		
Notes:						Ending Date: 7/24/14		
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description			Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.7		Topsoil					
			Orangish brown to yellowish red silty clay, moist, medium stiff to stiff below 4.5 feet.					
	10.5		Dark brown phosphatic sandy silty clay, moist, medium stiff.					
	12.5							
			Test Pit discontinued at 12.5 feet on limestone rock.					



Project: Lawson Property		Project Number: 2014-054		Test Pit No. 13		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 19.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
	7.0		FILL - Dark brown and brown silty clay with topsoil, wood, asphalt, and limestone rock up to 2 feet in size. Moist, soft to medium stiff.			
	15.0		FILL - Dark gray silty clay, with an organic odor and some limestone rock up to 3 feet in size, very moist, soft.			
	19.0		Brown silty clay, moist, stiff.			
			Test Pit discontinued at 19.0 feet.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 14		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 10.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
	4.0		FILL - Dark brown and brown silty clay with topsoil, wood, asphalt, and limestone rock up to 2 feet in size. Moist, soft to medium stiff.			
	7.5		FILL - Dark gray silty clay, with an organic odor and some limestone rock up to 4 feet in size, very moist, soft.			
	10.0		Brown silty clay, moist, stiff.			
			Test Pit discontinued at 10.0 feet on limestone rock.			



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TEST PIT LOG

Project: Lawson Property		Project Number: 2014-054		Test Pit No. 15		
Client: Land Innovations, LLC				Sheet No. 1 of 1		
Test Pit Depth (ft.): 19.0		Elevation:		Inspector: RTS		Starting Date: 7/24/14
Notes:					Ending Date: 7/24/14	
Elev. (Feet)	Depth (Feet)	Lith- ology	Material Description	Moisture Content, (%)	Pocket Penet., (tsf)	Atterberg Limits
	0.1		Topsoil			
			FILL - Dark brown and brown silty clay with topsoil, wood, trash, and limestone rock up to 10 feet in size. Moist, soft to medium stiff.			
	10.3					
	11.5		Yellowish red and brown silty clay, moist, stiff.			
			Test Pit discontinued at 11.5 feet on limestone rock.			

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

More construction problems are caused by site subsurface conditions than any other factor. As troublesome as subsurface problems can be, their frequency and extent have been lessened considerably in recent years, due in large measure to programs and publications of ASFE/The Association of Engineering Firms Practicing in the Geosciences.

The following suggestions and observations are offered to help you reduce the geotechnical-related delays, cost-overruns and other costly headaches that can occur during a construction project.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

A geotechnical engineering report is based on a subsurface exploration plan designed to incorporate a unique set of project-specific factors. These typically include: the general nature of the structure involved, its size and configuration; the location of the structure on the site and its orientation; physical concomitants such as access roads, parking lots, and underground utilities, and the level of additional risk which the client assumed by virtue of limitations imposed upon the exploratory program. To help avoid costly problems, consult the geotechnical engineer to determine how any factors which change subsequent to the date of the report may affect its recommendations.

Unless your consulting geotechnical engineer indicates otherwise, *your geotechnical engineering report should not be used:*

- When the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership, or
- for application to an adjacent site.

Geotechnical engineers cannot accept responsibility for problems which may develop if they are not consulted after factors considered in their report's development have changed.

MOST GEOTECHNICAL "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site exploration identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are extrapolated by geo-

technical engineers who then render an opinion about overall subsurface conditions, their likely reaction to proposed construction activity, and appropriate foundation design. Even under optimal circumstances actual conditions may differ from those inferred to exist, because no geotechnical engineer, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions. *Nothing can be done to prevent the unanticipated, but steps can be taken to help minimize their impact.* For this reason, *most experienced owners retain their geotechnical consultants through the construction stage, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.*

SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions may be modified by constantly-changing natural forces. Because a geotechnical engineering report is based on conditions which existed at the time of subsurface exploration, *construction decisions should not be based on a geotechnical engineering report whose adequacy may have been affected by time.* Speak with the geotechnical consultant to learn if additional tests are advisable before construction starts.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS

Geotechnical engineers' reports are prepared to meet the specific needs of specific individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor, or even some other consulting civil engineer. Unless indicated otherwise, this report was prepared expressly for the client involved and expressly for purposes indicated by the client. Use by any other persons for any purpose, or by the client for a different purpose, may result in problems. *No individual other than the client should apply this report for its intended purpose without first conferring with the geotechnical engineer. No person should apply this report for any purpose other than that originally contemplated without first conferring with the geotechnical engineer.*

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical engineering report. To help avoid these problems, the geotechnical engineer should be retained to work with other appropriate design professionals to explain relevant geotechnical findings and to review the adequacy of their plans and specifications relative to geotechnical issues.

BORING LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final boring logs are developed by geotechnical engineers based upon their interpretation of field logs (assembled by site personnel) and laboratory evaluation of field samples. Only final boring logs customarily are included in geotechnical engineering reports. *These logs should not under any circumstances be redrawn* for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimize the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To minimize the likelihood of boring log misinterpretation, *give contractors ready access to the complete geotechnical engineering report* prepared or authorized for their use. Those who do not provide such access may proceed un-

der the *mistaken* impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes which aggravate them to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because geotechnical engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against geotechnical consultants. To help prevent this problem, geotechnical engineers have developed model clauses for use in written transmittals. These are *not* exculpatory clauses designed to foist geotechnical engineers' liabilities onto someone else. Rather, they are definitive clauses which identify where geotechnical engineers' responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your geotechnical engineering report, and you are encouraged to read them closely. Your geotechnical engineer will be pleased to give full and frank answers to your questions.

OTHER STEPS YOU CAN TAKE TO REDUCE RISK

Your consulting geotechnical engineer will be pleased to discuss other techniques which can be employed to mitigate risk. In addition, ASFE has developed a variety of materials which may be beneficial. Contact ASFE for a complimentary copy of its publications directory.

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PRACTICING IN THE GEOSCIENCES

8811 Colesville Road/Suite G106/Silver Spring, Maryland 20910/(301) 565-2733

**BRENTWOOD PLANNING
COMMISSION**

2.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

BPC2006-005

PROJECT DESCRIPTION

Revised Site Plan – 5301 Maryland Way, Surface Parking

Gresham Smith & Partners requests approval to rework the existing parking lot. The proposal will increase the off-street parking at the site, adding 147 parking spaces for a total of 862. The area of the building will not be affected.

A traffic impact study was provided as part of the submittal. The City's traffic engineer has reviewed the study. He did not have any significant comments related to the study.

The proposed off-street parking improvements to the office complex involve the reconfiguration, and resurfacing, of a portion of the existing available parking area. Asphalt pavement, concrete sidewalks, site lights, and ADA signage will be updated, along with improved stormwater infrastructure to treat and detain runoff per the City's Stormwater Management Program. Erosion Protection & Sediment Control (EPSC) measures will be implemented across the project site and permitted by TDEC.

SITE CALCULATIONS	
<i>Lot Area</i>	<i>11.99 Acres</i>
<i>Building Area</i>	<i>200,779 Sq. Ft.</i>
<i>Parking Required</i>	<i>669</i>
<i>Existing Spaces</i>	<i>715</i>
<i>Proposed Spaces</i>	<i>862</i>
<i>Accessible Spaces Required</i>	<i>18</i>
<i>Accessible Spaces Provided</i>	<i>19</i>
<i>Compact Spaces Provided (19%)</i>	<i>166</i>
<i>Compact Spaces Permitted (20%)</i>	<i>172</i>
<i>Green Space Existing</i>	<i>28%</i>
<i>Green Space Proposed</i>	<i>27%</i>

Construction traffic will enter the site from the south access on Winners Circle.

Section 78-457 of the Code requires that sites that provide a total of 501 to 1,000 parking spaces set aside 2% of the total provided spaces or 18 for this site as accessible parking spaces.

ZONING OF PROPERTY

Zoning C-1

APPLICANT NAME/ADDRESS

Mr. John Rudolph, Gresham Smith & Partners, 222 2nd Ave. S., Suite 1400, Nashville, TN 37201

Attachments

Final Staff Report
Cover Sheet
Existing Conditions
Demo Plan
Site Layout Plan
Grading & Drainage
EPSC Plans
Landscape Plan
Photometric Plan
Traffic Impact Study

CITY OF BRENTWOOD
MUNICIPAL PLANNING COMMISSION
PLANNING DEPARTMENT STAFF REPORT
MONDAY, JULY 6, 2020 -- 7:00 P.M.
FINAL

REGULAR AGENDA -- ITEM 1:

REQUEST: **REVISED SITE PLAN – 5301 MARYLAND WAY**

PROJECT NUMBER: **BPC2006-005**

CURRENT ZONING: **C-1 -- COMMERCIAL OFFICE**

GENERAL INFORMATION:

Gresham Smith & Partners requests approval to rework the existing parking lot. The proposal will increase the off-street parking at the site, adding 147 parking spaces for a total of 862. The area of the building will not be affected.

A traffic impact study was provided as part of the submittal. The City's traffic engineer has reviewed the study. He did not have any significant comments related to the study.

The proposed off-street parking improvements to the office complex involve the reconfiguration, and resurfacing, of a portion of the existing available parking area. Asphalt pavement, concrete sidewalks, site lights, and ADA signage will be updated, along with improved stormwater infrastructure to treat and detain runoff per the City's Stormwater Management Program. Erosion Protection & Sediment Control (EPSC) measures will be implemented across the project site and permitted by TDEC.

SITE CALCULATIONS	
Lot Area	11.99 Acres
Building Area	200,779 Sq. Ft.
Parking Required	669
Existing Spaces	715
Proposed Spaces	862
Accessible Spaces Required	18
Accessible Spaces Provided	19
Compact Spaces Provided (19%)	166
Compact Spaces Permitted (20%)	172
Green Space Existing	28%
Green Space Proposed	27%

Construction traffic will enter the site from the south access on Winners Circle.

Section 78-457 of the Code requires that sites that provide a total of 501 to 1,000 parking spaces set aside 2% of the total provided spaces or 18 for this site as accessible parking spaces.

PROJECT LOCATION:

The subject property is located at 5301 Maryland Way.

APPROVAL HISTORY:

There has been no recent Planning Commission action related to the subject property.

CONDITIONS OF APPROVAL

*Staff recommends that the following **seven** conditions be attached to the approval of the request.*

1. All water and sewer castings/boxes (manhole lids, valve boxes, cleanouts, etc.) shall be raised to final grade if grading adjustments occur within the grass or pavement.
2. Any construction to the parking areas should not revise or impact the inbound or outbound traffic at each access. Full access shall be maintained upon completion of the parking reconstruction.
3. The internal gates within the parking lots shall be removed. Gates should not be part of the parking reconstruction.
4. A stormwater maintenance plan shall be provided with the future construction submittal, meeting City Code.
5. A right of entry must be secured from the Property Owners Association (POA) for installation of the 15" reinforced Concrete Pipe (RCP). The right of entry shall be secured before any permits will be issued for the project.
6. The applicant shall pay for the traffic impact study review, completed by the City's transportation consultant, per the requirements of Section 50-29(b) of the Code. Payments must be made before any permits will be issued for the project.
7. A site plan shall be vested for a period of three years from the date of the original approval.

STANDARD REQUIREMENTS:

*Staff recommends that the following **11** standard requirements be attached to the approval of the request.*

1. Add the following note to the site plan;

*This site plan is subject to a three-year vesting period, during which the development standards in effect on the date of approval will remain the standards applicable to this plan. If construction is not completed during the first three years, the original site plan is considered a preliminary site plan and the applicant must obtain approval of a final site plan. Development of the property shown on this plan may be subject to standards other than those that were applicable during the vesting period. The Initial vesting period for this plan expires on **July 6, 2023**, unless extended by the City of Brentwood. Persons*

relying on this plan after said date should contact the City of Brentwood to determine if development may continue as depicted on the plan.

2. When the construction authorized pursuant to a site plan is not completed within three years from the date of initial approval, but the applicant desires to complete the project proposed for the site, the plan as initially approved for the project or as amended shall be considered a preliminary site plan. If the applicant secures all necessary permits, commences site preparation and obtains approval of a final site plan within the three-year vesting period following approval of the preliminary site plan, then the vesting period shall be extended an additional two years beyond the expiration of the initial three-year vesting period. During the two-year extension, the applicant must commence construction and maintain any necessary permits to remain vested.
3. If necessary permits are maintained and construction, as defined by Section 78-43, has commenced by the end of the two-year extension, then the vesting period shall remain in effect until the Planning and Codes Department has certified final completion of the project, provided the total vesting period shall not exceed ten years from the date of approval of the preliminary site plan.
4. If the construction authorized pursuant to a site plan is completed within three years from the date of approval, the site plan shall then be considered the final site plan for the project.
5. Remove the note on sheet C101 regarding the likely removal of trees near the entrance.
6. The property owner is responsible for all development fees including water and sewer service and tap fees, building permit fees and Public Works Project Fees. The required fees shall be used for future infrastructure related improvements required by the proposed development.
7. Deviations from the approved plan in the development of a project or the failure to satisfy any standard requirements or special conditions of approval imposed by the planning commission will be considered a violation of the provisions of the Zoning Ordinance, which shall be subject to punishment as provided in Section 1-9 of the Brentwood Municipal Code. The City may also require the applicant to appear before the Planning Commission to address any deficiencies or unapproved modifications. The project may also be subject to delays in issuance of permits, certificates of occupancy, recordation of plats or other project approvals.
8. Complete plans shall be submitted to the Planning and Codes Department for review, approval and issuance of the required permits before any work is begun.
9. Any changes to plans approved by the Planning Commission will require staff review and re-approval by the Planning Commission.
10. Development of this project shall comply with all applicable codes and ordinances of the City of Brentwood.

11. Approval of the proposed plan shall be limited to the illustrations and plans presented to the Planning Commission for review and approval on **July 6, 2020**. Any changes to Planning Commission approved plans and specifications will require staff review and re-approval by the Planning Commission.

RECOMMENDATION:

Staff requests that the Planning Commission approve the proposed revised site plan, subject to the requirements of the staff report.

Sec. 78-457. Handicapped parking standards.

All off-street handicapped parking spaces shall conform to the federal Americans with Disabilities Act requirements and be designated as reserved for the physically handicapped by a sign showing the symbol of accessibility. The following minimum standards shall be met:

- (1) *Location.* Parking spaces designated for the physically handicapped shall be located to provide the shortest possible accessible circulation route to an accessible entrance of the building.
- (2) *Number.* The number of parking spaces to be reserved for the handicapped shall be as follows:

Number of Parking Spaces to be Reserved for Handicapped	
Total Spaces	Number of spaces to be reserved for handicapped
Up to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2 % of total
Over 1000	20 plus 1 for each 100 over 1000

6.0 CONCLUSIONS & RECOMMENDATIONS

The analyses included in this report indicate that the impacts of the proposed Comdata site parking redesign will have minimal impact on the external roadway network. Based on the analyses presented in this report, the recommendations are as follows:

- Any construction to the parking areas should not revise or impact the inbound and outbound traffic at each of the exiting access locations to the site. Full access should be maintained upon completion of the parking reconstruction.
- As discussed previously, on the Comdata site, there are currently portions of the internal parking areas that are gated. All existing internal gates should be removed. No gates should be part of the parking reconstruction.

In conclusion, the analyses contained in this study indicate that the proposed project will have minimal impact on the external roadway network. Peak hour levels of service are expected to remain good at the intersections studied.

Sec. 50-29. Fees.

- (b) In addition to the above fees, the city's planning department may require the applicant to pay special fees for the cost of outside services obtained by the city for review and analysis of development proposals. Such outside services may be used to determine if revisions and/or additional improvements are needed to ensure the proposal's compliance with the technical and development standards of this Code and to meet generally accepted engineering, design and safety standards. Outside services may include, but are not limited to, traffic impact and vehicle driveway access studies, landscape and architectural review, and roadway and drainage design. Prior to initiating outside professional review and processing the application for consideration by the planning commission, the planning director shall collect a cash deposit from the applicant in an amount sufficient to cover the estimated cost of services. In addition, the planning commission may direct that outside services not previously sought by the planning department be obtained, with the estimated cost to be deposited with the city by the applicant, before further consideration will be given to an application. In the event a deposit exceeds the actual amount billed to the city for such services, a refund shall be issued to the applicant. Any additional costs not covered by the initial deposit shall be paid by the applicant upon notice of the amount due by the planning department. Approval of any application by the planning commission shall be contingent upon receipt of all amounts due to the city by the applicant under this section.

June 22, 2020
N-S Project No. 11258.999

Mr. Jeff Dobson
City of Brentwood
Director, Planning & Codes Department
5211 Maryland Way
Brentwood, TN 37027

**Subject: Review of Traffic Impact Study
Comdata Site Revision**

Dear Jeff:

Per your request, we have conducted a review of the referenced traffic study. Owners and tenants of the existing Comdata office building seek approval to modify the site by reconfiguring and increasing the off-street parking for the property. The city of Brentwood has received a traffic study in support of the proposal and subsequently forwarded the report to Neel-Schaffer for purposes of an independent technical review.

Our review feedback on the report's analysis methodology and conclusions. We present this information as points of emphasis and to promote further discussion of the proposal. We provide our comments as technical input to assist city staff and planning commissioners in their review of the request.

The following information documents items that we found to be noteworthy during our review of the traffic impact study (TIS):

Existing Conditions

- Our review confirmed that the traffic study considered three existing project access locations and the signalized intersection of Maryland Way at Winners Circle as its study area. The Comdata site is proposed to increase parking from 715 total spaces to 867 total spaces, but the office space itself will not increase in size.
- Due to impacts from the COVID-19 pandemic, current traffic counts were not collected for the study intersections. However, historic traffic counts were documented for Maryland Way at Winners Circle as collected by All Traffic Data, Inc. from a previous study in 2015 for the AM and PM peak periods.
- We reviewed the study's documentation of intersection turning movement counts. We found the results to be consistent with the raw field data presented in the study's appendix.

Background Conditions

- The TIS documented the future horizon (build-out) year to be 2022.
- The study referenced and analyzed historical daily traffic data to estimate future year traffic volumes. The TIS estimated an annual growth rate based on historical traffic data maintained by TDOT. The study used the growth rate to forecast traffic volumes from 2015, when counts

210 25th Avenue North, Suite 800, Nashville, TN 37203, 615.383.8420, Fax 615.383.9984

were taken, to the future horizon year of 2022. The TIS assumed a growth rate of 1% per year. We find this assumed growth rate to be a reasonable assumption.

- Upon applying the growth rate to the existing (2015) traffic volume data, the traffic study forecasted traffic demand that will be present in the design year without the proposed site change. This methodology allows for a baseline comparison to proposed conditions. Our review found that the study followed customary procedures in establishing the Background traffic model scenario.

Proposed Conditions

- The TIS prepared an estimate of vehicle trips at the site based on the proposed parking modifications at the Comdata site.

The study began by preparing trip generation analysis to establish the number of trips visiting the site. We found that the analysis followed typical procedures using guidelines from ITE's Trip Generation handbook.

We reviewed the study's calculations for trip generation and found the results to be consistent with ITE practices and documentation. The study referenced the site's land use type as "land use code 710", which signifies general office. We view this as an appropriate assumption.

- The study made assumptions and provided documentation of the site's trip distribution and trip assignments. This methodology is used to approximate the direction of travel as vehicles enter and leave the development. The results provide estimates of the projected traffic loading on the surrounding road network.

We reviewed the TIS forecast for trip distribution and found them to be reasonable. The report's documentation incorporated comments from City and Neel-Schaffer staff that were provided early in the study development. The study predicted that 60% of site trips would travel from the east via Maryland Way, 20% from the west via Maryland Way, and 20% from the south via Winners Circle. In addition to these assumptions, the study predicted that 43% of the site trips would enter/exit for the existing southern access, 27% from the existing northern access, and 30% at the existing western access.

- The traffic study documented the proposed conditions traffic model at project build-out. We found the study's tabulation of proposed condition traffic volumes to be generally consistent with available documentation.
- Proposed capacity analysis of the intersection of Maryland Way at Winners Circle was based on HCM (Highway Capacity Manual) 2010 methodology using Synchro. We found some inconsistency in the peak hour factor used for all approaches based on the traffic data included in the appendix. We advise that the capacity analysis for this intersection could be updated to reflect a consistent use of peak hour factor for each approach. However, we do not expect this to significantly impact the study's results, and therefore, we do not view this change as a requirement.
- Proposed capacity analyses for the project access points was based on HCM 2010 methodology using HCS 2010 for side-street stop control conditions. We note that an updated version of the traffic analysis software (HCS7) is now available based on methodology from



HCM 6th Edition. We expect that LOS analysis will have similar results based on the different references.

- The traffic study investigated the need for an exclusive southbound right turn lane at the southern access point. The traffic study referenced TDOT guidelines for a left turn lane while conducting this analysis, stating that TDOT procedures allow for this methodology to also be used for right-turn lane assessments. Alternatively, we suggest that analysis for right-turn lanes should reflect methodology found in report *NCHRP 457*, which is customary practice. We take no exception to the study's conclusion that a dedicated right-turn lane is not warranted under proposed conditions.

Summary of Conclusions

The following summarizes the conclusions as provided by the traffic study:

- Sight distances for existing driveway accesses were deemed acceptable based on the *Geometric Design of Highways and Streets, 6th Edition* (Green Book).
- Any construction to the parking areas should not revise or impact the inbound and outbound traffic at each of the existing access locations to the site. Full access should be maintained upon completion of the parking reconstruction.
- All existing internal gates should be removed. No gates should be part of the parking reconstruction.

Below, we summarize our comments regarding the study's recommendations and provide additional thoughts for review and consideration by city officials.

- We believe there is likelihood for some impact to traffic circulation during construction of the parking improvements. We suggest that the traffic study provide general comment on the need to monitor conditions during construction activities and possible mitigation.
- We take no exception to the recommendation of removing existing internal gates within the parking area.
- We suggest that the analysis results from the TDOT right-turn lane warrant review should be compared to results referencing the methodology from *NCHRP 457* to confirm consistent outcomes. We expect no significant difference in findings.

Thank you for allowing us the opportunity to assist the city with this review. If you have any questions or need additional information, please let us know.

Sincerely,
NEEL-SCHAFER, INC.



Gregory Judy, P.E., PTOE
Engineer Manager/Vice President



SITE DEVELOPMENT PLANS FOR

5301 MARYLAND WAY

WILLIAMSON COUNTY

BRENTWOOD, TN

GS&P PROJECT NO. 44466.00

OWNER / DEVELOPER

BOF TN 5301 MARYLAND LLC

5 Concourse Parkway Suite 500
Atlanta, GA 30328

Owner Contact: Keith Everett

Phone: 404.594.7801

email: Keith.Everett@bridgeig.com

CIVIL ENGINEER



222 Second Avenue South, Suite 1400
Nashville, TN 37201

Civil Contact: Brian Diggs, PE

Phone: (615) 770 - 8157

Email: brian.diggs@greshamsmith.com

Civil EOR: Mike Hunkler, PE

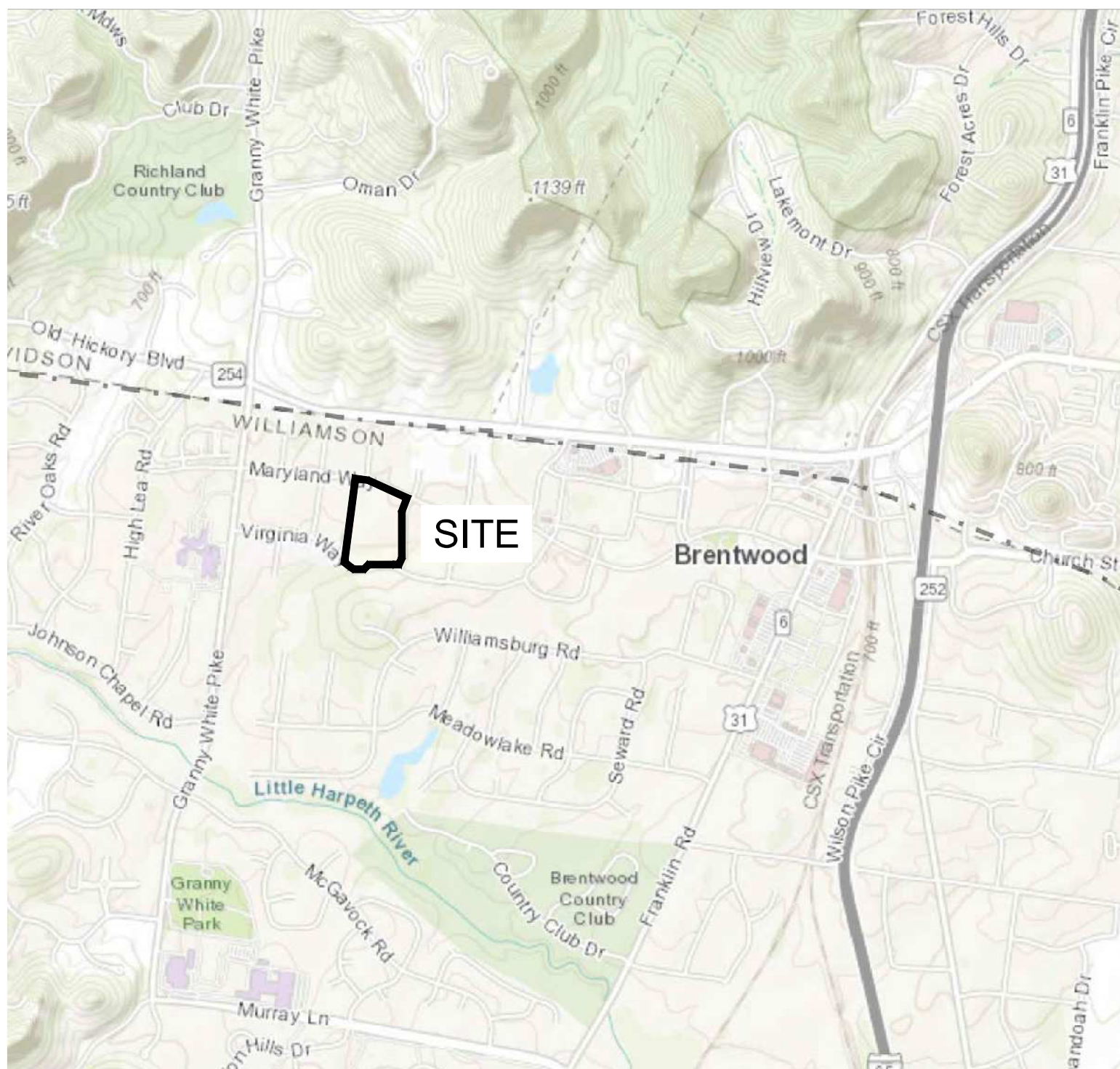
Phone: (615) 770 - 8156

Email: mike.hunkler@greshamsmith.com

Landscape Architect Contact: Trey Rudolph, PLA

Phone: (615) 770 - 8148

Email: trey.rudolph@greshamsmith.com



VICINITY MAP

NOT TO SCALE

The proposed off-street parking improvements to the commercial office complex at 5301 Maryland Way involves the reconfiguration, and resurfacing, of a portion of the existing available parking area. Asphalt pavement, concrete sidewalks, site lights, and ADA signage will be updated, along with improved stormwater infrastructure to treat and detain runoff per the City of Brentwood's Stormwater Management Program. EPSC measures will be implemented across the project site and permitted by TDEC. We are unaware of any site improvements since the last building addition.

PROJECT SITE IS CONSIDERED AN "AREA OF MINIMAL FLOOD HAZARD
ACCORDING TO FEMA FLOOD MAP 47187C0091F eff. 09/29/2006.
PROJECT ZONING IS C-1 COMMERCIAL OFFICE.

Gresham Smith

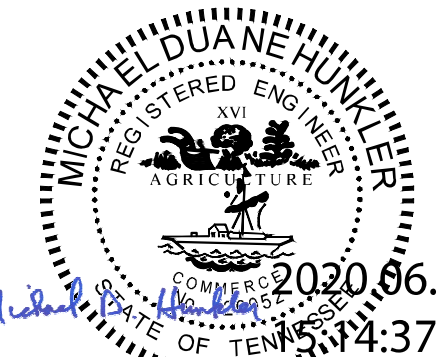
GreshamSmith.com

222 Second Avenue South
Suite 1400
Nashville, TN 37201

615.770.8100

5301 MARYLAND WAY

PC CIVIL SET



2020.06.15

37 -05'00

Revision

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COVER SHEET

C000

44466.00
2020.06.01

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222 Second Avenue South
Suite 1400
Nashville, TN 37201
615.770.8100

5301 MARYLAND WAY

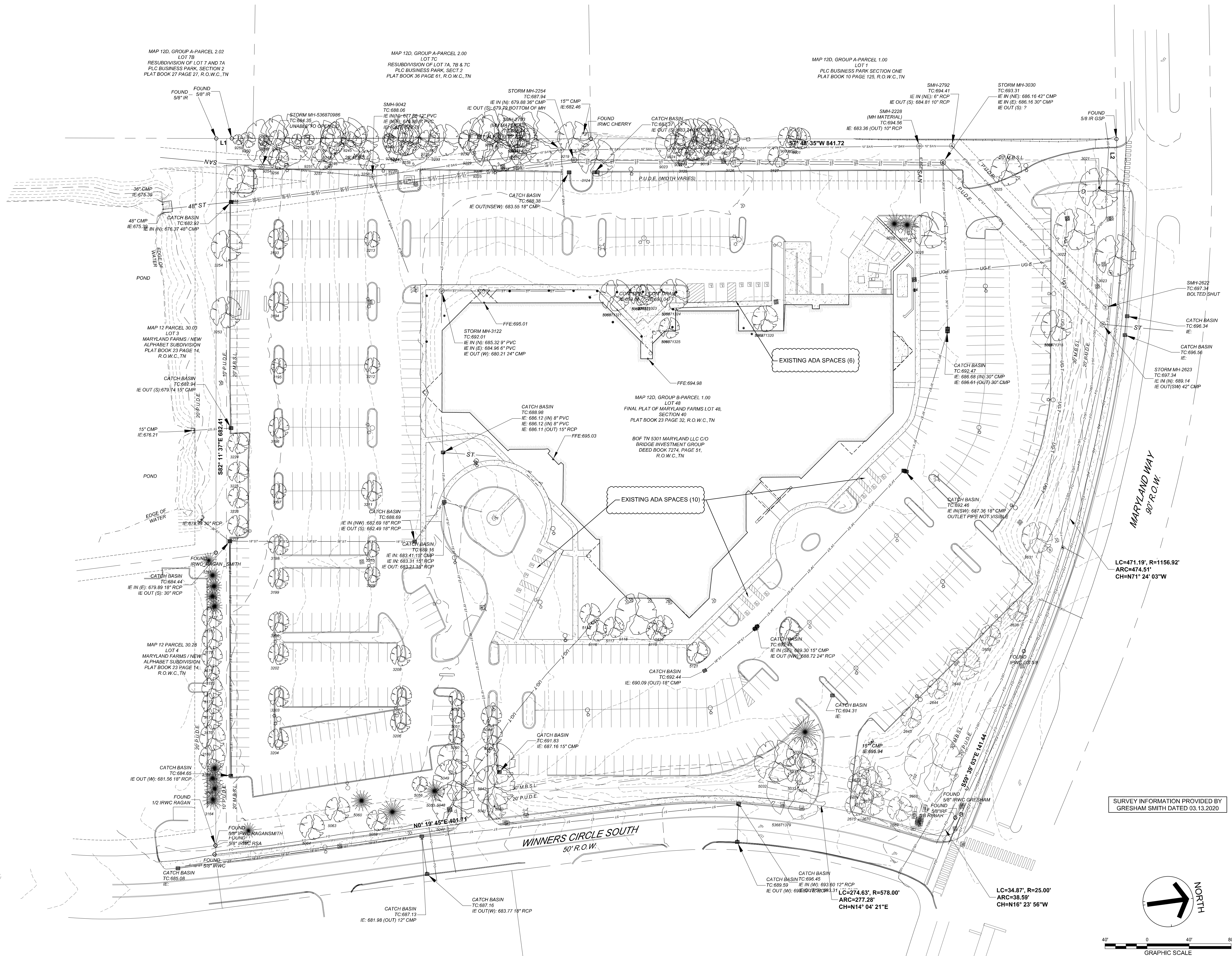
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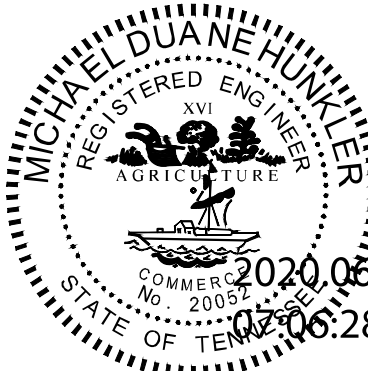




222 Second Avenue South
Suite 1400
Nashville, TN 37201

5301 MARYLAND WAY

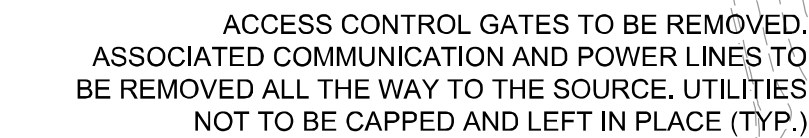
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TRIM BUSHES AS NECESSARY TO PERFORM CURB WORK. CONTRACTOR TO REPLACE IN KIND IF BUSHES REQUIRE REPLACEMENT.

TREE TO BE
REMOVED (TYP.)

SEE SHEET C301 FOR STORM
REWORK ON THIS INLET.

CURB TO BE REMOVED

CURB INLET TO REMAIN

EXISTING ISLAND AND GRASSED AREAS
REQUIRE FULL DEPTH ASPHALT TO BE
PLACED (TYP.)

CURB TO REMAIN

CONSTRUCTION FENCE

FENCING (TYP.)

ELECTRICAL BOX TO REMAIN.

✓ CONTRACTOR TO COORDINATE WITH WELL
COMPANY TO ADJUST RIM OF EXISTING
WELL IN THIS LOCATION.

— LIGHT POLE TO BE RELOCATED
OUTSIDE NEW PAVING LIMITS (TYP.)

CONTRACTOR TO REPLACE EXISTING STORM
CURB INLETS WITH AREA DRAINS. CONTRACTOR
TO MATCH EXISTING TOP OF CASTING ELEVATION.

AWCUT LINE

EXISTING STAIRS TO REMAIN

— STORM MANHOLE TO REMAIN

— FIRE HYDRANT AND FDC TO REMAIN

— CURBING TO BE REMOVED (TYP.

STORM STRUCTURES TO BE
ADJUSTED AND REMAIN.

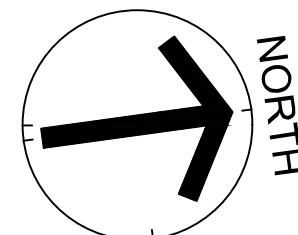
LAG POLE TO BE RELOCATED

FIRE HYDRANT TO BE RELOCATED.

ACCESS CONTROL GATES TO BE REMOVED.
ASSOCIATED COMMUNICATION AND POWER LINES TO
BE REMOVED ALL THE WAY TO THE SOURCE. UTILITIES
NOT TO BE CAPPED AND LEFT IN PLACE (TYP.)

SAWCUT LINE

CONSTRUCTION TO BE PHASED SUCH THAT
PARKING AVAILABILITY AND ACCESS TO
BUILDING IS MAXIMIZED FOR TENANTS
THROUGHOUT THE DURATION OF THE PROJECT.



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Suite 1400
Nashville, TN 37201

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5301 MARYLAND WAY

PC CIVIL SET



Revision

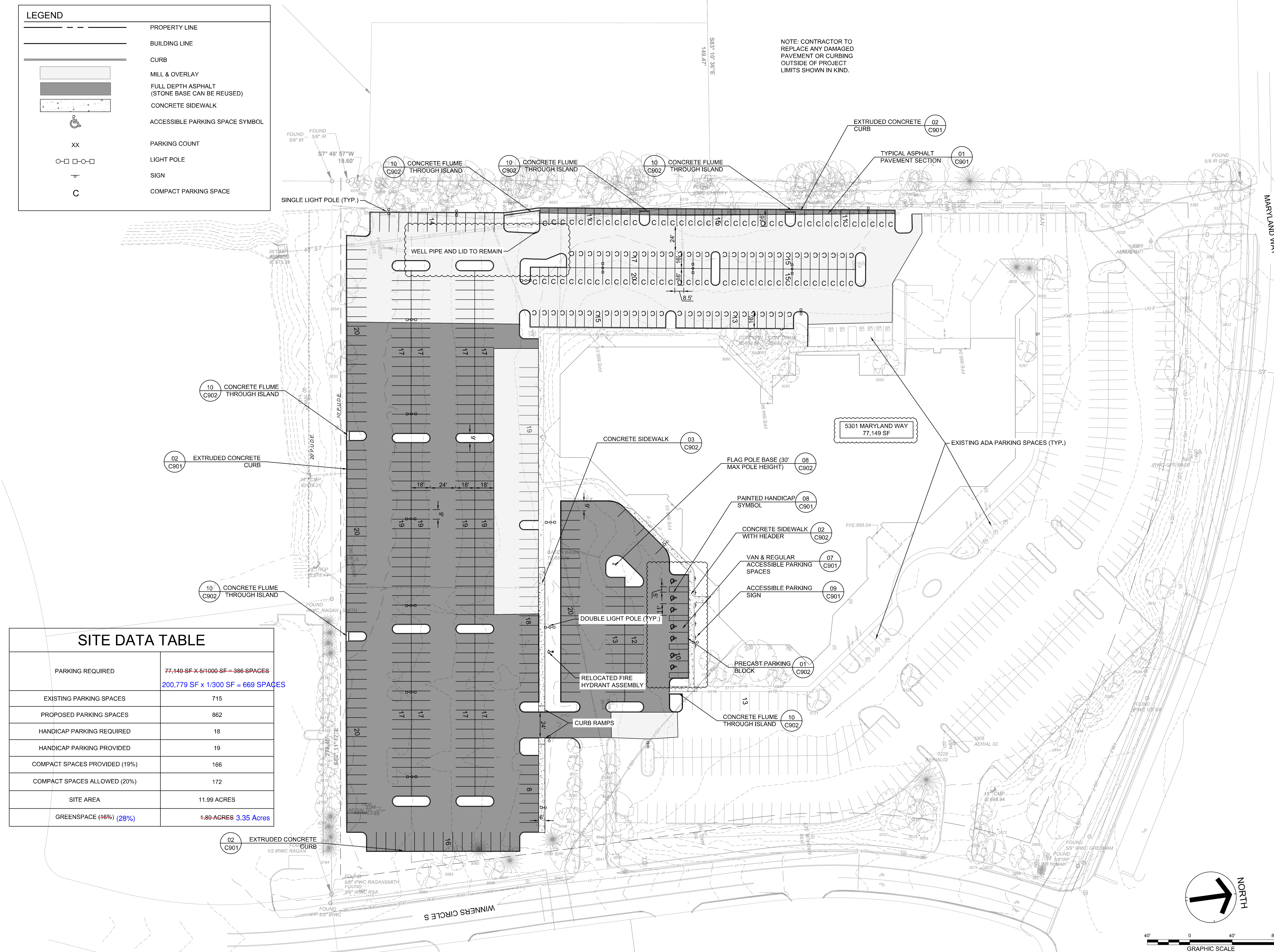
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SITE LAYOUT PLAN

C201

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Suite 1400
Nashville, TN 37201

5301 MARYLAND WAY

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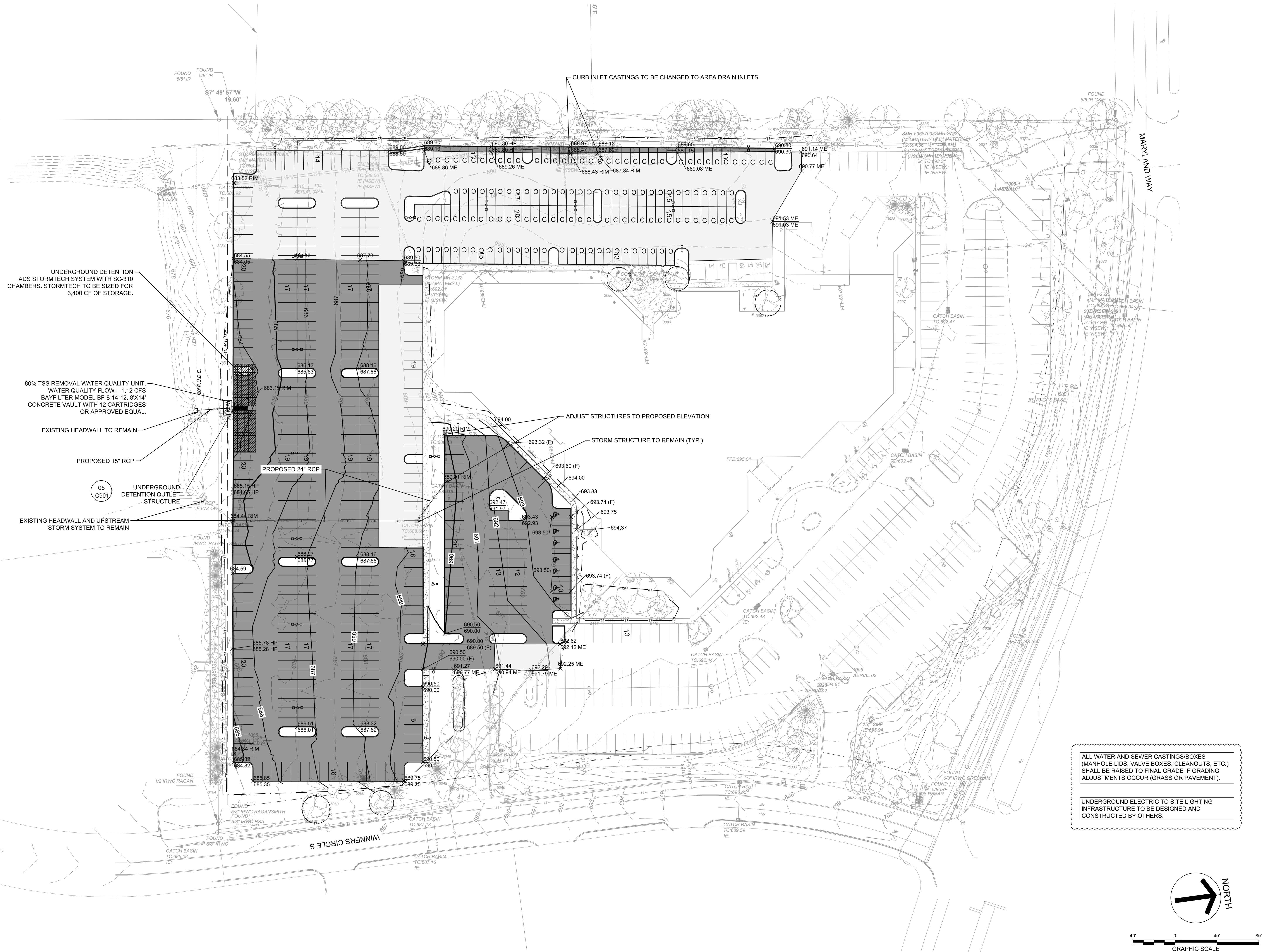
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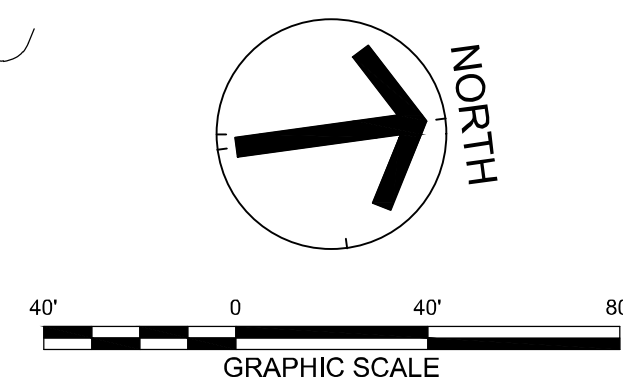
GRADING & DRAINAGE PLAN

C301

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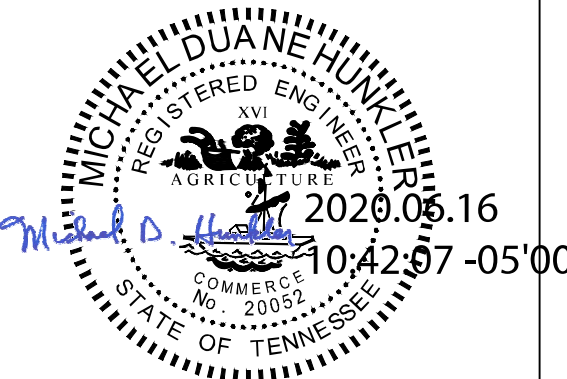
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5301 MARYLAND WAY

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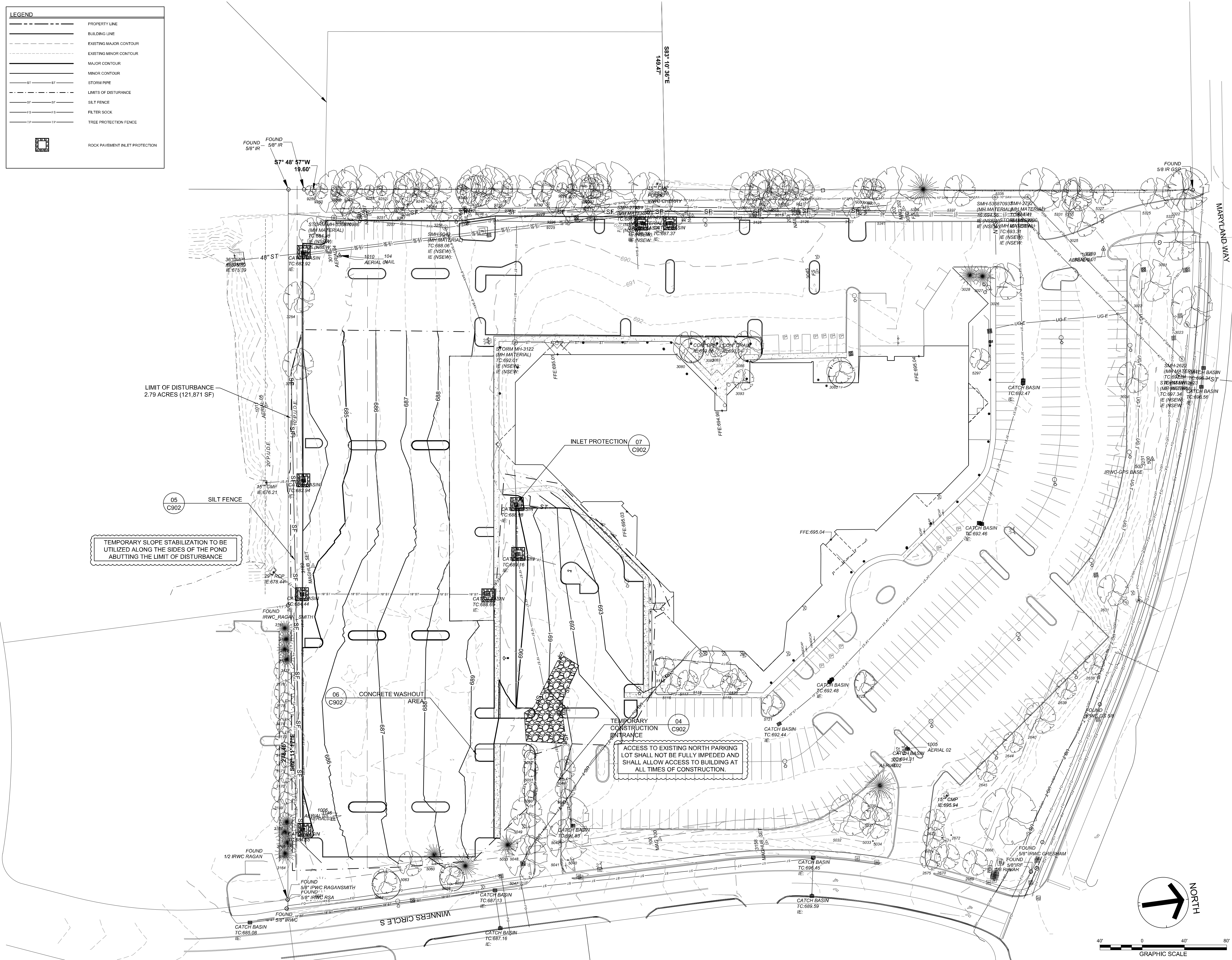
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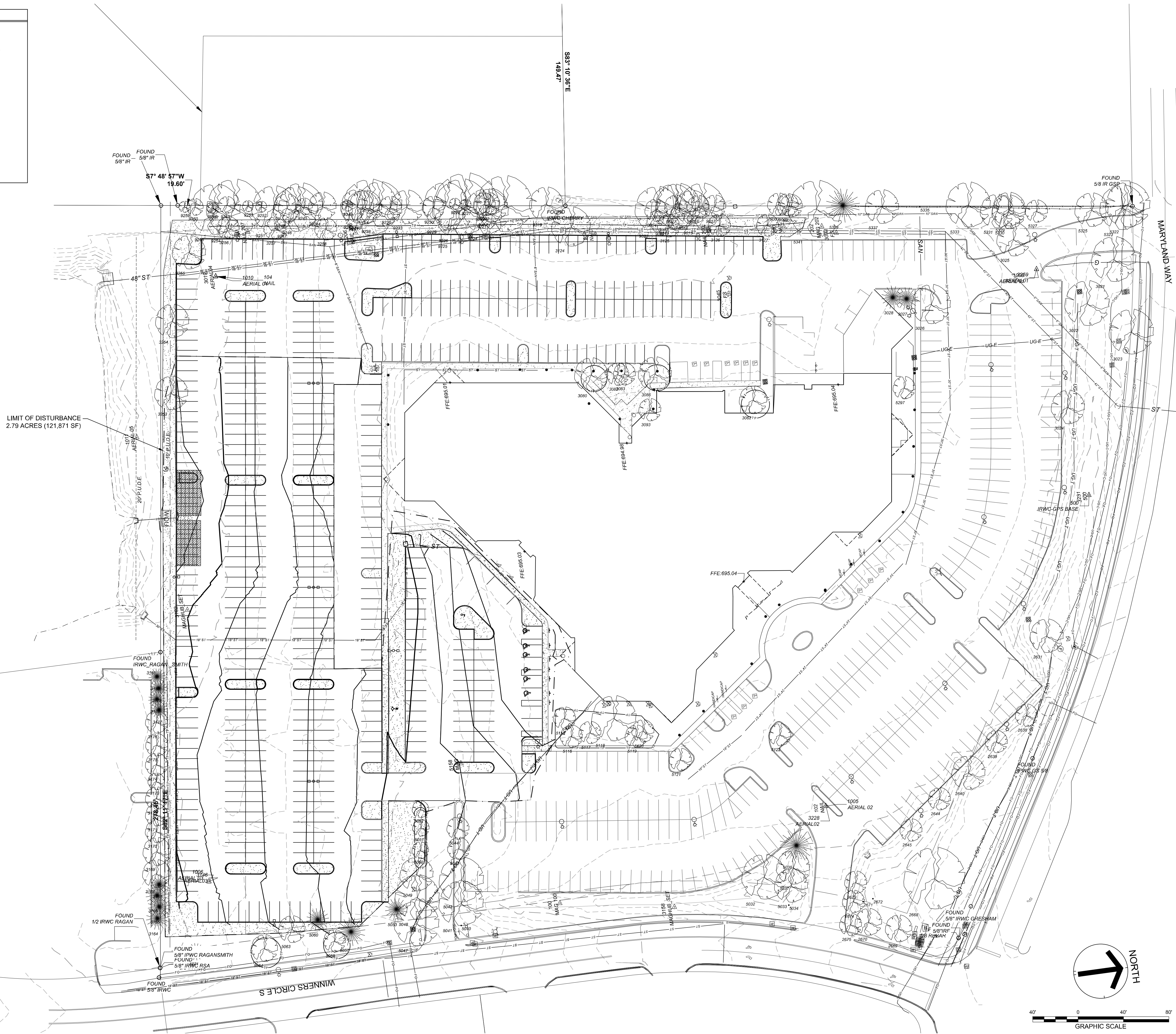
INTERMEDIATE EPSC PLAN

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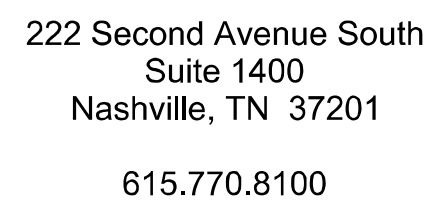


EXISTING TREES TO BE PRESERVED
(247" TOTAL)
P2-26" OAK
P2-12" MAGNOLIA
P3-24" MAGNOLIA
P4-18" PINE
P5-10" HACKBERRY
P6-9" OAK
P7-6" HACKBERRY
P8-7" OAK
P9-10" HACKBERRY
P10-8" OAK
P11-10" OAK
P12-10" OAK
P13-9" HACKBERRY
P14-18" HACKBERRY
P15-12" HACKBERRY
P16-8" OAK
P17-7" HACKBERRY
P18-6" HACKBERRY
P19-8" BIRCH
P20-12" BIRCH
P21-7" BIRCH
P22-10" BIRCH

	IRRIGATION COVERAGE AREA
	AREA TO BE SODDED WITH KY-31 FESCUE
	AREA TO BE SEEDDED WITH KY-31 FESCUE AT THE RATE OF 5 LBS. PER 1,000 S.F. MULCH SEEDED AREA WITH 1.5 BALES OF STRAW PER 1,000 S.F.

CONTRACTOR SHALL PROVIDE A FULLY AUTOMATIC
IRRIGATION SYSTEM FOR THE AREAS SHOWN BY THE PLAN
(RETROFIT EXISTING SYSTEM)

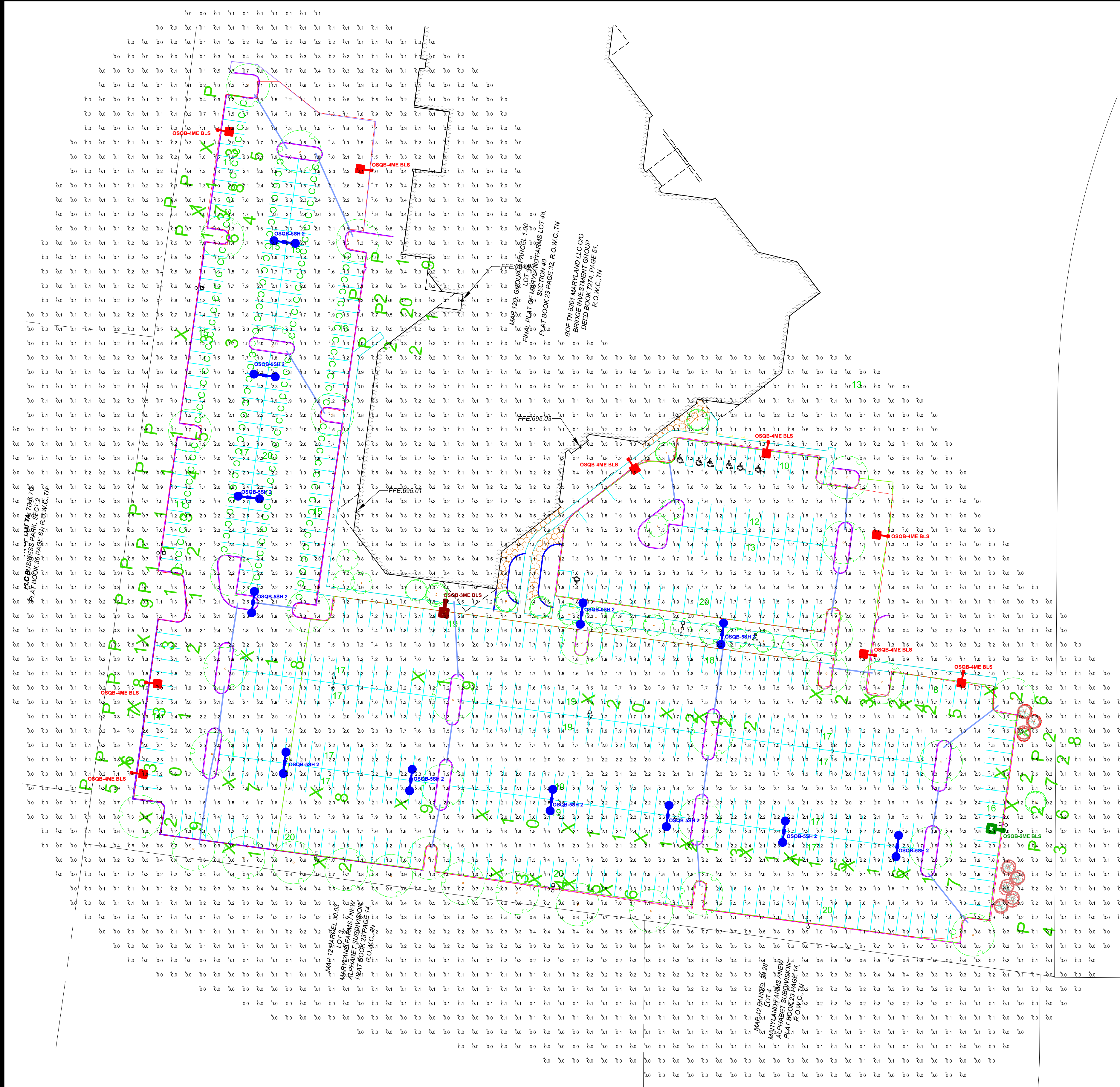
PLANT SCHEDULE						
TREES	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>QTY</u>	<u>REMARKS</u>
ACE BUE	Acer buergerianum	Tidmon Maple	B & B	2"Cal	8	single trunk
CER CAN	Cercis canadensis	Eastern Redbud	B & B	2"Cal	10	single trunk
CRY JAP	Cryptomeria japonica 'Yoshino'	Yoshino Cryptomeria	B & B	2" cal./6" ht.	5	full to base
LAG MIA	Lagerstroemia x 'Miami'	Miami Crape Myrtle	B & B	2"Cal	2	multi trunk, min. 1-2" cane
LIQ STY	Liquidambar styraciflua 'Cherokee'	Fruitless Sweet Gum	B & B	3"Cal	11	6' clear trunk
QUE BIC	Quercus bicolor	Swamp White Oak	B & B	3"Cal	11	6' clear trunk
THU GRE	Thuja x 'Green Giant'	Green Giant Arborvitae	B & B	2" cal./6" ht.	3	full to base
ULM AME	Ulmus americana 'Princeton'	American Elm	B & B	3"Cal	15	6' clear trunk
SHRUBS	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>QTY</u>	<u>REMARKS</u>
ABE ROS	Abelia x 'Rose Creek'	Rose Creek Abelia	5 gal	18" ht.	13	full
BUX MIC	Buxus microphylla japonica	Japanese Boxwood	5 gal	24" ht.	6	full
ILE COR	Ilex cornuta 'Dwarf Burford'	Dwarf Burford Holly	5 gal	24" ht.	19	full
ITE VIR	Itea virginica 'Henry's Garnet'	Henry's Garnet Sweetspire	5 gal	24" ht.	8	full
JUN CHI	Juniperus chinensis 'Nick's Compact'	'Nick's Compact' Juniper	5 gal	18" spr.	17	full
GROUND COVERS	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>QTY</u>	<u>REMARKS</u>
HEM HAP	Hemerocallis x 'Happy Returns'	Happy Returns Daylily	cont.	1 gal.	224	plant 18" o.c.
LIR MUS	Liriope muscari 'Big Blue'	Big Blue Lilyturf	cont.	4" pot	270	plant 12" o.c.



5301 MARYLAND WAY
PC CIVIL SET

[illegible]

44466.00
2020.06.01



Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LMF	Lum. Lumens	Lum. Watts	Part Number
	1	OSQB-2ME BLS	SINGLE	0.990	8950	86	OSQ-A-NM-2ME-B-57K-xx-xx w/ OSQ-BLSMF
	1	OSQB-3ME BLS	SINGLE	0.990	9196	86	OSQ-A-NM-3ME-B-57K-xx-xx w/ OSQ-BLSMF
	9	OSQB-4ME BLS	SINGLE	0.990	8950	86	OSQ-A-NM-4ME-B-57K-xx-xx w/ OSQ-BLSMF
	12	OSQB-5SH 2	D180°	1.010	11678	86	OSQ-A-NM-5SH-B-57K-xx-xx

Calculation Summary (Footcandles calculated using predicted lumen values @ 50K hrs of operation)						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts	Fc	0.90	3.0	0.0	N.A.	N.A.
Parking Lot Only	Fc	1.74	3.0	0.9	1.93	3.33

Additional Equipment:

(35) OSQ-DAXX Direct mount arms

(11) OSQ-BLSMF Backlight shields

(11) SSS-4-11-27-CW-BS-1D-C-xx 27" X 4" X 11ga Square steel poles (+3' afg base)

(12) SSS-4-11-27-CW-BS-2D18-C-xx 27" X 4" X 11ga Square steel poles (+3' afg base)

*** Proposed poles meet 120 mph wind zone requirements

*** Fixtures mounted with no tilt at 30' height

*** CUSTOMER TO VERIFY ORDERING INFORMATION AND
CATALOGUE NUMBER PRIOR TO PLACING ORDER ***

CREE  **LIGHTING**

A COMPANY OF ***IDEAL INDUSTRIES, INC.***

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Illumination results shown on this lighting design are based on project parameters provided to Cree Lighting used in conjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying dimensional accuracy along with compliance with any applicable electrical, lighting, or energy code.

Project Name: Bridge Investment Project - Brentwood, TN

SR-42097

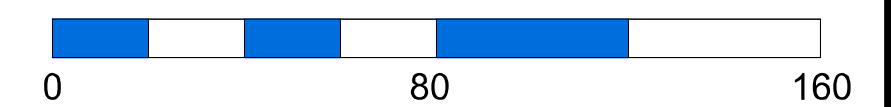
Footcandles calculated at grade

Filename: 200528CS1BRS.AGI

Layout By:
Bill Schubert

Date:5/28/2020

Scale 1" = 40'



Traffic Impact Study

Maryland Way Parking Comdata Site Brentwood, TN

Prepared For:
Gresham Smith

VOLKERT

May 2020

Traffic Impact Study
Maryland Way Parking
Comdata Site
Brentwood, TN

Prepared For:
Gresham Smith



Prepared by:
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EXECUTIVE SUMMARY

The purpose of this Traffic Impact Study is to assess the traffic impacts associated with the proposed parking redesign of the Comdata site on Maryland Way in Brentwood, Tennessee and to identify if any off-site access or traffic control improvements will be required to address those impacts. The site is located on the southwest corner of Maryland Way and Winners Circle. The site is located in Brentwood in northern Williamson County. The current site plan for the parking layout redesign is shown in Figure 2. The plan includes increasing the existing parking of 715 total spaces to approximately 867 proposed spaces. The current use of Class A office and the 200,779 square feet of building space will not change. Access for the project is planned to continue with the existing two accesses on Winners Circle and one on Maryland Way.

Unfortunately, due to COVID19, the state has essentially shut down, and traffic patterns and volumes are much lower than typical. As a result, obtaining the existing turning movement volumes was not possible. For the purposes of this report, turning movement counts provided by the City of Brentwood within the study area were utilized. Specifically, traffic counts were conducted in February 2015. The turning movement counts included the intersection of Maryland Way and Winners Circle, which will be utilized for this traffic study.

A growth factor was applied to the 2015 peak hour traffic volumes to account for background growth for the future conditions. The turning movement volumes at the intersection of Maryland Way and Winners Circle were increased by 1% per year for seven years to account for the background traffic growth within the study area. These volumes represent the peak hour traffic that is expected to be at the intersection in 2022.

The current use of Class A office and the 200,779 square feet of building space will not change. This project is not expected to bring additional traffic to the site. However, due to COVID19, the state has essentially shut down, and traffic patterns and volumes are much lower than typical. As a result, obtaining the existing turning movement volumes was not possible. So, to account for traffic entering and exiting the Comdata site, a trip generation process was used to develop traffic volumes for the access locations. Factors for the trip generation were taken from ITE's *Trip Generation*, 10th Edition.

The daily, AM, and PM peak hour trip generation for the existing Comdata office space, shown below, is approximately 2,086 trips per day. The AM and PM peak hour trip generations equals approximately 233 and 231 trips, respectively. These trips represent the traffic that is currently generated by the site.

Trip Generation for Existing Comdata Site

Land Use	Size	Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Office	200,779 sf	2,086	200	33	37	194

To determine the operation of the study intersections, capacity analyses were performed for the projected traffic volumes for the AM and PM peak hours. The capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual 2010* using HCS 2010 software. The capacity analyses result in the determination of a Level of Service (LOS) for an intersection. The LOS is a concept used to describe how well an intersection or roadway operates. LOS A is the best, while LOS F is the worst. LOS D is typically considered as the minimum acceptable LOS for an intersection in an urbanized area.

The results of the capacity analyses for the projected conditions at the study intersections are presented below. As shown, the capacity analyses indicate that the signalized intersection of Maryland Way and Winners Circle is expected to operate at LOS B during both peak hours. All turning movements at the project accesses are expected to operate at LOS C or better during both peak hours, with most operating at LOS A or B.

Projected Peak Hour LOS

Intersection	Critical Movement	Level of Service (Delay in sec/veh)	
		AM Peak Hour	PM Peak Hour
Maryland Way and Winners Circle	Overall Intersection	B (18.1)	B (14.4)
Maryland Way and Project Access	Westbound Left Turn	A (9.3)	A (9.7)
	Northbound Left/Right Turn	C (15.7)	C (18.4)
Winners Circle and Northern Project Access	Northbound Left Turn	A (8.1)	A (7.3)
	Eastbound Left/Right Turn	B (10.9)	B (10.9)
Winners Circle and Southern Project Access	Northbound Left Turn	A (8.0)	A (7.3)
	Eastbound Left/Right Turn	B (10.7)	B (10.1)

Per request by the City of Brentwood engineering staff, additional analyses were performed to evaluate the need for a southbound right turn lane on Winners Circle at the southern project access. For the analysis, the Tennessee Department of Transportation's (TDOT) *Roadway Design Guidelines* were referenced for this analysis. While these guidelines are for left turn lanes, TDOT also utilized these guidelines for right turn lanes. As previously mentioned, the speed limit on Winners Circle is assumed to be 30 mph. Per TDOT's guidelines (using a conservative 40 mph speed), the low volumes along Winners Circle and at the project site would not warrant a southbound right turn lane.

Access for the project is not being changed with the parking reconfiguration. One existing access on Maryland Way and two existing accesses on Winners Circle will remain with the existing configuration and full access to the site. There are currently portions of the

internal parking areas that are gated. All existing internal gates will be removed. No gates will be part of the parking reconfiguration.

Sight distance at the existing project access was analyzed according to the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on Geometric Design of Highways and Streets, 6th Edition* (Green Book). The speed limit on Maryland Way is posted at 40 mph. According to the *Green Book*, the minimum stopping sight distance required for Maryland Way is 305 feet. Field observations were conducted along Maryland Way at the existing access location across from Continental Place. These observations indicate that the sight distance when looking to the east exceeds 400 feet. When looking to the west, the available sight distance is 315 feet. As a result, the existing access location on Maryland Way provides adequate stopping sight distance.

The speed limit is not posted on Winners Circle, which according to City of Brentwood Ordinance, the speed limit would be 30 mph if a street does not have posted speed limit. According to the *Green Book*, the minimum stopping sight distance required for a 30-mph speed is 200 feet. Field observations were conducted along Winners Circle at the existing access locations. These observations indicate that the sight distance when looking to the north and south exceeds 200 feet. As a result, the existing access locations on Winners Circle provide adequate stopping sight distance.

The analyses included in this report indicate that the impacts of the proposed Comdata site parking redesign will have minimal impact on the external roadway network. Based on the analyses presented in this report, the recommendations are as follows:

- Any construction to the parking areas should not revise or impact the inbound and outbound traffic at each of the existing access locations to the site. Full access should be maintained upon completion of the parking reconstruction.
- As discussed previously, on the Comdata site, there are currently portions of the internal parking areas that are gated. All existing internal gates should be removed. No gates should be part of the parking reconstruction.

In conclusion, the analyses contained in this study indicate that the proposed project will have minimal impact on the external roadway network. Peak hour levels of service are expected to remain good at the intersections studied.

1.0 INTRODUCTION

1.1 PURPOSE

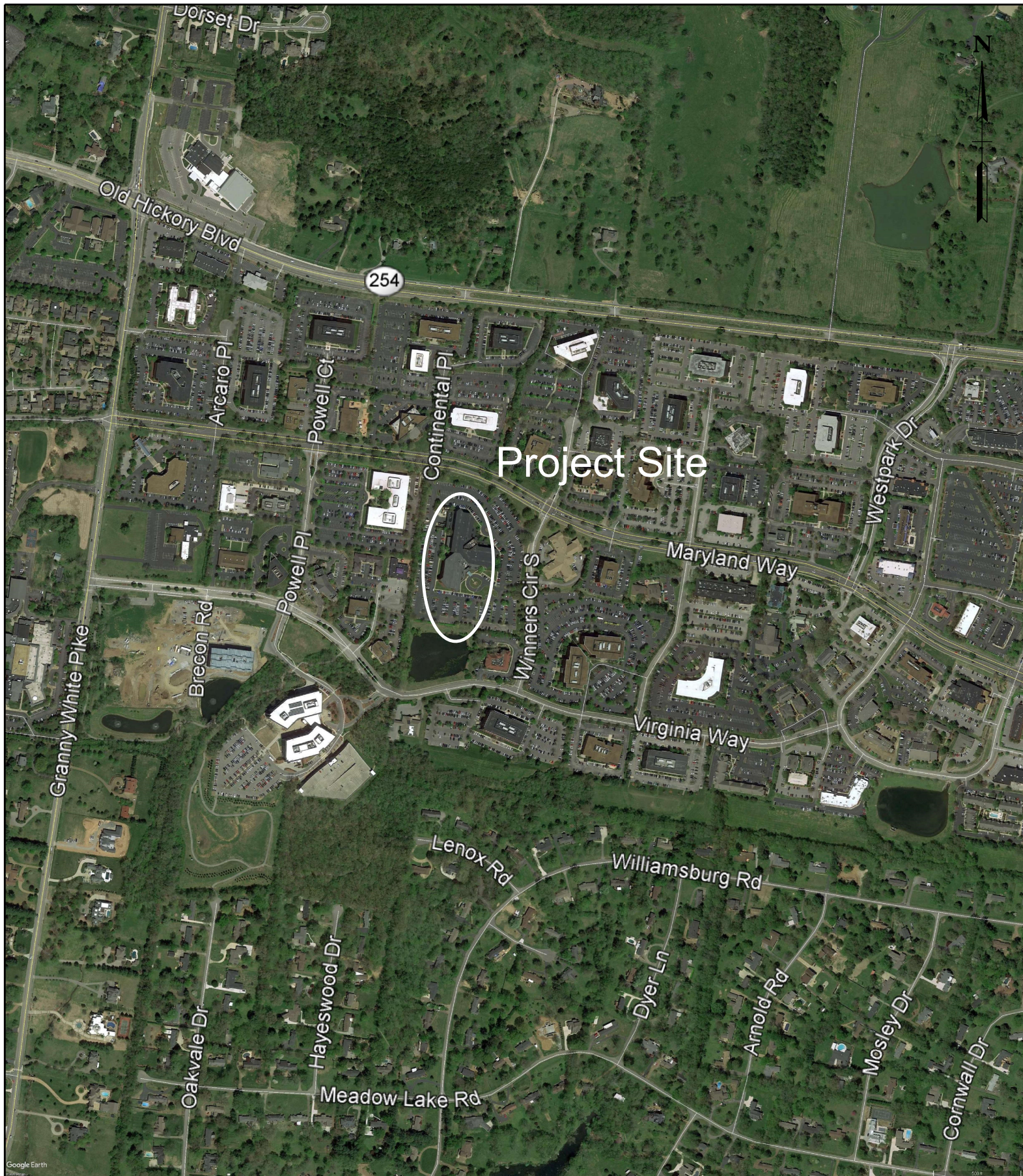
The purpose of this Traffic Impact Study is to assess the traffic impacts associated with the proposed parking redesign of the Comdata site on Maryland Way in Brentwood, Tennessee and to identify if any off-site access or traffic control improvements will be required to address those impacts.

1.2 PROJECT DESCRIPTION

The site is located on the southwest corner of Maryland Way and Winners Circle. The site is located in Brentwood in northern Williamson County. The location of the proposed project is shown in Figure 1. As shown, the site is located south of Old Hickory Boulevard and west of Franklin Road.

The current site plan for the parking layout redesign is shown in Figure 2. The plan includes increasing the existing parking of 715 total spaces to approximately 867 proposed spaces, including 715 standard, 133 compact, and 19 ADA spaces. This will result in a total increase of approximately 152 spaces. The current use of Class A office and the 200,779 square feet of building space will not change. Access for the project is planned to continue with the existing two accesses on Winners Circle and one on Maryland Way.

In this study, the current operating characteristics of the study intersections are evaluated. The existing trips generated by the Comdata site development are determined and distributed to the roadway network. The study intersections are then evaluated to determine the anticipated traffic impacts of the project. Finally, recommendations are presented, including any needed roadway improvements and/or traffic control improvements to accommodate the expected traffic. Current plans are to have this development completed in 2022.

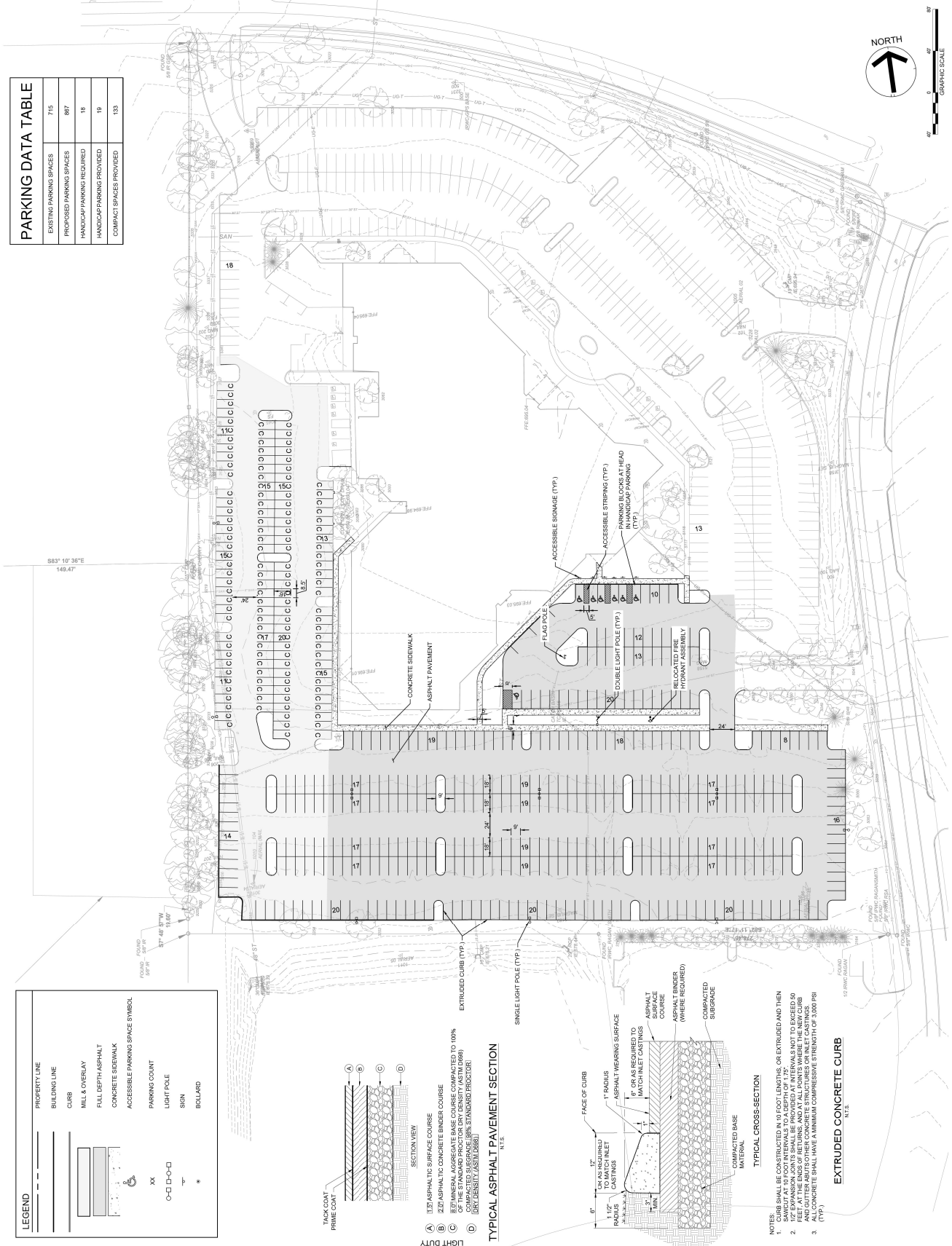
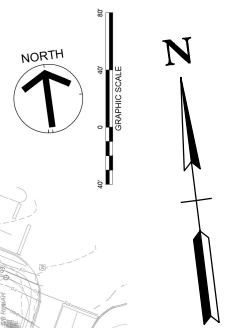


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**Figure 1.
 Project Location Map**

NOT TO SCALE

PARKING DATA TABLE	
EXISTING PARKING SPACES	715
PROPOSED PARKING SPACES	867
HANDICAP PARKING REQUIRED	16
HANDICAP PARKING PROVIDED	19
COMPACT SPACES PROVIDED	133



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**Figure 2.
 Concept Plan**

NOT TO SCALE

2.0 EXISTING CONDITIONS

To establish a baseline for analysis, existing conditions within the Maryland Way study area were inventoried. Existing roadways, intersections, bicycle and pedestrian facilities, and public transit have been identified and described as follows.

2.1 ROADWAY NETWORK

Maryland Way generally travels in an east-west direction and provides a connection between Granny White Pike and Franklin Road (Highway 31) and provides access to the project site. Maryland Way, shown in the photo to the right, includes two travel lanes in each direction separated by a raised median. Maryland Way has 11-foot travel lanes with a 20-foot median, and turn lanes at some intersections. According to the Tennessee Department of Transportation's (TDOT) *Functional Classification System* map for Williamson County, Maryland Way is classified as a minor arterial. The speed limit on Maryland Way is posted at 40 mph in the vicinity of the project site. Sidewalk is provided on the south side of Maryland Way and portions of the north side. There is currently no bicycle or transit facilities along Maryland Way.



*Eastbound Maryland Way
at Continental Place*



*Southbound Winners Circle
North at Maryland Way*

Winners Circle extends north and south from Maryland Way. Winners Circle North provides access to commercial properties. Winners Circle South connects to Virginia Way and provides access to the project site. Winners Circle North, shown in the photo to the left, includes three, 11.5-foot travel lanes. Winners Circle South includes two, 12-foot travel lanes and a two-way left turn lane. There is no posted speed limit on Winners Circle. Sidewalk is provided on the west side of Winners Circle. There is currently no bicycle or transit facilities along Winners Circle.

The **intersection of Maryland Way and Continental Place/Comdata Service Entrance** is a four-legged intersection that is controlled by a stop sign on Continental Place and Comdata Service Entrance. The eastbound approach on Maryland Way includes a left turn lane, a through lane, and a shared through/right turn lane. The Westbound approach includes a shared through/left turn lane and a shared through/right turn lane. The northbound approach on Comdata Service Entrance, shown in the photo to the right, includes a shared through/left/right turn lane. The southbound approach on Continental Place includes a shared through/left turn lane and a right turn lane.



*Northbound Comdata Service
Entrance at Maryland Way*



*Westbound Maryland Way
at Winners Circle*

The **intersection of Maryland Way and Winners Circle** is a four-legged intersection that is controlled by a traffic signal. The eastbound approach on Maryland Way includes a left turn lane, a through lane, and a shared through/left turn lane. The westbound approach, shown in the photo to the left, includes a left turn lane, a through lane, and a shared through/right turn lane. The northbound approach on Winners Circle includes a shared through/left turn lane and a right turn lane. The southbound approach on Winners Circle includes a left turn lane and a shared through/right turn lane. A

protected/permitted left turn signal phase is provided for the eastbound and westbound approaches on Maryland Way. A protected/permitted right turn signal phase is provided for the northbound approach on Winners Circle.

The **intersection Winners Circle and Comdata North Entrance** is a T-intersection that is controlled by a stop sign on Comdata North Entrance. The northbound approach on Winners Circle includes a shared through/left turn lane and a right turn lane. The southbound approach on Winners Circle includes a shared through/right turn lane. The eastbound approach on Comdata North Entrance, shown in the photo to the right, includes a shared left turn/right turn lane.



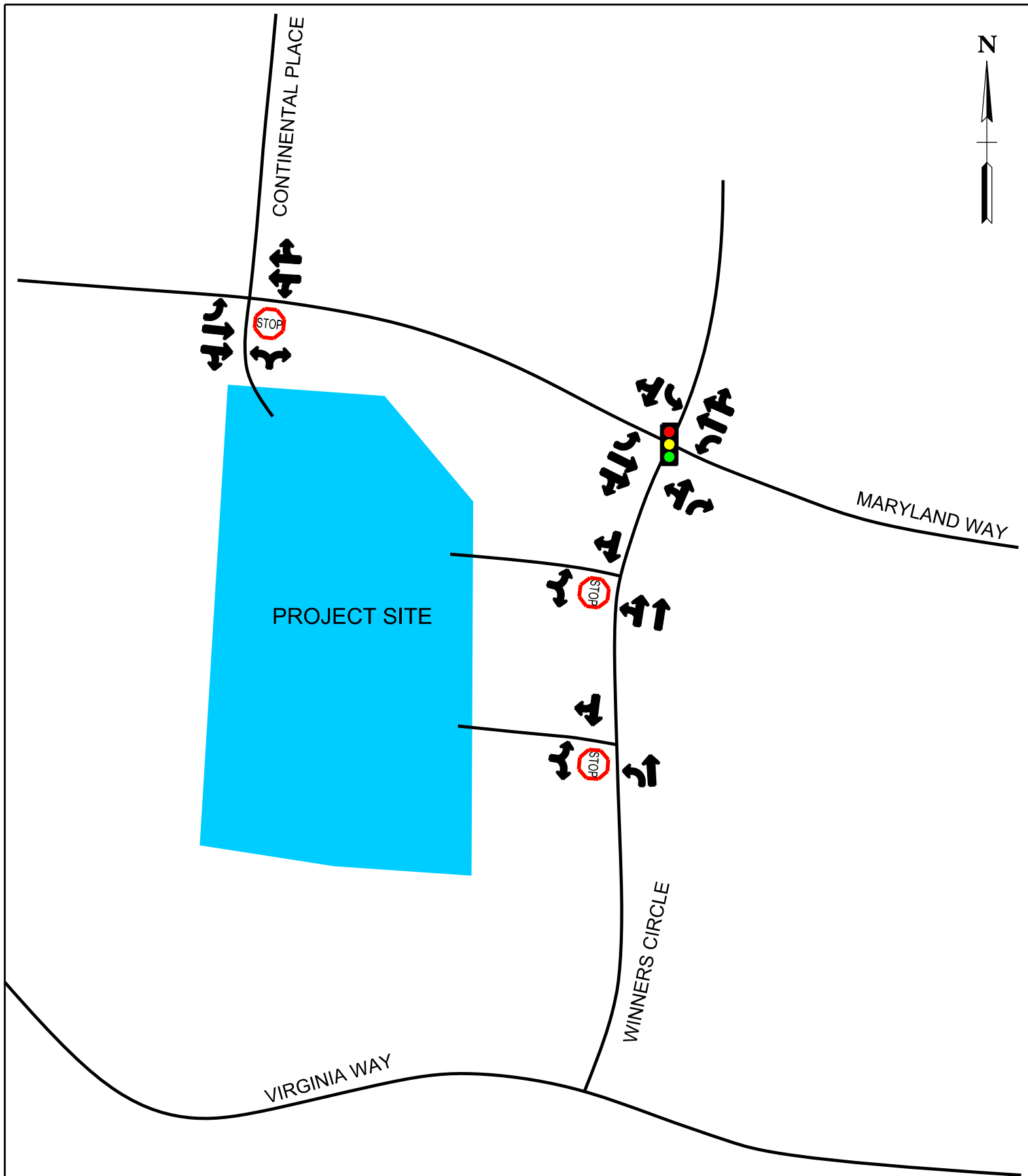
*Eastbound Comdata North Entrance
at Winners Circle*



*Eastbound Comdata South Entrance
at Winners Circle*

The **intersection of Winners Circle and Comdata South Entrance** is a T-intersection that is controlled by a stop sign on Comdata South Entrance. The northbound approach on Winners Circle includes a two-way left turn lane and a through lane. The southbound approach on Winners Circle includes a two-way left turn lane and a shared through/right turn lane. The eastbound approach on Comdata South Entrance, shown in the photo to the left, includes a shared left turn/right turn lane.

The existing laneage at the study intersections is further illustrated in Figure 3.



2.2 EXISTING TRAFFIC VOLUMES

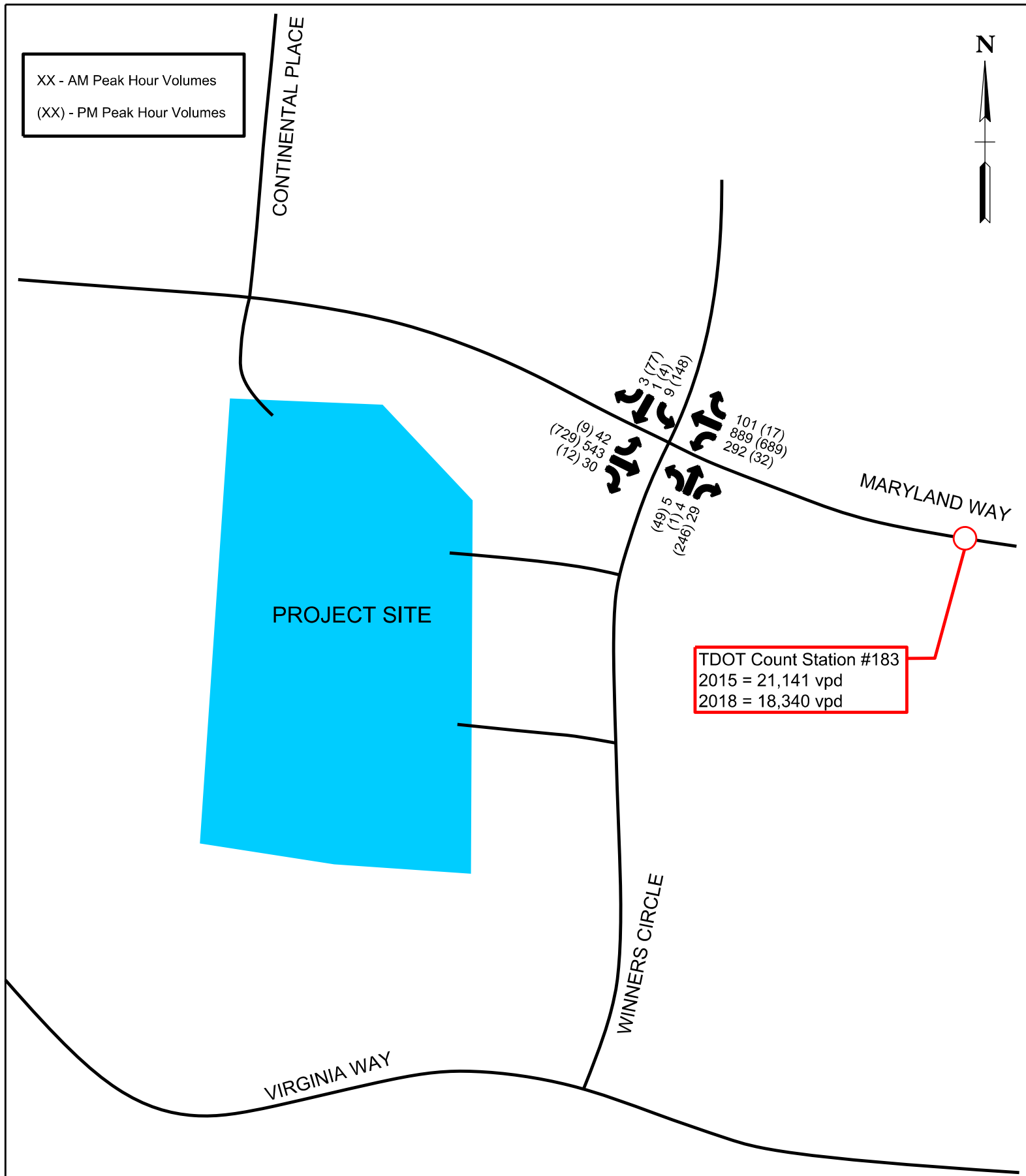
To provide data for the traffic analysis, manual traffic counts were originally planned to be conducted at the following intersections:

- Intersection of Maryland Way and Winners Circle
- Intersection of Winners Circle and northern Comdata access
- Intersection of Winners Circle and northern Comdata access
- Intersection of Maryland Way and Continental Place/Comdata access
- Intersection of Winners Circle and Virginia Way

Unfortunately, due to COVID19, the state has essentially shut down, and traffic patterns and volumes are much lower than typical. As a result, obtaining the existing turning movement volumes was not possible. For the purposes of this report, turning movement counts provided by the City of Brentwood within the study area were utilized. Specifically, traffic counts were conducted in February 2015. The turning movement counts included the intersection of Maryland Way and Winners Circle, which will be utilized for this traffic study.

In addition to the turning movement counts, Average Annual Daily Traffic (AADT) counts were taken from a nearby TDOT count stations along Maryland Way. A count station (#183) is located on Maryland Way east of the project site. According to the TDOT count data, the AADT at this count station in 2015 was approximately 21,141 vehicles per day and approximately 18,340 vehicles per day in 2018.

The 2015 traffic volumes for the study area are shown in Figure 4. Traffic data from the City's turning movement counts and TDOT Count Station data is included in Appendix A.



3.0 BACKGROUND

3.1 TRAFFIC VOLUMES

In order to account for the traffic growth prior to the completion of the proposed project, background traffic volumes were established. For the purposes of this traffic study, the proposed development is assumed to be completed by the year 2022. The background traffic includes general traffic growth in the study area. Historical daily traffic volumes were obtained from the TDOT count stations located near the project site. For the past ten years, the traffic growth at the TDOT count stations has varied from -0.09% to 0.61% per year. The TDOT count station data is included in Appendix A.

A growth factor was applied to the 2015 peak hour traffic volumes to account for background growth for the future conditions. The turning movement volumes at the intersection of Maryland Way and Winners Circle were increased by 1% per year for seven years to account for the background traffic growth within the study area.

The total background peak hour traffic volumes are presented in Figure 5. These volumes represent the peak hour traffic that is expected to be at the intersection in 2022.

XX - AM Peak Hour Volumes
(XX) - PM Peak Hour Volumes



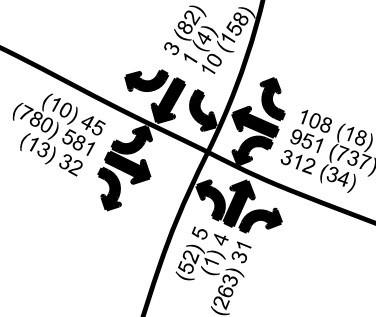
CONTINENTAL PLACE

PROJECT SITE

MARYLAND WAY

WINNERS CIRCLE

VIRGINIA WAY



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**Figure 5.
Background Peak Hour
Volumes**

NOT TO SCALE

4.0 IMPACTS

4.1 TRIP GENERATION

As previously discussed, the proposed plan for this site includes increasing the existing parking of 715 total spaces to 867 proposed spaces. The current use of Class A office and the 200,779 square feet of building space will not change. This project is not expected to bring additional traffic to the site. However, also as previously discussed, due to COVID19, the state has essentially shut down, and traffic patterns and volumes are much lower than typical. As a result, obtaining the existing turning movement volumes was not possible. So, in order to account for traffic entering and exiting the Comdata site, a trip generation process was used to develop traffic volumes for the access locations. Factors for the trip generation were taken from ITE's Trip Generation, 10th Edition.

Table 1 presents the daily, AM, and PM peak hour trip generation for the existing Comdata office space. As shown by Table 1, the total development generates approximately 2,086 trips per day. The AM and PM peak hour trip generations equals approximately 233 and 231 trips, respectively. These trips represent the traffic that is currently generated by the site. The calculations for trip generation are included in Appendix B.

Table 1. Trip Generation for Existing Comdata Site

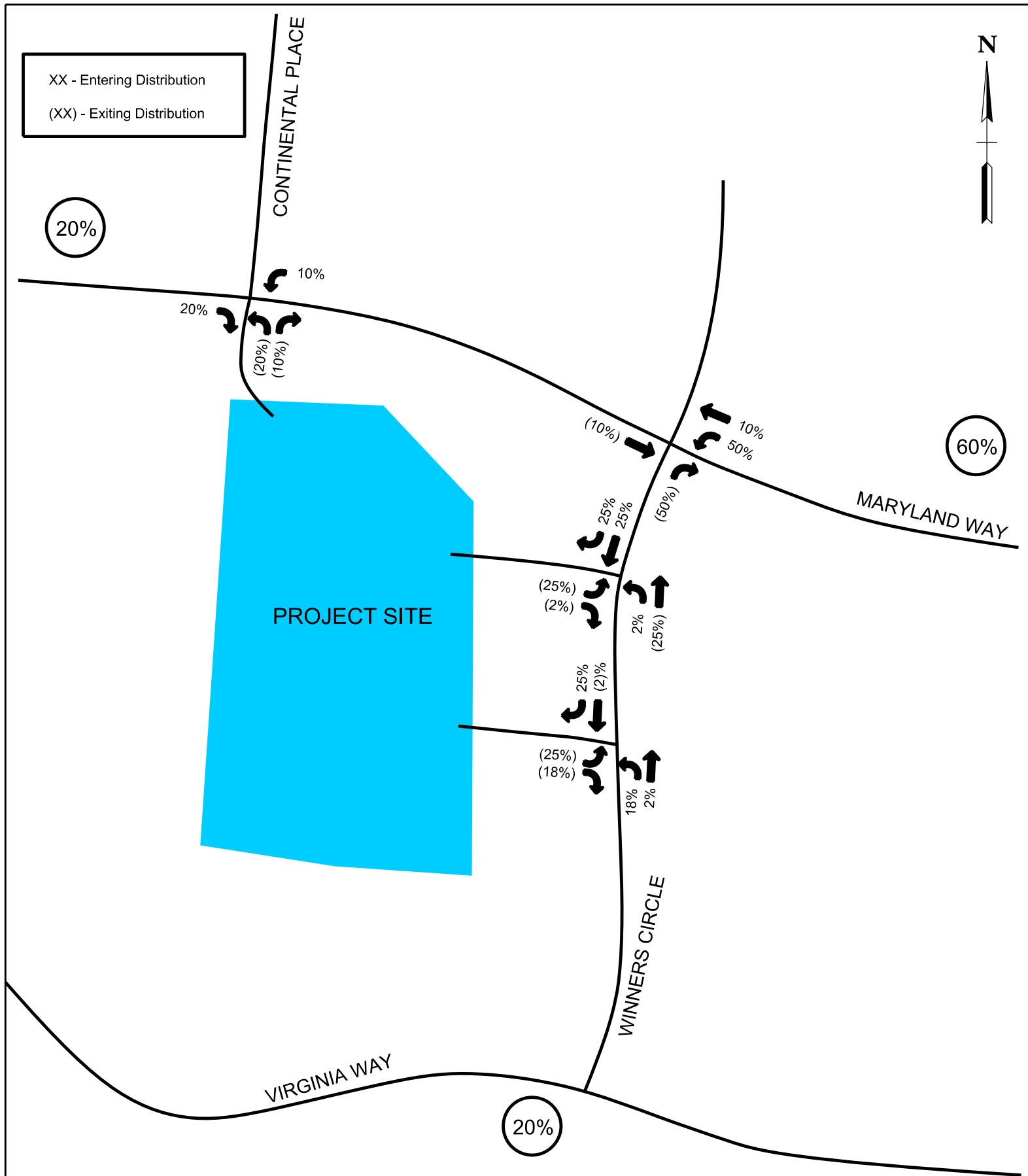
Land Use	Size	Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Office	200,779 sf	2,086	200	33	37	194

4.2 TRIP DISTRIBUTION & ASSIGNMENT

A directional distribution of traffic generated by the existing was established based on the access, the site layout – including proposed parking reconfiguration, the existing roadway network, existing travel patterns, location of population and commercial centers in the area. All existing access locations are to remain.

Directional distributions for the proposed development are shown in Figure 6. As shown in the figure, approximately 20% of the project traffic will be oriented west of the site along Maryland Way, with approximately 60% oriented to the east along Maryland Way. The remaining 20% will be oriented to the south along Winners Circle towards Virginia Way.

Based on this directional distribution, the site traffic was assigned to the roadway network. The total traffic assignment for the existing Comdata site is shown in Figure 7.



XX - AM Peak Hour Volumes

(XX) - PM Peak Hour Volumes

N



CONTINENTAL PLACE

(7) 40

20 (4)

(39) 7
(19) 3

PROJECT SITE

(19) 3

50 (9)

50 (9)

(49) 8

(4) 1

50 (9)

1 (4)

(49) 8

(35) 6

(1) 4

(49) 8

(7) 36

(1) 4

20 (4)

100 (18)

(98) 16

MARYLAND WAY

WINNERS CIRCLE

VIRGINIA WAY

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Figure 7.
Assignment of Traffic
Generated by Site

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4.3 PROJECTED TRAFFIC ANALYSIS

The assigned traffic volumes for the driveways were added to the 2022 peak hour traffic volumes to develop the total projected traffic volumes for the study intersections. Figure 8 presents the total projected AM and PM peak hour traffic volumes expected at the Comdata site on Maryland Way.

To determine the operation of the study intersections, capacity analyses were performed for the projected traffic volumes for the AM and PM peak hours. The capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual 2010* using HCS 2010 software. The capacity analyses result in the determination of a Level of Service (LOS) for an intersection. The LOS is a concept used to describe how well an intersection or roadway operates. LOS A is the best, while LOS F is the worst. LOS D is typically considered as the minimum acceptable LOS for an intersection in an urbanized area. Table 2 presents the descriptions of LOS for signalized intersections. Table 3 presents the descriptions of LOS for unsignalized intersections.

Table 2. Signalized Intersection LOS Description

LOS	Description	Control Delay (sec/veh)
A	This occurs when progression is exceptionally favorable. Most vehicles travel through the intersection without stopping.	≤ 10
B	This generally occurs when progression is highly favorable. More vehicles stop than for LOS A.	>10 - 20
C	This occurs when progression is favorable. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	This occurs when progression is ineffective or the cycle lengths are long. Many vehicles stop and individual cycle failures are frequent.	>35 - 55
E	This occurs when progression is unfavorable and cycle lengths are long. Individual cycle failures are frequent.	>55 - 80
F	This occurs when progression is very poor and cycle lengths are long. Most cycles fail to clear the queue.	>80.0

Source: *Highway Capacity Manual 2010*

Table 3. Unsignalized Intersection LOS Description

LOS	Description	Control Delay (sec/veh)
A	This occurs when there is minimal or no delay.	≤ 10
B	This occurs when there is minor traffic delay.	>10 - 15
C	This occurs during average traffic delay.	>15 - 25
D	Long traffic delays begin to occur.	>25 - 35
E	This occurs when very long traffic delays occur.	>35 - 50
F	Extreme traffic delays are experienced.	>50.0

Source: *Highway Capacity Manual 2010*

The results of the capacity analyses for the projected conditions at the study intersections are presented in Table 4. As shown, the capacity analyses indicate that the signalized intersection of Maryland Way and Winners Circle is expected to operate at LOS B during both peak hours. All turning movements at the project accesses are expected to operate at LOS C or better during both peak hours, with most operating at LOS A or B. Capacity analyses worksheets are included in Appendix C.

Table 4. Projected Peak Hour LOS

Intersection	Critical Movement	Level of Service (Delay in sec/veh)	
		AM Peak Hour	PM Peak Hour
Maryland Way and Winners Circle	Overall Intersection	B (18.1)	B (14.4)
Maryland Way and Project Access	Westbound Left Turn	A (9.3)	A (9.7)
	Northbound Left/Right Turn	C (15.7)	C (18.4)
Winners Circle and Northern Project Access	Northbound Left Turn	A (8.1)	A (7.3)
	Eastbound Left/Right Turn	B (10.9)	B (10.9)
Winners Circle and Southern Project Access	Northbound Left Turn	A (8.0)	A (7.3)
	Eastbound Left/Right Turn	B (10.7)	B (10.1)

Per request by the City of Brentwood engineering staff, additional analyses were performed to evaluate the need for a southbound right turn lane on Winners Circle at the southern project access. For the analysis, the Tennessee Department of Transportation's (TDOT) *Roadway Design Guidelines* were referenced for this analysis. While these guidelines are for left turn lanes, TDOT also utilized these guidelines for right turn lanes. As previously mentioned, the speed limit on Winners Circle is assumed to be 30 mph. Per TDOT's guidelines (using a conservative 40 mph speed), the low volumes along Winners Circle and at the project site would not warrant a southbound right turn lane. The right turn lane data is included as Appendix D.

5.0 ANALYSIS OF SITE PLAN

5.1 SITE ACCESS ANALYSIS

Access for the project is not being changed with the parking reconfiguration. One existing access on Maryland Way and two existing accesses on Winners Circle will remain with the existing configuration and full access to the site.

There are currently portions of the internal parking areas that are gated. All existing internal gates will be removed. No gates will be part of the parking reconfiguration.

5.2 SIGHT DISTANCE ANALYSIS

Sight distance at the existing project access was analyzed according to the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on Geometric Design of Highways and Streets, 6th Edition* (Green Book). Sight distance is the length of roadway ahead that is visible to the driver. The sight distance available should be sufficient enough for a driver traveling at the posted speed limit to stop before reaching an object in the road. Stopping sight distance, which is the length recommended for the proposed access locations, includes the sight distance plus the distance traveled by the driver while he sees the object, reacts, and applies the brake.

The speed limit on Maryland Way is posted at 40 mph. According to the *Green Book*, the minimum stopping sight distance required for Maryland Way is 305 feet. Field observations were conducted along Maryland Way at the existing access location across from Continental Place. These observations indicate that the sight distance when looking to the east exceeds 400 feet. When looking to the west, the available sight distance is 315 feet. The photo to the right shows the view looking at the site access from approximately 315 feet to the west. As a result, the existing access location on Maryland Way provides adequate stopping sight distance.



Eastbound Maryland Way approximately
315 feet west of the Comdata access

The speed limit is not posted on Winners Circle, which according to City of Brentwood Ordinance, the speed limit would be 30 mph if a street does not have posted speed limit. According to the *Green Book*, the minimum stopping sight distance required for a 30-mph speed is 200 feet. Field observations were conducted along Winners Circle at the existing access locations. These observations indicate that the sight distance when looking to the north and south exceeds 200 feet. As a result, the existing access locations on Winners Circle provide adequate stopping sight distance.

6.0 CONCLUSIONS & RECOMMENDATIONS

The analyses included in this report indicate that the impacts of the proposed Comdata site parking redesign will have minimal impact on the external roadway network. Based on the analyses presented in this report, the recommendations are as follows:

- Any construction to the parking areas should not revise or impact the inbound and outbound traffic at each of the exiting access locations to the site. Full access should be maintained upon completion of the parking reconstruction.
- As discussed previously, on the Comdata site, there are currently portions of the internal parking areas that are gated. All existing internal gates should be removed. No gates should be part of the parking reconstruction.

In conclusion, the analyses contained in this study indicate that the proposed project will have minimal impact on the external roadway network. Peak hour levels of service are expected to remain good at the intersections studied.

Appendix A

Traffic Count Data

All Traffic Data Service, Inc

1336 Farmer Road

Conyers, Ga 30012

404-374-1283

File Name : #31 WinnersCircle@MarylandWayAM

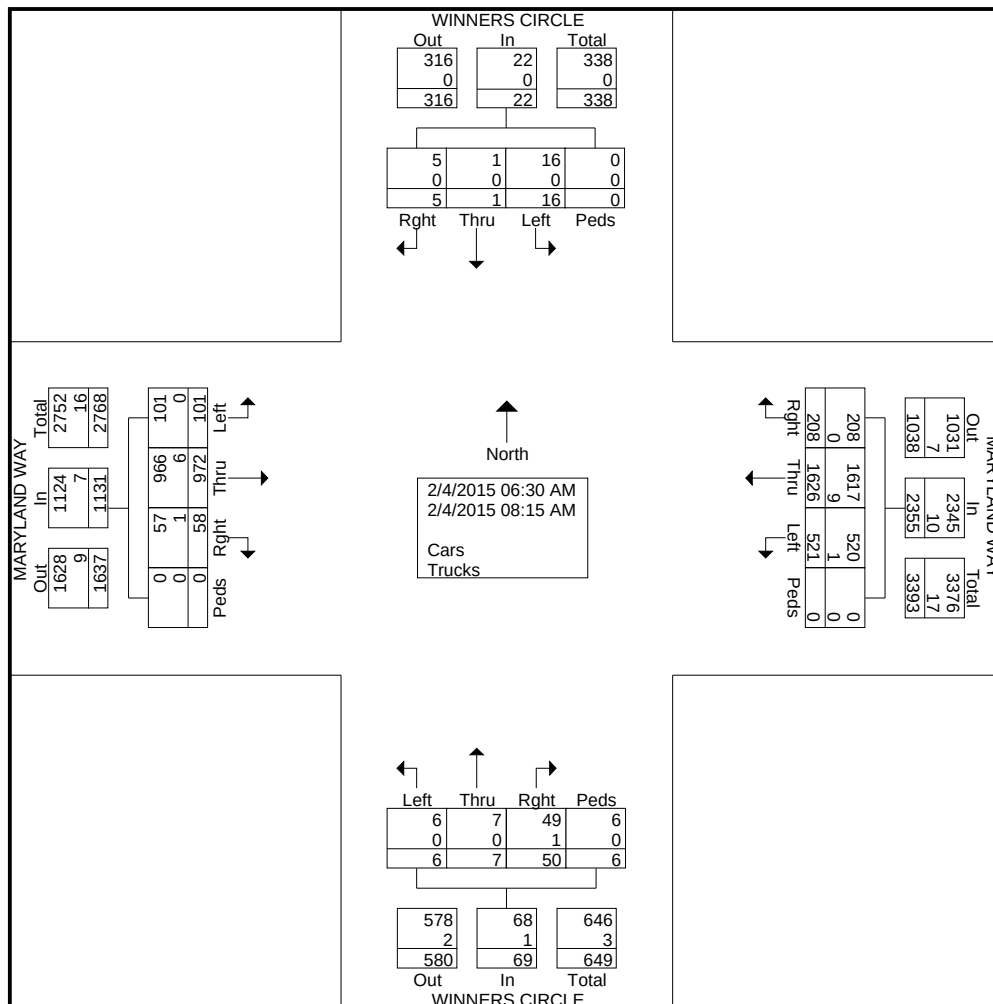
Site Code :

Start Date : 2/4/2015

Page No : 1

Groups Printed- Cars - Trucks

	WINNERS CIRCLE Southbound					MARYLAND WAY Westbound					WINNERS CIRCLE Northbound					MARYLAND WAY Eastbound					
Start Time	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	1	0	2	0	3	8	114	38	0	160	2	0	0	2	4	3	42	3	0	48	215
06:45 AM	1	0	0	0	1	11	257	51	0	319	2	0	0	1	3	4	78	5	0	87	410
Total	2	0	2	0	4	19	371	89	0	479	4	0	0	3	7	7	120	8	0	135	625
07:00 AM	0	0	3	0	3	17	263	70	0	350	9	1	1	3	14	6	135	2	0	143	510
07:15 AM	0	0	2	0	2	31	249	83	0	363	6	1	0	0	7	8	115	9	0	132	504
07:30 AM	3	0	3	0	6	31	194	65	0	290	8	1	1	0	10	7	145	8	0	160	466
07:45 AM	0	1	1	0	2	22	183	74	0	279	6	1	3	0	10	9	148	23	0	180	471
Total	3	1	9	0	13	101	889	292	0	1282	29	4	5	3	41	30	543	42	0	615	1951
08:00 AM	0	0	3	0	3	50	172	85	0	307	9	1	1	0	11	11	147	18	0	176	497
08:15 AM	0	0	2	0	2	38	194	55	0	287	8	2	0	0	10	10	162	33	0	205	504
Grand Total	5	1	16	0	22	208	1626	521	0	2355	50	7	6	6	69	58	972	101	0	1131	3577
Apprch %	22.7	4.5	72.7	0		8.8	69	22.1	0		72.5	10.1	8.7	8.7		5.1	85.9	8.9	0		
Total %	0.1	0	0.4	0	0.6	5.8	45.5	14.6	0	65.8	1.4	0.2	0.2	0.2	1.9	1.6	27.2	2.8	0	31.6	
Cars	5	1	16	0	22	208	1617	520	0	2345	49	7	6	6	68	57	966	101	0	1124	3559
% Cars	100	100	100	0	100	100	99.4	99.8	0	99.6	98	100	100	100	98.6	98.3	99.4	100	0	99.4	99.5
Trucks	0	0	0	0	0	0	9	1	0	10	1	0	0	0	1	1	6	0	0	7	18
% Trucks	0	0	0	0	0	0	0.6	0.2	0	0.4	2	0	0	0	1.4	1.7	0.6	0	0	0.6	0.5



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1336 Farmer Road

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404-374-1283

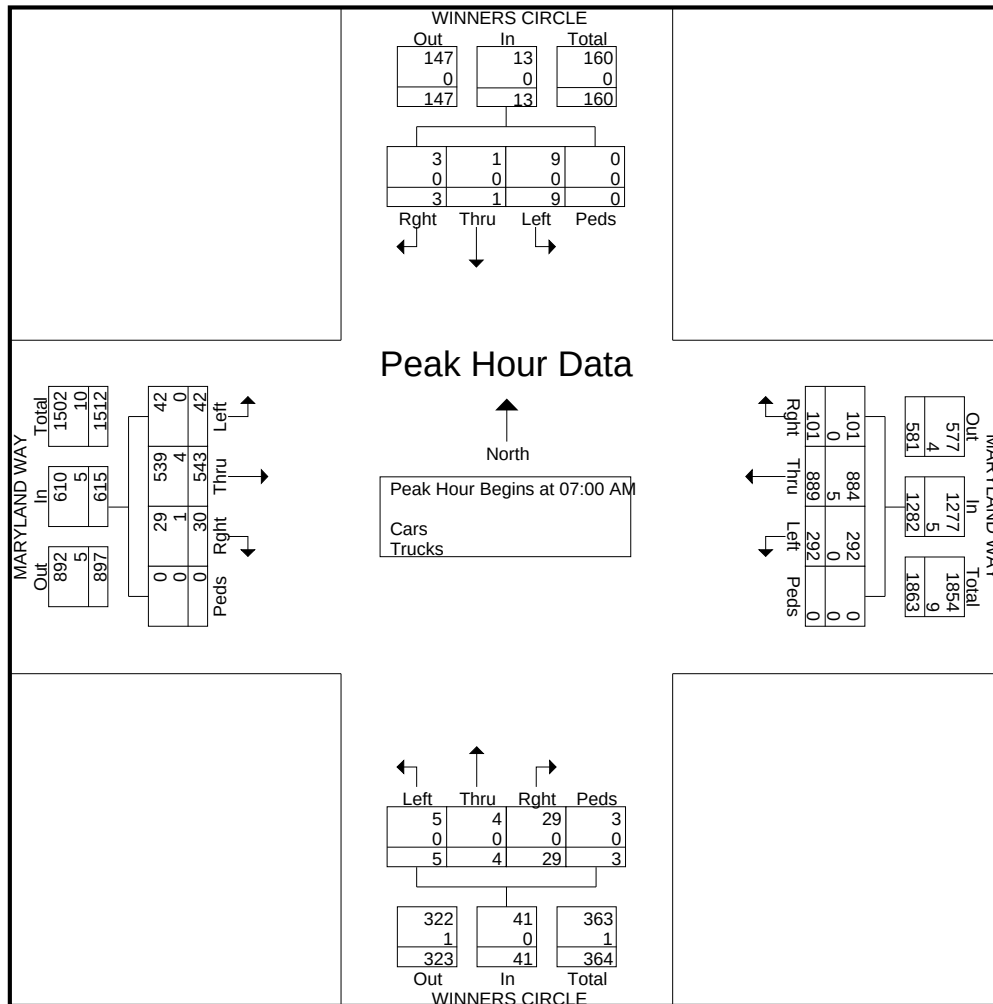
File Name : #31 WinnersCircle@MarylandWayAM

Site Code :

Start Date : 2/4/2015

Page No : 2

	WINNERS CIRCLE Southbound					MARYLAND WAY Westbound					WINNERS CIRCLE Northbound					MARYLAND WAY Eastbound					
Start Time	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	3	0	3	17	263	70	0	350	9	1	1	3	14	6	135	2	0	143	510
07:15 AM	0	0	2	0	2	31	249	83	0	363	6	1	0	0	7	8	115	9	0	132	504
07:30 AM	3	0	3	0	6	31	194	65	0	290	8	1	1	0	10	7	145	8	0	160	466
07:45 AM	0	1	1	0	2	22	183	74	0	279	6	1	3	0	10	9	148	23	0	180	471
Total Volume	3	1	9	0	13	101	889	292	0	1282	29	4	5	3	41	30	543	42	0	615	1951
% App. Total	23.1	7.7	69.2	0		7.9	69.3	22.8	0		70.7	9.8	12.2	7.3		4.9	88.3	6.8	0		
PHF	.250	.250	.750	.000	.542	.815	.845	.880	.000	.883	.806	1.00	.417	.250	.732	.833	.917	.457	.000	.854	.956
Cars	3	1	9	0	13	101	884	292	0	1277	29	4	5	3	41	29	539	42	0	610	1941
% Cars	100	100	100	0	100	100	99.4	100	0	99.6	100	100	100	100	100	96.7	99.3	100	0	99.2	99.5
Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	4	0	0	5	10
% Trucks	0	0	0	0	0	0	0.6	0	0	0.4	0	0	0	0	0	3.3	0.7	0	0	0.8	0.5



All Traffic Data Service, Inc

1336 Farmer Road

Conyers, Ga 30012

404-374-1283

File Name : #31 WinnersCircle@MarylandWayPM

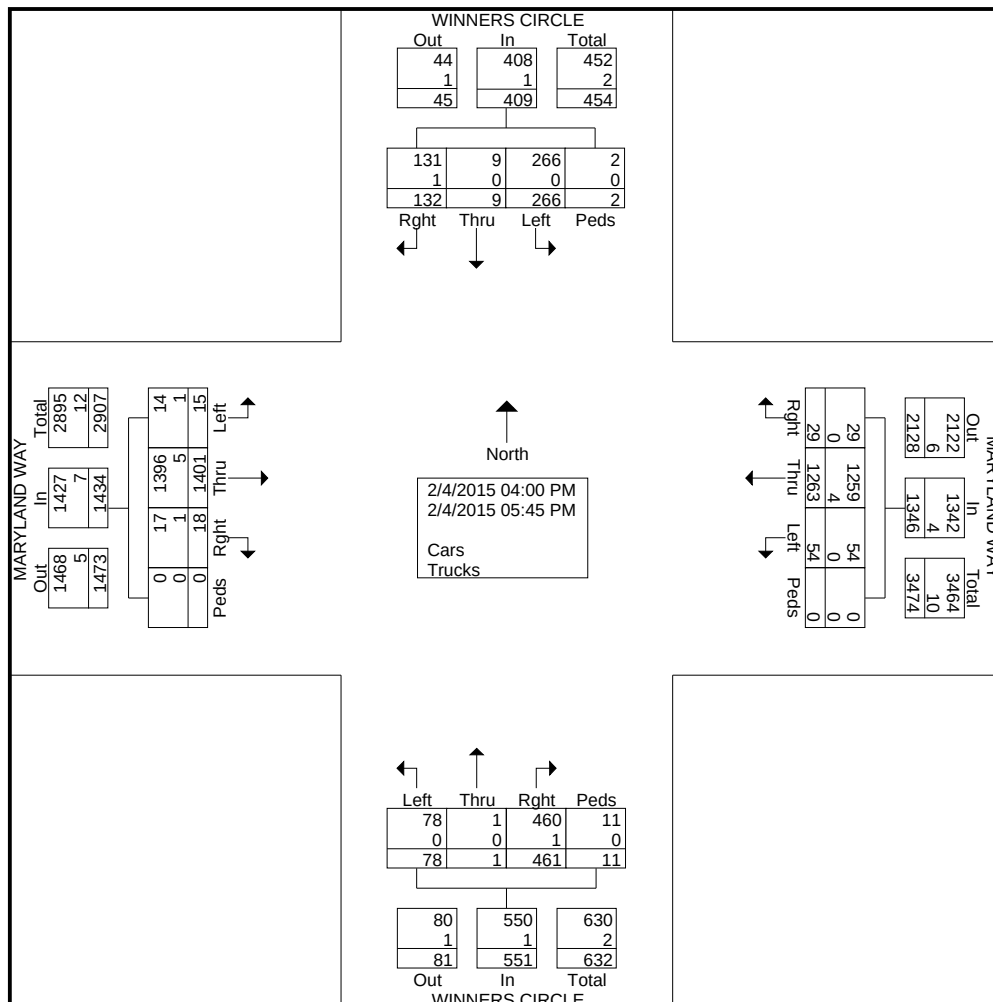
Site Code :

Start Date : 2/4/2015

Page No : 1

Groups Printed- Cars - Trucks

	WINNERS CIRCLE Southbound					MARYLAND WAY Westbound					WINNERS CIRCLE Northbound					MARYLAND WAY Eastbound					
Start Time	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	10	1	31	0	42	5	162	6	0	173	74	0	7	1	82	1	230	0	0	231	528
04:15 PM	7	0	30	0	37	2	165	8	0	175	47	0	12	2	61	2	184	6	0	192	465
04:30 PM	22	1	43	0	66	1	157	8	0	166	85	0	13	0	98	3	207	1	0	211	541
04:45 PM	17	0	30	1	48	8	160	8	0	176	46	0	8	3	57	4	153	0	0	157	438
Total	56	2	134	1	193	16	644	30	0	690	252	0	40	6	298	10	774	7	0	791	1972
05:00 PM	31	3	45	1	80	6	207	8	0	221	68	1	16	1	86	3	185	2	0	190	577
05:15 PM	12	2	31	0	45	3	155	9	0	167	49	0	9	2	60	1	129	2	0	132	404
05:30 PM	22	1	35	0	58	3	141	4	0	148	56	0	5	1	62	2	164	3	0	169	437
05:45 PM	11	1	21	0	33	1	116	3	0	120	36	0	8	1	45	2	149	1	0	152	350
Total	76	7	132	1	216	13	619	24	0	656	209	1	38	5	253	8	627	8	0	643	1768
Grand Total	132	9	266	2	409	29	1263	54	0	1346	461	1	78	11	551	18	1401	15	0	1434	3740
Apprch %	32.3	2.2	65	0.5		2.2	93.8	4	0		83.7	0.2	14.2	2		1.3	97.7	1	0		
Total %	3.5	0.2	7.1	0.1	10.9	0.8	33.8	1.4	0	36	12.3	0	2.1	0.3	14.7	0.5	37.5	0.4	0	38.3	
Cars	131	9	266	2	408	29	1259	54	0	1342	460	1	78	11	550	17	1396	14	0	1427	3727
% Cars	99.2	100	100	100	99.8	100	99.7	100	0	99.7	99.8	100	100	100	99.8	94.4	99.6	93.3	0	99.5	99.7
Trucks	1	0	0	0	1	0	4	0	0	4	1	0	0	0	1	1	5	1	0	7	13
% Trucks	0.8	0	0	0	0.2	0	0.3	0	0	0.3	0.2	0	0	0	0.2	5.6	0.4	6.7	0	0.5	0.3



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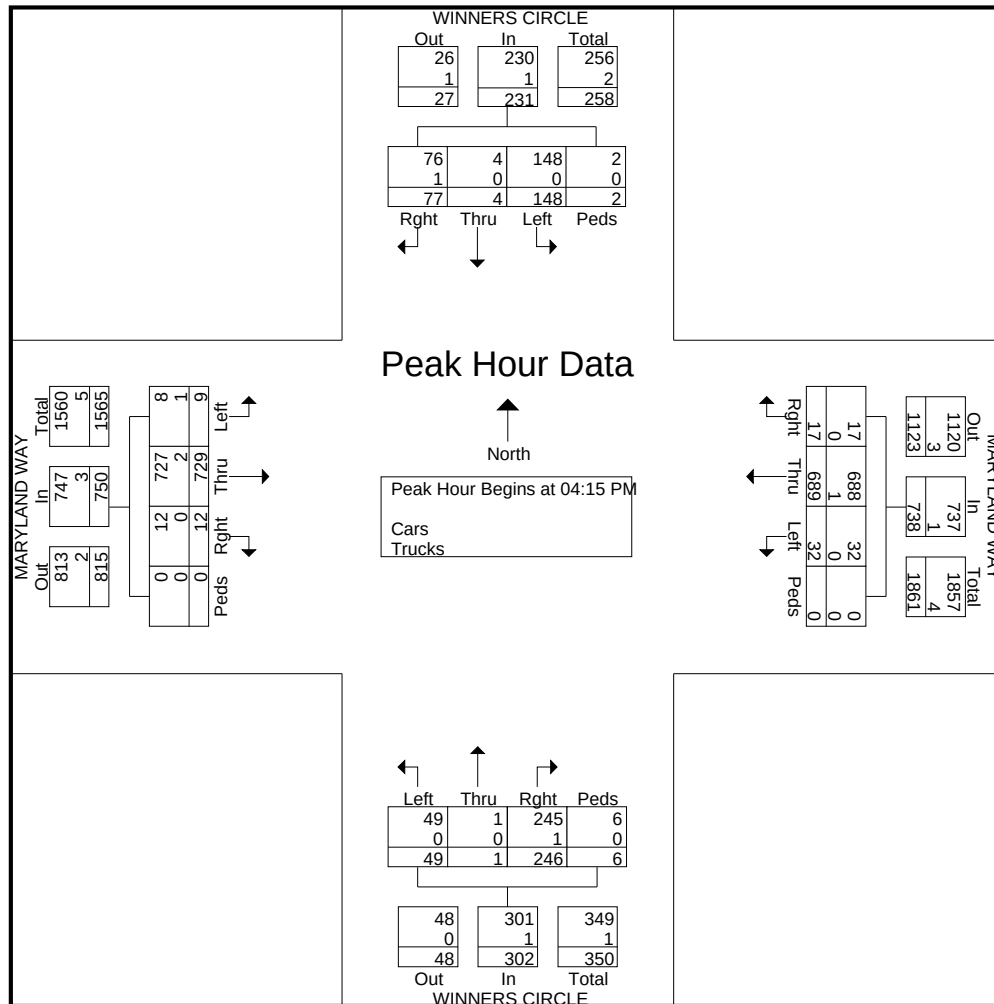
File Name : #31 WinnersCircle@MarylandWayPM

Site Code :

Start Date : 2/4/2015

Page No : 2

	WINNERS CIRCLE Southbound					MARYLAND WAY Westbound					WINNERS CIRCLE Northbound					MARYLAND WAY Eastbound					
Start Time	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	7	0	30	0	37	2	165	8	0	175	47	0	12	2	61	2	184	6	0	192	465
04:30 PM	22	1	43	0	66	1	157	8	0	166	85	0	13	0	98	3	207	1	0	211	541
04:45 PM	17	0	30	1	48	8	160	8	0	176	46	0	8	3	57	4	153	0	0	157	438
05:00 PM	31	3	45	1	80	6	207	8	0	221	68	1	16	1	86	3	185	2	0	190	577
Total Volume	77	4	148	2	231	17	689	32	0	738	246	1	49	6	302	12	729	9	0	750	2021
% App. Total	33.3	1.7	64.1	0.9		2.3	93.4	4.3	0		81.5	0.3	16.2	2		1.6	97.2	1.2	0		
PHF	.621	.333	.822	.500	.722	.531	.832	1.00	.000	.835	.724	.250	.766	.500	.770	.750	.880	.375	.000	.889	.876
Cars	76	4	148	2	230	17	688	32	0	737	245	1	49	6	301	12	727	8	0	747	2015
% Cars	98.7	100	100	100	99.6	100	99.9	100	0	99.9	99.6	100	100	100	99.7	100	99.7	88.9	0	99.6	99.7
Trucks	1	0	0	0	1	0	1	0	0	1	1	0	0	0	1	0	2	1	0	3	6
% Trucks	1.3	0	0	0	0.4	0	0.1	0	0	0.1	0.4	0	0	0	0.3	0	0.3	11.1	0	0.4	0.3



Maryland Way - AADT

Station 183				Station 262				Station 140				Station 2				Station 261		
Maryland Way, E of Winners Circle				Granny White Pike, S of Old Hickory Blvd				Granny White Pike, S of McGavock Rd				Franklin Road, S of Maryland Way				Franklin Road, N of Maryland Way		
AADT 2018	18,340	-17.361%		AADT 2018	11,954	-6.147%		AADT 2018	9,925	-31.258%		AADT 2018	24,803	-8.134%		AADT 2018	28,459	-2.877%
AADT 2017	22,193	3.817%		AADT 2017	12,737	3.142%		AADT 2017	14,438	7.083%		AADT 2017	26,999	0.660%		AADT 2017	29,302	-3.739%
AADT 2016	21,377	1.116%		AADT 2016	12,349	4.202%		AADT 2016	13,483	0.104%		AADT 2016	26,822	-8.392%		AADT 2016	30,440	15.491%
AADT 2015	21,141	-7.794%		AADT 2015	11,851	6.708%		AADT 2015	13,469	4.891%		AADT 2015	29,279	16.854%		AADT 2015	26,357	12.748%
AADT 2014	22,928	11.139%		AADT 2014	11,106	-10.845%		AADT 2014	12,841	15.094%		AADT 2014	25,056	5.070%		AADT 2014	23,377	-6.383%
AADT 2013	20,630	-6.351%		AADT 2013	12,457	-7.100%		AADT 2013	11,157	-1.596%		AADT 2013	23,847	-3.905%		AADT 2013	24,971	1.707%
AADT 2012	22,029	-4.330%		AADT 2012	13,409	12.927%		AADT 2012	11,338	15.341%		AADT 2012	24,816	-3.552%		AADT 2012	24,552	-3.699%
AADT 2011	23,026	3.506%		AADT 2011	11,874	15.641%		AADT 2011	9,830	-4.739%		AADT 2011	25,730	3.646%		AADT 2011	25,495	1.841%
AADT 2010	22,246	8.053%		AADT 2010	10,268	-6.892%		AADT 2010	10,319	-5.960%		AADT 2010	24,825	-1.328%		AADT 2010	25,034	-1.122%
AADT 2009	20,588	-10.487%		AADT 2009	11,028	3.326%		AADT 2009	10,973	-3.805%		AADT 2009	25,159	-4.852%		AADT 2009	25,318	-5.913%
AADT 2008	23,000			AADT 2008	10,673			AADT 2008	11,407			AADT 2008	26,442			AADT 2008	26,909	
	5 YR AVG	-1.817%			5 YR AVG	-0.588%			5 YR AVG	-0.817%			5 YR AVG	1.212%			5 YR AVG	3.048%
	8 YR Avg	-2.032%			8 YR Avg	2.316%			8 YR Avg	0.615%			8 YR Avg	0.281%			8 YR Avg	1.886%
	10 YR AVG	-1.869%			10 YR AVG	1.496%			10 YR AVG	-0.485%			10 YR AVG	-0.393%			10 YR AVG	0.805%

Overall Avg	0.208%
Overall Avg	0.613%
Overall Avg	-0.089%

Selected 1%

Appendix B

Trip Generation Calculations

TRIP GENERATION – Maryland Way

General Office Building – 200,779 square feet

Use ITE Land Use Code 710 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic

$$\ln(T) = 0.97 \ln(X) + 2.50$$

$$\ln(T) = 0.97 \ln(200.78) + 2.50$$

$$T = 2,086$$

A.M. Peak Hour - AM Peak Hour of the Adjacent Street (between 7:00 AM and 9:00 AM)

$$T = 1.16 (X)$$

$$T = 1.16 (200.78)$$

$$T = 233$$

$$\text{Enter} = 0.86 (233) = 200$$

$$\text{Exit} = 0.14 (233) = 33$$

P.M. Peak Hour - PM Peak Hour of the Adjacent Street (between 4:00 PM and 6:00 PM)

$$T = 1.15 (X)$$

$$T = 1.15 (200.78)$$

$$T = 231$$

$$\text{Enter} = 0.16 (231) = 37$$

$$\text{Exit} = 0.84 (231) = 194$$

Appendix C

Capacity Analysis

HCM Signalized Intersection Capacity Analysis

5: Winners Circle South/Winners Circle North & Maryland Way

05/25/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	581	32	312	951	108	5	4	31	10	1	3
Future Volume (vph)	45	581	32	312	951	108	5	4	31	10	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1711	3394		1711	3369			1812	1583	1770	1653	
Flt Permitted	0.22	1.00		0.22	1.00			0.93	1.00	0.75	1.00	
Satd. Flow (perm)	396	3394		397	3369			1728	1583	1400	1653	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	632	35	339	1034	117	5	4	34	11	1	3
RTOR Reduction (vph)	0	6	0	0	14	0	0	0	18	0	2	0
Lane Group Flow (vph)	49	661	0	339	1137	0	0	9	16	11	2	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	7	4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	21.2	18.2		33.0	25.5			18.0	28.3	18.0	18.0	
Effective Green, g (s)	21.2	18.2		33.0	25.5			18.0	28.3	18.0	18.0	
Actuated g/C Ratio	0.35	0.30		0.55	0.42			0.30	0.47	0.30	0.30	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	205	1029		443	1431			518	865	420	495	
v/s Ratio Prot	0.01	0.19		c0.13	c0.34				0.00		0.00	
v/s Ratio Perm	0.07			0.29				0.01	0.01	c0.01		
v/c Ratio	0.24	0.64		0.77	0.79			0.02	0.02	0.03	0.00	
Uniform Delay, d1	13.2	18.1		9.2	15.0			14.8	8.4	14.8	14.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	1.4		7.7	3.1			0.1	0.0	0.1	0.0	
Delay (s)	13.8	19.5		16.9	18.1			14.8	8.5	14.9	14.7	
Level of Service	B	B		B	B			B	A	B	B	
Approach Delay (s)		19.1			17.8			9.8			14.9	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			52.8%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Winners Circle South/Winners Circle North & Maryland Way

05/25/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	780	13	34	737	18	52	1	263	158	4	82
Future Volume (vph)	10	780	13	34	737	18	52	1	263	158	4	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1711	3413		1711	3409			1776	1583	1770	1595	
Flt Permitted	0.34	1.00		0.18	1.00			0.72	1.00	0.72	1.00	
Satd. Flow (perm)	607	3413		323	3409			1344	1583	1340	1595	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	848	14	37	801	20	57	1	286	172	4	89
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	23	0	63	0
Lane Group Flow (vph)	11	860	0	37	818	0	0	58	263	172	30	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	7	4		3	8			2	3		6	
Permitted Phases	4			8			2		2		6	
Actuated Green, G (s)	24.0	23.0		33.7	28.2			17.3	23.5	17.3	17.3	
Effective Green, g (s)	24.0	23.0		33.7	28.2			17.3	23.5	17.3	17.3	
Actuated g/C Ratio	0.40	0.38		0.56	0.47			0.29	0.39	0.29	0.29	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	261	1308		324	1602			387	738	386	459	
v/s Ratio Prot	0.00	c0.25		0.01	c0.24				c0.04		0.02	
v/s Ratio Perm	0.02			0.05				0.04	0.13	c0.13		
v/c Ratio	0.04	0.66		0.11	0.51			0.15	0.36	0.45	0.06	
Uniform Delay, d1	10.9	15.3		7.3	11.1			15.9	12.9	17.4	15.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	1.2		0.2	0.3			0.8	0.3	3.7	0.3	
Delay (s)	10.9	16.5		7.4	11.4			16.7	13.2	21.1	15.8	
Level of Service	B	B		A	B			B	B	C	B	
Approach Delay (s)		16.4			11.2			13.8			19.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			58.3%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	DCD			Intersection	Maryland Way at Project Access		
Agency/Co.	Volkert			Jurisdiction			
Date Performed	5/4/2020			Analysis Year	2022		
Analysis Time Period	Projected AM Peak						
Project Description: Maryland Way Parking TIS							
East/West Street: Maryland Way				North/South Street: Project Access			
Intersection Orientation: East-West				Study Period (hrs): 1.00			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		655	40	20	939		
Peak-Hour Factor, PHF	1.00	0.92	0.92	0.92	0.92	1.00	
Hourly Flow Rate, HFR (veh/h)	0	711	43	21	1020	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	7		3				
Peak-Hour Factor, PHF	0.92	1.00	0.92	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	7	0	3	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		21		10			
C (m) (veh/h)		852		346			
v/c		0.02		0.03			
95% queue length		0.08		0.09			
Control Delay (s/veh)		9.3		15.7			
LOS		A		C			
Approach Delay (s/veh)	--	--	15.7				
Approach LOS	--	--	C				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	DCD			Intersection	Maryland Way at Project Access		
Agency/Co.	Volkert			Jurisdiction			
Date Performed	5/4/2020			Analysis Year	2022		
Analysis Time Period	Projected PM Peak						
Project Description Maryland Way Parking TIS							
East/West Street: Maryland Way				North/South Street: Project Access			
Intersection Orientation: East-West				Study Period (hrs): 1.00			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		784	7	4	867		
Peak-Hour Factor, PHF	1.00	0.92	0.92	0.92	0.92	1.00	
Hourly Flow Rate, HFR (veh/h)	0	852	7	4	942	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	0	
Configuration		T	TR	LT	T		
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	39		19				
Peak-Hour Factor, PHF	0.92	1.00	0.92	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	42	0	20	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		4		62			
C (m) (veh/h)		778		331			
v/c		0.01		0.19			
95% queue length		0.02		0.69			
Control Delay (s/veh)		9.7		18.4			
LOS		A		C			
Approach Delay (s/veh)	--	--	18.4				
Approach LOS	--	--	C				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	DCD			Intersection	Winners Cir at North Entrance			
Agency/Co.	Volkert			Jurisdiction				
Date Performed	5/4/2020			Analysis Year	2022			
Analysis Time Period								
Project Description Maryland Way Parking TIS								
East/West Street: North Entrance				North/South Street: Winners Circle				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	32			295	50		
Peak-Hour Factor, PHF	0.92	0.92	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	4	34	0	0	320	54		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	8		1					
Peak-Hour Factor, PHF	0.92	1.00	0.92	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	8	0	1	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	4						9	
C (m) (veh/h)	1184						621	
v/c	0.00						0.01	
95% queue length	0.01						0.04	
Control Delay (s/veh)	8.1						10.9	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.9		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	DCD			Intersection	Winners Cir at North Entrance			
Agency/Co.	Volkert			Jurisdiction				
Date Performed	5/4/2020			Analysis Year	2022			
Analysis Time Period	Projected PM Peak							
Project Description Maryland Way Parking TIS								
East/West Street: North Entrance				North/South Street: Winners Circle				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	267			42	9		
Peak-Hour Factor, PHF	0.92	0.92	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	1	290	0	0	45	9		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	49		4					
Peak-Hour Factor, PHF	0.92	1.00	0.92	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	53	0	4	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	1						57	
C (m) (veh/h)	1551						671	
v/c	0.00						0.08	
95% queue length	0.00						0.28	
Control Delay (s/veh)	7.3						10.9	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.9		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	DCD			Intersection	Winners Cir at South Entrance			
Agency/Co.	Volkert			Jurisdiction				
Date Performed	5/4/2020			Analysis Year	2022			
Analysis Time Period								
Project Description Maryland Way Parking TIS								
East/West Street: South Entrance				North/South Street: Winners Circle				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	36	28			246	50		
Peak-Hour Factor, PHF	0.92	0.92	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	39	30	0	0	267	54		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	8		6					
Peak-Hour Factor, PHF	0.92	1.00	0.92	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	8	0	6	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	39						14	
C (m) (veh/h)	1239						644	
v/c	0.03						0.02	
95% queue length	0.10						0.07	
Control Delay (s/veh)	8.0						10.7	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.7		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	DCD			Intersection	Winners Cir at South Entrance			
Agency/Co.	Volkert			Jurisdiction				
Date Performed	5/4/2020			Analysis Year	2022			
Analysis Time Period								
Project Description Maryland Way Parking TIS								
East/West Street: South Entrance				North/South Street: Winners Circle				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	7	219			37	9		
Peak-Hour Factor, PHF	0.92	0.92	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	7	238	0	0	40	9		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	49		35					
Peak-Hour Factor, PHF	0.92	1.00	0.92	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	53	0	38	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	7						91	
C (m) (veh/h)	1558						801	
v/c	0.00						0.11	
95% queue length	0.01						0.38	
Control Delay (s/veh)	7.3						10.1	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.1		
Approach LOS	--	--				B		

Appendix D

Turn Lane Warrants

TDOT - ROADWAY DESIGN GUIDELINES

English

Revised: 10/27/15

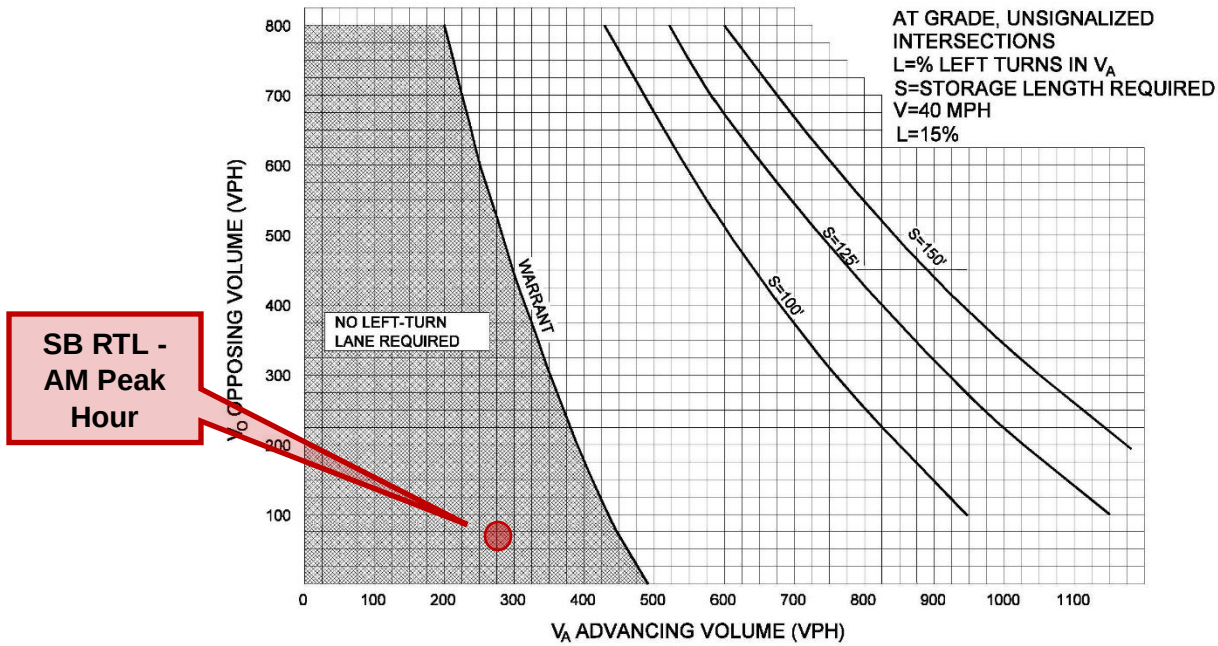


Figure 2-18C

Warrant for Left-Turn Storage Lanes on Two-Lane Highways ($V = 40 \text{ mph}$ and $L = 15\%$)

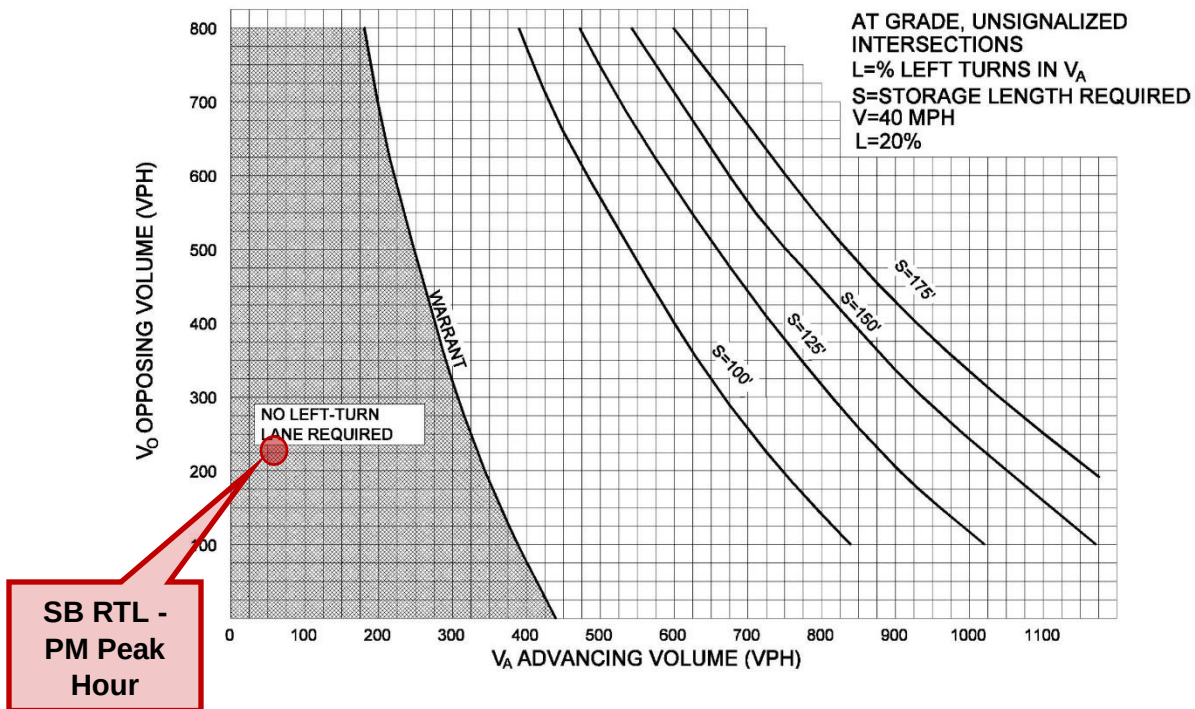


Figure 2-18D

Warrant for Left-Turn Storage Lanes on Two-Lane Highways ($V = 40 \text{ mph}$ and $L = 20\%$)

**BRENTWOOD PLANNING
COMMISSION**

1.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

PROJECT DESCRIPTION

ZONING OF PROPERTY

APPLICANT NAME/ADDRESS

Attachments

Improvement Security -- June 2020

Jeff Dobson
PLANNING AND CODES DIRECTOR

Tim Harrington
BUILDING CODES OFFICIAL



Todd Petrowski
SENIOR CITY PLANNER

Allison Henry
CITY PLANNER

BRENTWOOD PLANNING AND CODES

PLANNING DEPARTMENT MEMORANDUM 2020-12

TO: Planning Commission Members

FROM: D.J. Dobson, Planning & Codes Director

SUBJECT: SECURITY SUMMARY – JUNE 2020

DATE: June 30, 2020

The following securities were received or administered by Planning and Codes Department staff during the month of June 2020.

- **Taramore, Phase Three, McEwen Drive Retaining Wall** – Staff from the Engineering Department previously received a copy of a proposal to fill approximately 0.425 acres of wetland, located south of the future McEwen Drive right-of-way within the Taramore Subdivision. PulteGroup provided a draft of the request to transfer TDEC issued ARAP permit number NRS17.348 to the City of Brentwood. Additionally, staff reviewed copies of the plans and specifications and other information submitted in support of the permit application.

TDEC has approved and posted the transfer of ownership addendum. Permit responsibility, coverage and contractual liability has been transferred from Pulte Homes Tennessee, LP to the City of Brentwood.

With the permit transfer, the City Engineer has recommended that letter of credit number 70001888, originally issued in the amount of \$900,000.00 be released.

Copies of letter of credit number 700018858 were sent to the applicant as part of the notification letter – Pulte Homes of Tennessee. The original document was returned to the SunTrust Bank, located at 401 Commerce Street, Suite 100, in Nashville as required by the language in the letter of credit.

- **Taramore, Phase 13, RDU & W/S** -- Staff with the City of Brentwood Planning and Codes Department verified the new expiry date of letter of credit number IS0432338U with staff from the Wells Fargo Bank. The letter of credit automatically renewed per the terms and conditions of the original document. The documents' new expiry date is June 16, 2021. The current amount remains unchanged at \$186,507.00. All other terms and conditions

of the original letter of credit remain unchanged. Planning and Codes Department staff notified the developer of the verification.

As noted above, this letter of credit includes an automatic renewal clause that requires that the beneficiary (City) be provided at least 90-days advance notice of any action by the issuing financial institution not to extend the document beyond its current or any future expiration date.

The developer was advised that future reductions to the amount of the letter of credit will be processed in accordance with the requirements of the Brentwood Subdivision Regulations. Please contact Mr. Steve Foster at 615.371.0080 in April 2019 to coordinate a follow-up inspection of the project.

Finally, the developer was reminded that the ongoing maintenance of all required improvements within the section remains your responsibility until final acceptance of the infrastructure by the City, where applicable. Any deficiencies identified by staff as a result of any future inspections shall be repaired at the developer's expense before further reductions may be processed or the security released.

- **Jaguar/Land Rover of Nashville, Landscaping** – Planning staff received letter of credit number 90542697, issued by the Pinnacle Bank in the amount of \$143,467.00.

The letter of credit shows an expiry date of June 18, 2022. Pinnacle Bank currently maintains a rating of "B" as issued by the Kroll Bond Rating Agency. The Pinnacle Bank is a member of the Tennessee Collateral Banking Pool, number 35583. The letter of credit included an automatic renewal clause that required that the beneficiary (City) be notified at least 90 days in advance of any action by the Bank to discontinue the document beyond its current or any future expiration date. June 18, 2022 is a Saturday, the subdivision regulations required that the original expiry date of any security accepted by the City not be on a weekend day or bank holiday. The applicant was notified to advise the bank to have an amendment created that modifies the expiry date to either June 17 or June 20.

The submittal also included the required signed and notarized performance agreement.

- **Whetstone, Section One, RDU & W/S** -- Staff with the Planning and Codes Department has verified the new expiry date of letters of credit numbers 3070355 and 3070938 with staff from the Bank of America. Both letters of credit have automatically renewed per the terms and conditions of the original document. Both document's show a new expiry date is **June 14, 2021**. The current amounts remain unchanged respectively at \$103,609.00 and \$76,768.00. All other terms and conditions of the original letter of credit, including the automatic renewal clause remain unchanged.

As noted above, these letters of credit include an automatic renewal clause that requires that the beneficiary (City) be provided at least 90-days advance notice of any action by the issuing financial institution not to extend the document beyond its current or any future expiration date.

The developer was informed that future reductions to the amount of the letter of credit will be processed in accordance with the requirements of the Brentwood Subdivision Regulations. They were asked to contact the City Engineer at 615.371.0080 in April 2021 to coordinate a follow-up inspection of the project.

Finally, the developer was reminded that the ongoing maintenance of all required improvements within the section remains your responsibility until final acceptance of the infrastructure improvements by the City, where applicable. Any deficiencies identified by staff as a result of any future inspection shall be repaired at the developer's expense before further reductions may be processed or the security released.

- **Whetstone, Section Two, RDU & W/S** -- Staff with the Planning and Codes Department has verified the new expiry date of letters of credit 3070936 and 3070937 with staff from the Bank of America. Both letters of credit numbers 3079036 and 3079037 have automatically renewed per the terms and conditions of the original document. Both documents show a new expiry date is **June 14, 2021**. The current amounts remain unchanged respectively at \$85,782.00 and \$34,722.00. All other terms and conditions of the original letter of credit, including the automatic renewal clause remain unchanged.

As noted above, these letters of credit include an automatic renewal clause that requires that the beneficiary (City) be provided at least 90-days advance notice of any action by the issuing financial institution not to extend the document beyond its current or any future expiration date.

The developer was informed that reductions to the amount of the letter of credit will be processed in accordance with the requirements of the Brentwood Subdivision Regulations. Please contact the City Engineer at 615.371.0080 in April 2021 to coordinate a follow-up inspection of the project.

Finally, the developer was reminded that the ongoing maintenance of all required improvements within the section remains your responsibility until final acceptance of the infrastructure improvements by the City, where applicable. Any deficiencies identified by staff as a result of any future inspection shall be repaired at the developer's expense before further reductions may be processed or the security released.

- **Valley View Subdivision, RDL W/S & Landscaping** –Staff with the Planning and Codes Department has verified the new expiry date of letter of credit number 36536, issued by ServisFirst Bank. The document shows a new expiry date is **June 16, 2021**. The current amount remains unchanged at \$287,761.00. All other terms and conditions of the original letter of credit, including the automatic renewal clause remain unchanged.

As noted above, these letters of credit include an automatic renewal clause that requires that the beneficiary (City) be provided at least 90-days advance notice of any action by the issuing financial institution not to extend the document beyond its current or any future expiration date.

The developer was informed that reductions to the amount of the letter of credit will be processed in accordance with the requirements of the Brentwood Subdivision Regulations. Please contact the City Engineer at 615.371.0080 in April 2021 to coordinate a follow-up inspection of the project.

Should you have any questions or require additional information, please feel free to contact me in the Planning and Codes Department offices.

SECURITY REPORT
CITY OF BRENTWOOD
BY EXPIRATION DATE
JUNE 2020

PROJECT NAME	SECURITY NUMBER	AMOUNT OF SECURITY	DESIGNATED IMPROVEMENT	P/M	ISSUING BANK	SECURITY TYPE	EXP. NOTICE DATE	ACTUAL EXPIRY DATE	LAST STAFF ACTION	AUTO RENEW	KROLL (LACE) RATING Q2 2019
Parkside at Brenthaven, Ph. 2, Sec. 1	600053020	\$167,002.00	RDL, W/S	P	Pinnacle National Bank	LOC	6/12/2020	7/12/2020	7/31/2019	YES	B
Sneed Manor	403088500	\$550,133.00	RDU, W/S, AMENITY	P	Franklin Synergy Bank	LOC	6/18/2020	7/18/2020	7/18/2019	YES	B
Whetstone, Sec. Three	70001912	\$129,358.00	RDL, W/S	P	SunTrust Bank	LOC	6/20/2020	7/20/2020	1/31/2020	YES	B
Whetstone, Sec. Four	70001913	\$170,214.00	RDL, W/S	P	SunTrust Bank	LOC	6/20/2020	7/20/2020	7/31/2019	YES	B
Whetstone, Sec. Five	70001914	\$174,880.00	RDL, W/S	P	SunTrust Bank	LOC	6/20/2020	7/20/2020	7/31/2019	YES	B
Belle Terra Subdivision	5094	\$169,684.00	RDL, W/S	P	Franklin Synergy Bank	LOC	6/22/2020	7/22/2020	7/31/2019	YES	B
Whetstone, Sec. Six	3121592	\$279,092.00	RDL & S	M	Bank of America	LOC	6/30/2020	7/31/2020	7/31/2019	YES	B
Bell Self-Storage	13379-15-100	\$71,750.00	LAND	P	Capstar Bank	LOC	7/7/2020	8/7/2020	9/28/2018	YES	B
Taramore, Subdivision Ph.10	IS0333349U	\$102,511.00	RDL, W/S	P	Wells Fargo Bank	LOC	8/3/2020	9/3/2020	11/18/2019	YES	B+
Stonecrest Subdivision	1250006408	\$154,105.00	RDL, W/S	P	FirstBank	LOC	8/9/2020	9/9/2020	9/27/2019	YES	B
Holy Family Catholic Church	S293263	\$27,500.00	LAND	P	First Tennessee Bank	LOC	8/19/2020	9/19/2020	8/31/2019	YES	B
Morgan Farms, Sec. Five	SYND-69366643-713	\$257,719.00	RDL, W/S	P	Synovus Bank	LOC	8/21/2020	9/21/2020	9/30/2019	YES	B+
American Tower	3029729	\$20,000.00	TOWER REM.	P	Bank of America	LOC	8/26/2020	9/26/2020	9/30/2019	YES	B
Taramore, Subdivision Ph. 11	IS0342670U	\$285,603.00	RDL, W/S	P	Wells Fargo Bank	LOC	9/13/2020	10/13/2020	9/30/2019	YES	B+
Glen Abbey Subdivision, Section One	157337735	\$130,279.00	LAND	P	Synovus Bank	LOC	9/16/2020	10/30/2020	10/31/2019	YES	B+
The Heritage at Brentwood, Phase IV	90018410	\$137,500.00	LAND	P	Pinnacle National Bank	LOC	9/17/2020	10/17/2020	7/19/2019	YES	B
Beech Creek Hill -- PERPETUAL	403822500	\$152,333.00	RDU & S	P	Franklin Synergy Bank	LOC	9/18/2020	10/18/2020	11/19/2018	YES	B
Witherspoon Subdivision, Sec. Three	90018701	\$127,045.00	RDL, W/S & LAND	P	Pinnacle National Bank	LOC	9/19/2020	10/19/2020	10/31/2020	YES	B
Hill Center Brentwood, Phase II	70003590	\$491,425.00	LAND/HARDSCAPE	P	SunTrust Bank	LOC	9/20/2020	10/20/2020	10/30/2018	YES	B
Glen Abbey Subdivision, Sec. Three	157341419	\$176,914.00	RDL, W/S	P	Synovus Bank	LOC	9/23/2020	10/23/2020	10/31/2019	YES	B+
Glen Abbey Subdivision, Sec. One	1653304279	\$115,790.00	RDL, W/S	M	Synovus Bank	LOC	9/30/2020	10/30/2020	10/31/2019	YES	B+
Glen Abbey Subdivision, Sec. Two	1653293803	\$108,944.00	RDL, W/S	M	Synovus Bank	LOC	9/30/2020	10/30/2020	10/31/2019	YES	B+
Witherspoon Subdivision, Sec. One	90012705	\$323,427.00	RDL, W/S, AMENITY & LAND	P	Pinnacle National Bank	LOC	10/7/2020	11/7/2020	11/29/2019	YES	B
East Park Office Building 2	90242725	\$80,850.00	LAND/HARDSCAPE	P	Pinnacle National Bank	LOC	10/7/2020	11/7/2020	11/30/2018	YES	B
Springhill Suites -- PERPETUAL	402719900	\$311,605.00	RDL, LAND	P	Franklin Synergy Bank	LOC	10/14/2020	11/14/2020	11/30/2019	YES	B
Morgan Farms, Sec. Two	SYND-69366643-708	\$127,992.00	RDL, W/S	P	Synovus Bank	LOC	10/21/2020	11/21/2020	11/30/2019	YES	B+
Morgan Farms, Sec. Four	SYND-69366643-707	\$112,544.00	RDL, W/S	P	Synovus Bank	LOC	10/21/2020	11/21/2020	11/30/2019	YES	B+
Brentwood Lights -- Delamar -- PERPETUAL	404321500	\$15,000.00	CURBS/DETENTION POND	P	Franklin Synergy Bank	LOC	10/21/2020	11/21/2020	12/31/2019	YES	B
Morgan Farms, Sec. One	69366530-701	\$200,000.00	RDL, W/S	M	Synovus Bank	LOC	11/17/2020	12/17/2020	1/19/2020	YES	B+
Johnson Cove Subdivision	161000898802	\$35,946.00	RDL, W/S	M	BancorpSouth Bank	LOC	12/4/2020	1/4/2021	10/31/2019	YES	B
Morgan Farms, Sec. Seven	69368327-817	\$288,206.00	RDL, W/S	P	Synovus Bank	LOC	12/8/2020	1/8/2021	1/31/2019	YES	B+
Fox Crest -- aka McClendon Acres	1226	\$66,163.00	RDL & S	M	Wilson Bank & Trust	LOC	12/13/2020	1/13/2021	1/19/2020	YES	B-
Witherspoon Subdivision, Sec. Four	90020122	\$480,097.00	RDL, W/S & LAND	P	Pinnacle National Bank	LOC	12/20/2020	1/24/2021	1/31/2020	YES	B
Taramore Subdivision, Ph. 14	70002305	\$53,267.00	RDL, W/S	P	SunTrust Bank	LOC	12/30/2020	1/30/2021	11/18/2019	YES	B
Witherspoon Subdivision, Sec. Two	90014269	\$01,533.00	RDL, W/S & LAND	P	Pinnacle National Bank	LOC	1/2/2021	2/1/2021	1/31/2020	YES	B
Avery Subdivision	161000931391	\$501,049.00	RDL, SEWER & LAND	P	BancorpSouth Bank	LOC	1/7/2021	2/7/2021	2/28/2020	YES	B
Witherspoon, Subdivision Sec. Five	90359703	\$431,243.00	RDL, W/S & LAND	P	Pinnacle National Bank	LOC	1/22/2021	2/22/2021	2/28/2019	YES	B
Morgan Farms, Sec. Three	69366643-800	\$165,255.00	RDL, W/S	P	Synovus Bank	LOC	2/8/2021	3/8/2021	12/28/2019	YES	B+
Tuscany Hills Sec. Seven	1250031750	\$177,575.00	RDL, W/S	P	FirstBank	LOC	2/15/2021	3/15/2021	3/31/2019	YES	B
Small Cell Node Removal -- Verizon	68145854	\$15,000.00	SMALL CELL REMOVAL	P	Bank of America	LOC	2/22/2021	3/22/2021	5/3/2019	YES	B
Reserve at Raintree Forest, Sec. Four	90412148	\$834,074.00	RDU, W/S	P	Pinnacle National Bank	LOC	3/15/2021	4/15/2021	4/30/2019	YES	B
Cromwell, Sec. One	69408855-711	\$168,415.00	RDL, W/S & LAND	M	Synovus Bank	LOC	3/28/2021	4/28/2021	4/30/2020	YES	B+
Cromwell, Sec. Two	69408855-712	\$127,457.00	RDL, W/S	M	Synovus Bank	LOC	3/30/2021	4/30/2021	4/30/2020	YES	B+

SECURITY REPORT
CITY OF BRENTWOOD
BY EXPIRATION DATE
JUNE 2020

PROJECT NAME	SECURITY NUMBER	AMOUNT OF SECURITY	DESIGNATED IMPROVEMENT	P/M	ISSUING BANK	SECURITY TYPE	EXP. NOTICE DATE	ACTUAL EXPIRY DATE	LAST STAFF ACTION	AUTO RENEW	KROLL (LACE) RATING Q2 2019
Tuscany Hills, Sec. Six -- PERPETUAL	401325100	\$92,225.00	RDL, W/S	M	Franklin Synergy Bank	LOC	4/3/2021	5/3/2021	5/31/2020	YES	B
ParkCenter Buildings	45479176060	\$50,000.00	LAND	P	Pinnacle National Bank	LOC	4/10/2021	5/10/2021	5/31/2019	YES	B
Morgan Farms, Sec. Six	SYND-69366643-716	\$368,327.00	RDL, W/S	P	Synovus Bank	LOC	4/15/2021	5/15/2021	5/31/2020	YES	B+
Taramore, Subdivision, Ph. 15	70002531	\$124,027.00	RDL, W/S	P	SunTrust Bank	LOC	4/18/2021	5/18/2021	5/31/2020	YES	B
Whetstone, Sec. One	3070938	\$76,768.00	W/S	P	Bank of America	LOC	5/14/2021	6/14/2021	6/30/2019	YES	B
Whetstone, Sec. One	3070935	\$103,609.00	RDL	P	Bank of America	LOC	5/14/2021	6/14/2021	6/30/2019	YES	B
Whetstone, Sec. Two	3070937	\$34,722.00	W/S	P	Bank of America	LOC	5/14/2021	6/14/2021	6/30/2019	YES	B
Whetstone, Sec. Two	3070936	\$85,782.00	RDL	P	Bank of America	LOC	5/14/2021	6/14/2021	6/30/2019	YES	B
Taramore, Subdivision, Ph 13	IS0432338U	\$60,709.00	RDL,W/S	P	Wells Fargo Bank	LOC	5/16/2021	6/16/2021	11/18/2019	YES	B+
Valley View Subdivison	36536	\$287,761.00	RDL,W/S	P	Servis 1st Bank	LOC	5/22/2021	6/22/2021	7/30/2018	YES	B
Witherspoon, Sec. Six	90444632	\$311,371.00	RDU, W/S & STREET TREES	P	Pinnacle National Bank	LOC	6/26/2021	7/26/2021	8/8/2019	YES	B
The Heights	SLCMMSP09551	\$203,034.70	RDU & BUFER LAND	P	U.S. Bank	LOC	6/30/2021	7/31/2021	8/1/2019	YES	Aa3*
Virginia Springs, Phase II	S293199	\$204,017.00	TRANS & LAND	P	First Tennessee Bank	LOC	7/2/2021	8/2/2021	8/31/2019	YES	B
Terrabrooke Subdivision	5098	\$188,230.00	RDL,W/S & LAND	P	Franklin Synergy Bank	LOC	7/20/2021	8/20/2021	8/8/2019	YES	B
Taramore, Subdivision, Ph. 12	70004240	\$533,063.00	RDU, W/S	P	SunTrust Bank	LOC	8/7/2021	9/7/2021	9/30/2019	YES	B
Oman Subdivision	1250038637	\$1,323,611.00	RDL,W/S & LAND	P	FirstBank	LOC	8/19/2021	9/19/2021	9/30/2019	YES	B
Journey Church -- 1600 Wilson Pike	90471383	\$36,624.00	LAND	P	Pinnacle National Bank	LOC	10/1/2021	11/1/2021	8/8/2019	YES	B
Marshall Place	1378	\$300,000.00	RDL, W/S & LAND	P	First Citizens Nat. Bank	LOC	10/5/2021	11/5/2021	11/6/2019	YES	B
1537 Franklin Road	161000010701	\$45,435.50	LAND	P	BancorpSouth Bank	LOC	11/11/2021	11/22/2021	11/30/2019	YES	B
Paw Pals	9081643	\$7,913.40	LAND	P	Reliant Bank	LOC	12/28//2021	1/28/2022	4/30/2020	YES	B
AC Marriott Hotel	4034	\$30,800.00	LAND	P	Renasant Bank	LOC	12/30//2021	1/30/2022	4/30/2020	YES	B
Andrews Transportation	90542697	\$143,467.00	LAND	P	Pinnacle National Bank	LOC	5/8//2022	6/8/2022	6/30/2020	YES	B
TOTAL	\$13,627,975.60										
*Moody's Rating -- Aa3, Fitch Rating -- AA											

SECURITY REPORT

CITY OF BRENTWOOD

AMOUNTS HELD IN ESCROW

JUNE 2020

PROJECT NAME	AMOUNT OF ESCROW	DESIGNATED IMPROVEMENT	P/M	ORIGINAL CASHIERS CHECK NUMBER	DATE RECEIVED
Inglehame Farms, Section 5	\$44,384.00	RDL & W/S	M	N/A	6/2010
YMCA Parking Lot Rennovations	\$4,000.00	LAND	P	334290	6/2010
Local Taco Restaurant	\$1,000.00	LAND	M	34725	6/2010
Clearwire Co-Location -- Chenoweth	\$7,750.00	LAND	M	695110938	6/1/2010
Brookfield, Section 19 -- Fence	\$1,300.00	FENCE	P	5192	7/1/2010
Inglehame Farms, Section 7	\$123,006.50	RDL & W/S	P	7030834893	12/30/2010
Brentwood Country Club	\$4,400.00	LAND	M	0905385	2/22/2011
Princeton Hills, Sections 3, 4, & 5	\$50,000.00	DRAINAGE	M	7031641428	3/2011
Parklane Building Renovations -- Land	\$13,447.50	LAND	M	7038763389	3/2011
Peartree Village Revised Site Plan	\$5,410.90	LAND	P	1603114238	6/6/2011
HG Hills S/C -- Dumpster Area Land.	\$2,130.00	LAND	P	N/A	5/4/2012
YMCA Landscaping Improvements	\$4,000.00	LAND	P	0999045	8/6/2012
Franklin SynergyBank	\$5,950.00	LAND	P	10242067	3/31/2015
Greys Meadow Subdivision	\$11,000.00	SEWER	P	5500382399	8/23/2013
PWSF -- 8217 Alamo Drive	\$5,747.50	LAND	P	5501777477	4/24/2014
Huskey-Byram Plat	\$5,000.00	SEWER	P	0897902166	5/30/2014
Tomlinson Subdivision	\$15,000.00	LAND	P	8732105553	4/10/2015
Crossings at Brentwood --- Harmony	\$39,000.00	LAND	M	144273	1/31/2017
Traditions Section 1	\$782,833.00	RDU & W/S	P	001060	3/31/2017
Windstone, Sec 2	\$3,487.50	SIDEWALK	P	72000112	3/31/2017
Elmbrooke, Sec. 1	\$5,000.00	RDU & LAND	M	201755368	6/8/2017
122 Franklin Road	\$23,346.00	LAND, ST. FURN.	P	5504232802	2/2/2018
8117A Alamo Dr. -- PWSF	\$9,982.50	LAND	P	5531363512	8/6/2018
Traditions Section 2	\$555,459.00	RDU & W/S	P	003273	8/16/2018
1648 Westgate Circle	\$5,000.00	LAND	P	18244	8/15/2018
Hidden Creek Sections 1 & 2	\$25,000.00	LAND	M	001402	8/8/2018
Edenbrook Estates	\$83,031.00	RDU & SEWER	M	835807015	11/30/2018
Small Cell Node Removal -- Murray & Fisher	\$49,500.00	TOWER REMOVAL	M	165804	12/7/2018
Small Cell Node Removal -- 7101B Crossroads	\$5,000.00	TOWER REMOVAL	M	1019362782	10/25/2018
Repairs to Ravello Way -- Tuscany	\$2,500.00	ROAD REPAIRS	P	6840702043	8/9/2019
Traditions, Section 3	\$703,066.80	RDU & W/S	M	004736	10/4/2019
Traditions, Section 5	\$398,475.00	RDU & W/S	P	005159	2/11/2020
Traditions, Section 4	\$346,044.00	RDU & W/S	P	005392	4/20/2020
Preserve at Arden Woods	\$108,139.00	RDU & W/S	P	5301576623	3/30/2020

TOTAL ESCROW ACCOUNT HOLDINGS	\$3,448,390.20
TOTAL AMOUT OF ALL SECURITIES HELD BY THE CITY	\$17,076,365.80

**BRENTWOOD PLANNING
COMMISSION**

1.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

PROJECT DESCRIPTION

ZONING OF PROPERTY

APPLICANT NAME/ADDRESS

Attachments

P&C Dept. Monthly Report -- May 2020

Jeff Dobson
PLANNING AND CODES DIRECTOR

Tim Harrington
BUILDING CODES OFFICIAL



Todd Petrowski
SENIOR CITY PLANNER

Allison Henry
CITY PLANNER

BRENTWOOD PLANNING AND CODES

PLANNING DEPARTMENT MEMORANDUM 2020-11

TO: HONORABLE MAYOR AND MEMBERS OF THE BOARD OF COMMISSIONERS

THROUGH: KIRK BEDNAR, CITY MANAGER

FROM: JEFF DOBSON, PLANNING & CODES DIRECTOR

SUBJECT: May 2020 MONTHLY REPORT

DATE: June 18, 2020

PLANNING COMMISSION

The Planning Commission conducted their regular monthly meeting, remotely on May 4, 2020. The following table presents a summary of the Planning Commission case file review, completed by staff to date in FY 2020.

PLANNING COMMISSION CASE FILE REVIEW -- SUMMARY -- FY 2020													
REVIEW TYPE	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	YTD TOTAL
FINAL PLAT	1	3		1		2		1					8
FOOD TRUCK RALLY							1						1
HILLSIDE PROTECTION SITE PLAN				1				2		6			9
LIMITED DURATION EVENT	2	1	2				1	1					7
MASTER GRADING PLAN													0
ORDINANCE		1							1				2
PLAN RECOMMENDATIONS			1										1
PRELIMINARY PLAN							1						1
PUBLIC HEARING -- FOUR-STORY BLDG													0
REVISED BUILDING ELEVATIONS	2	1		1	2	2	1	1	1	1	3		15
REVISED FINAL PLAT	1		2		1	2	5	1					12
REVISED HILLSIDE PROTECTION SITE PLAN		1									2		3
REVISED PRELIMINARY PLAN	1		1		2	1	1		1		1		8
REVISED SITE PLAN	2	3	1	4	2	1		1		3	2		19
SITE PLAN		3									1		4
SMALL CELL WIRELESS FACILITIES		3											3
REVISED PWSF SITE PLAN		3				2							
TEMPORARY MODEL HOME		3		1						2			6
MONTHLY TOTAL	9	16	6	7	8	10	7	7	6	6	15	0	97

BOARD OF ZONING APPEALS

The Board of Zoning Appeals met on May 18, 2020. The following table presents a summary of the Board of Zoning Appeals case file review, completed by staff during FY 2020.

BOARD OF ZONING APPEALS -- CASE FILE REVIEW SUMMARY-- FY 2020													
REVIEW TYPE	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	YTD TOTAL
ACCESSORY STRUCTURE	1	2	0	1	0	3	0	3	0	3	3		16
HOME OCCUPATION	0	0	0	0	0	0	0	0	0	0			0
SPECIAL EXCEPTION	0	0	0	0	0	0	0	0	0	0			0
VARIANCE	0	0	0	0	0	1	0	0	0	0	1		2
TOTALS	1	2	0	1	0	4	0	3	0	3	4	0	18

AMENDMENTS TO THE ZONING ORDINANCE

Planning staff, in coordination with other departments continues to work on various zoning ordinance amendments.

Fences

Staff continues to work on draft amendments to Section 78-10 of the zoning ordinance regarding fence standards in all zoning districts. The proposed amendments would require the issuance of a permit to erect a fence in residential districts. Erection of fences in commercial districts would be addressed by the Planning Commission as part of a revised site plan review. Additional locational standards are also included as part of the amendments.

Subdivision Regulations

Staff completed the final draft of the proposed amendments to the Subdivision Regulations. The draft is scheduled to be presented to the Planning Commission for review and approval. Should the Planning Commission approve the draft document at their June 1, 2020 regular meeting the effective date of the changes will be July 1, 2020.

Rezoning

During May, Planning and Codes Department reviewed and processed three rezoning applications. Additionally, staff also began review of two requests for annexation and zoning assignment. The requests are summarized below

A request to rezone the property located at 502 and 506 Franklin Road from AR to SI-3. Staff completed the backup information and scheduled the case for review by the Board of Commissioners at their June 8 regular meeting. The properties are located at the intersection of Wilson Pike Circle and Franklin Road and were previously owned by Mrs. Sarah Wall. The proposal envisions construction of a tennis facility on the corner. The proposal includes a total of twelve courts, six inside and six outside and associated parking.

A second request was also received to rezone approximately 58 acres located in the NE quadrant of the City, at the end of Singleton Lane in the Stonecrest Subdivision. The requested change is from R-2 to OSRD. The plan proposes a total of 43 lots. Singleton Lane, which is a temporary

dead-end street will be extended to provide one point of access. A second access to will also be provided to Walnut Hills Drive.

The third request was from the owner of 8110 Moores Lane. The subject property is included as a lot within Section Seven of the Brenthaven Subdivision. The property is located immediately east of the Moores Lane Greenway. The requested change is from R-2 to C-1.

The hearing schedule for all three applications is tentatively set to begin at the Board of Commissioners meeting on June 8, 2020 with first reading.

Finally, Ordinance 2020-01 was approved by the Board of Commissioners on March 9, 2020, just as the COVID-19 emergency was declared. The remaining hearing schedule, from the Community Meeting on has been delayed because recommended social distancing could not be achieved. The Planning Commission will provide its review and recommendation of the proposed ordinance at its June 1st, meeting. The community meeting for this request will be conducted later in May. The public hearing is tentatively scheduled for June 8th , with second and final reading scheduled for June 22nd.

A request was also received to annex and assign zoning for approximately 25 acres located at the end of New Bristol Lane in the Taramore Subdivision. The proposed zone change requested is from MGA-1 (County zoning classification) to R-1. All lots meet or exceed the two-acre minimum lot size for the proposed zoning classification. The applicant is in the process of revising the plans. No hearing schedule has been established at this time.

Finally, a request to annex and assign zoning for approximately 5.7 acres of land located in the SE quadrant of the intersection of North Berry's Chapel Road and Holly Tree Gap Road. More specifically the property is located at 2500 North Berry's Chapel Road. The property is currently zoned MGA-1 in the County. The requested change is to the R-2 zoning district. Staff is developing the hearing schedule and finalizing the required plan of services.

The applicants for the rezoning requests were all notified that due to the COVID-19 emergency, public hearings as required by the zoning ordinance are not possible. All four requests have been deferred until at least June. The annexation request may be scheduled somewhat later due to the annexation meeting requirements.

PERMITTING AND DEVELOPMENT MANAGEMENT SOFTWARE



Staff has concluded our weekly meetings with the Davenport Group USA, (LAMA), our permitting and development management software provider, in the design of the new software system for the City. The LAMA software will replace the aging TrakIT system that staff has been using since 2003.

In late April, staff completed the design of the case packets for the permit module, which included various permit, project and inspection types. Work was also completed on the administration, planning, licensing and codes enforcement modules also designing the various case types and workflow matrices. These reviews were completed earlier. The case packets detail the procedures, processes and the file types/subtypes that will be used once the program is operational. The data requirements for each module are different. City staff and Davenport staff began with base information currently maintained in TrakIT to modify the data and design of the over 70+ different types in all modules, which will be used to produce a custom layout for Brentwood.

Davenport staff has compiled the data as part of the development of the case packets and has developed a test version of the software. On-site testing of the software, which included the staff designed screens for all modules began on May 18th. Testing ran for three days.

Training in the use of the software is scheduled for June 15th through 17th

Additionally, Davenport staff also worked with the GIS staff to work on the mapping integration that will support each module.

It is currently planned to begin software implementation and “Go-Live” beginning on July 13th.

BUILDING PERMIT RECAP

SUMMARY -- PERMIT VALUATION/FEEES COLLECTED -- FY 2020			
MONTH	PERMITS ISSUED	VALUATION	FEEES COLLECTED
JULY	164	\$9,402,247.59	\$45,004.15
AUGUST	207	\$17,460,158.22	\$72,921.80
SEPTEMBER	164	\$31,906,571.57	\$90,989.77
OCTOBER	209	\$15,526,274.47	\$80,505.54
NOVEMBER	176	\$17,302,943.85	\$81,523.94
DECEMBER	141	\$37,337,041.82	\$62,585.90
JANUARY	262	\$16,390,110.97	\$97,195.26
FEBRUARY	229	\$14,021,123.50	\$138,240.71
MARCH	126	\$35,923,698.82	\$301,199.59
APRIL	120	\$11,940,426.51	\$89,531.90
MAY	142	\$10,816,119.00	\$74,874.51
JUNE			
TOTAL FY 2020	1940	\$218,026,716.32	\$1,134,573.07
(PERM130)			

The totals reported above do not include water and sewer tap fees, which are treated as permits and issued as such. Those numbers are detailed later in this report.

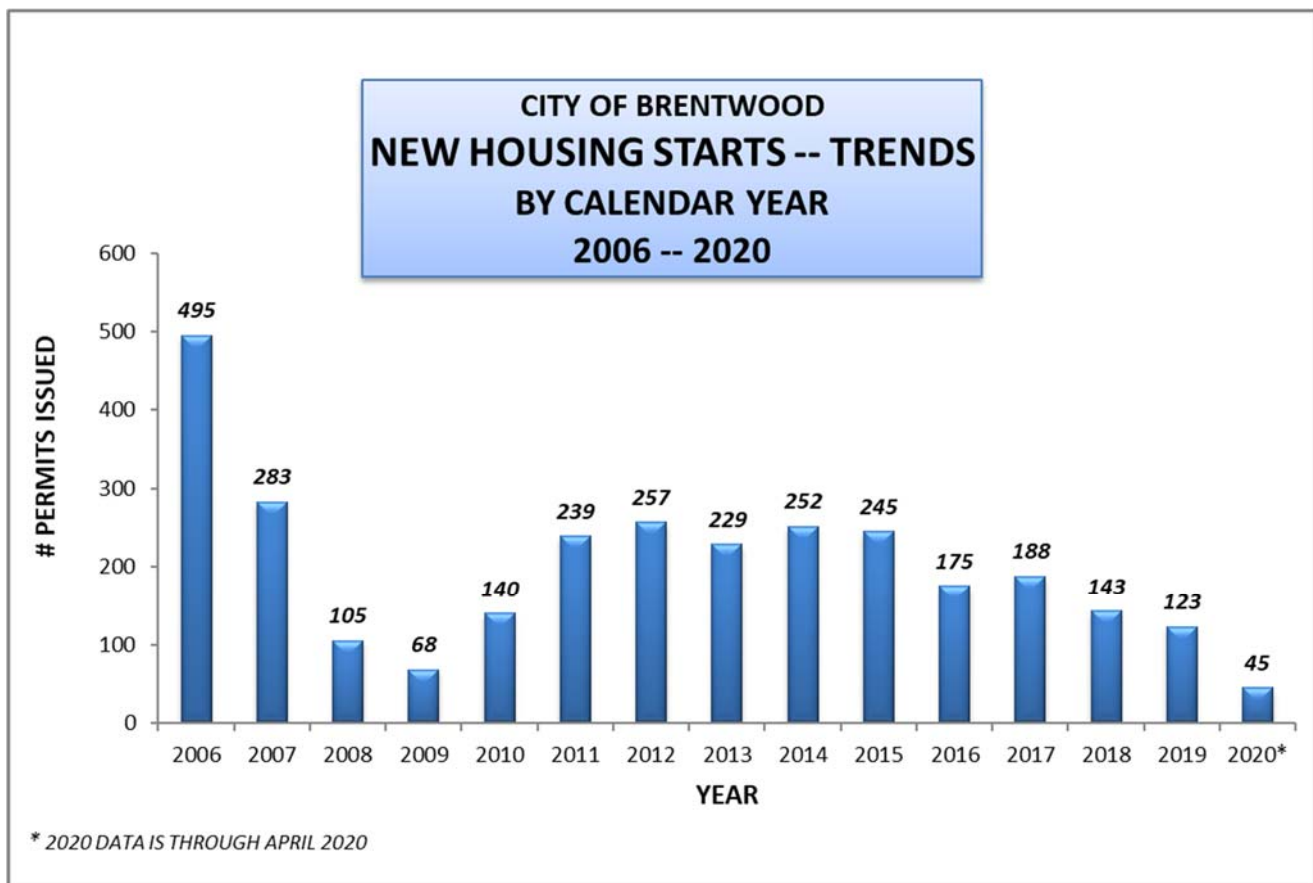
Staff issued a total of six single-family residential permits for the month of May. The total valuation of the SF permits was \$3,248,700.00. The total permit fees received was **\$12,198.75**. This compares with 11 permits issued in May 2019.

The total number of single-family permits issued this calendar year through May 2020 is **45**. The total number of permits issued last calendar year through May was **48**. A total of 114 single-family building permits have been issued to date in FY 2020. This number compares to 107 permits issued in FY 2019. through May 2019.

A total of **29** permits were issued for residential improvements (basement build outs, covered porches, decks, garages, remodel, residential addition, and swimming pools). The total valuation for these permits was \$2,737,943.00, while the permit fees received was **\$11,372.50**.

PERMITS ISSUED MAY 2020							
PERMIT TYPE	# ISSUED	VALUATION	FEES	PERMIT TYPE	# ISSUED	VALUATION	FEES
ACCESSORY STRUCTURE	5	\$128,300.00	\$770.75	IRR R	9	\$55,300.00	\$247.50
BASEMENT	2	\$66,950.00	\$344.00	IRRIGATION	0	\$0.00	\$0.00
COMMERCIAL ADDITION	1	\$2,589,500.00	\$0.00	LIMITED DURATION EVENT	0	\$0.00	\$0.00
COMMERCIAL FOUNDATION	0	\$0.00	\$0.00	MECHANICAL	24	\$400,967.00	\$1,795.50
COMMERCIAL GRADING PLAN	2	\$0.00	\$1,045.00	MISCELLANEOUS BUILDING	1	\$44,865.00	\$25.00
COMMERCIAL RENOVATION	2	\$165,000.00	\$1,098.00	NEW COMMERCIAL	0	\$0.00	\$0.00
COMMERCIAL ROOFING	0	\$0.00	\$0.00	PLUMBING	31	\$383,037.00	\$2,032.50
COMMERCIAL SHELL	0	\$0.00	\$0.00	PUBLIC WORKS	7	\$0.00	\$37,079.00
COVERED PORCH	5	\$530,400.00	\$2,173.00	REMODEL	8	\$1,305,099.00	\$4,609.75
DECK	3	\$16,510.00	\$346.00	RES ADDITION	5	\$269,460.00	\$1,501.75
DEMOLITION	1	\$0.00	\$250.00	SINGLE FAMILY	6	\$3,248,700.00	\$12,198.75
FENCE ADMINISTRATIVE	7	\$0.00	\$0.00	SWIMMING POOL	4	\$445,704.00	\$1,880.00
FIRE SUPPRESSION	0	\$0.00	\$0.00	TENANT FINISH	4	\$1,041,377.00	\$5,192.26
FOOD TRUCKS	3	\$0.00	\$150.00	WELL DRILLING	0	\$0.00	\$0.00
FOUNDATION	0	\$0.00	\$0.00	WINDOW REPLACEMENT	5	\$27,130.00	\$367.75
GARAGE	2	\$97,820.00	\$518.00				
GRADING	5	\$0.00	\$1,250.00				
IRR C	0	\$0.00	\$0.00				
The Commercial Addition permit with no fees was issued for the Williamson County Gym Addition at the ISC.				TOTALS	142	\$10,816,119.00	\$74,874.51

(PERM190)



PUBLIC WORKS PROJECT FEE SUMMARY

SUMMARY PUBLIC WORKS PROJECT FEES COLLECTED FY 2020		
MONTH	PERMITS ISSUED	FEES COLLECTED
JULY	3	\$3,690.00
AUGUST	8	\$9,840.00
SEPTEMBER	7	\$8,610.00
OCTOBER	10	\$12,300.00
NOVEMBER	11	\$13,530.00
DECEMBER	15	\$17,220.00
JANUARY	10	\$21,295.00
FEBRUARY	14	\$74,832.43
MARCH	6	\$214,837.55
APRIL	9	\$46,191.37
MAY	7	\$37,097.00
JUNE		
TOTAL FY 2020	100	\$459,443.35
(PERM130)		

Revisions to the Public Works Project fee Ordinance, which includes the fee schedule became effective on January 1, 2020

WATER AND SEWER TAP FEE SUMMARY

SUMMARY WATER & SEWER TAP FEE PERMITS ISSUED -- FY 2020						
MONTH	SEWER TAP FEES	SEWER PERMITS ISSUED	WATER TAP FEES	WATER PERMITS ISSUED	TOTAL PERMITS ISSUED	TOTAL FEES RECEIVED
JULY	\$15,060.00	4	\$5,100.00	4	8	\$20,164.00
AUGUST	\$35,120.00	8	\$32,275.00	9	17	\$67,403.00
SEPTEMBER	\$30,105.00	7	\$25,175.00	7	14	\$55,287.00
OCTOBER	\$57,165.00	12	\$63,325.00	13	25	\$120,502.00
NOVEMBER	\$77,819.00	16	\$20,275.00	11	27	\$98,110.00
DECEMBER	\$75,225.00	16	\$39,325.00	14	30	\$114,566.00
JANUARY	\$45,135.00	9	\$17,225.00	9	18	\$62,369.00
FEBRUARY	\$53,002.00	13	\$22,250.00	11	24	\$75,265.00
MARCH	\$35,245.00	4	\$12,075.00	3	7	\$47,324.00
APRIL	\$40,120.00	8	\$20,175.00	7	15	\$60,303.00
MAY	\$35,105.00	7	\$36,175.00	7	14	\$71,287.00
JUNE						
TOTALS	\$499,101.00	104	\$293,375.00	95	199	\$792,580.00
(PERM 130)						

INSPECTION RECAP

The number of inspections conducted by staff in May for all building projects increased over the previous three months of the fiscal year. While the number of permits issued may be down, the number of inspections completed has increased. Please also note there is one Building Inspector position remains vacant. All inspections are being completed by five inspectors instead of six. The number of inspections completed in May was 944. The total number of all inspections completed so far during FY 2020 is 8,933.

MONTHLY COMPARISON OF INSPECTIONS COMPLETED -- 2010 - 2020											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
January	927	1201	1332	1485	1099	1273	1098	1032	879	829	721
February	1032	1156	1423	1334	1233	1165	1175	966	896	774	766
March	1289	1530	1384	1472	1332	1473	1255	1147	1138	983	824
April	1165	1504	1598	1678	1400	1620	1158	1039	944	779	944
May	1074	1709	2025	1792	1350	1451	1355	1315	912	775	924
June	1497	1840	1693	1648	1423	1622	1323	1165	1057	764	
July	1448	1599	1768	1830	1602	1495	1109	1119	1117	881	
August	1583	1765	2014	1757	1466	1446	1538	1198	1087	896	
September	1695	1712	1801	1562	1575	1595	1270	1153	1124	736	
October	1493	1337	1918	1717	1522	1365	1270	1111	986	869	
November	1464	1331	1440	1397	1281	1120	1305	1051	743	635	
December	1167	1402	1384	1516	1455	1188	1071	994	729	737	
TOTAL	15,834	18,086	19,780	19,188	16,738	16,813	14,927	13,290	11,612	9,658	4179

INSPECTIONS COMPLETED BY TYPE MAY 2020			
FINAL	70	GAS LINE INSPECTION	18
DECK FINAL	7	GREASE TRAP INTERCEPTOR	1
MECHANICAL FINAL	51	GRINDER PUMP FINAL	1
PLUMBING FINAL	27	GRINDER PUMP ROUGH-IN	1
POOL FINAL	9	HOUSE WRAP & FLASH.	23
RE-FINAL	19	HVAC CHANGEOUT	1
ABOVE CEILING	31	INFRASTRUCTURE	0
BACKFLOW DEVICE INSP.	19	INSULATION	39
BACKFLOW TEST	36	LIFE SAFETY	5
COMMERCIAL WATER LINE	2	MECHANICAL	34
COMMERCIAL SEWER LINE	0	NO FRAMING/STOP WORK ORDER	5
COMPLAINT	1	PARTIAL FINAL INSP.	0
COURTESY INSP.	20	PLUMBING	62
CRAWL SPACE INSP.	17	POOL SAFETY BARRIER	8
DECK FOOTING	6	PROGRESS	0
DRIVEWAY	1	RE ROUGH-IN	36
DRAINAGE FINAL	0	ROUGH-IN POOL	5
ENGINEER LETTER	18	ROUGH-IN FINAL	67
ENGINEERING FINAL (RECEIPT)	13	SITE INSP.	60
EROSION CONTROL	23	SLAB/RADON	14
FIRE LINE U/G	0	STATUS REVIEWS	105
FIRE SUPPRESSION INT	6	STORM DRAIN LINE	1
FOOTING	26	WATER & SEWER	25
FOUNDATION WATER PROOF	14	TOTAL	924
FOUNDATION SURVEY	15		(INSP63)
GAS	0		

ROUTINE TASKS AND RESPONSIBILITIES

- Short Term Rentals -- Planning staff continues to monitor listings in Brentwood from several web sites that promote short term property rentals.
- Maintenance/update of the city-wide Commercial and Residential land use inventory;
- Site inspections for residential and commercial projects for issuance of final Certificates of Occupancy;
- Field inspections on former and current Planning Commission cases;
- Interpretation and enforcement of Ordinances and Codes for the public;
- Processed/reviewed applications plans for items to be included on the City Commission, Planning Commission and the Board of Zoning Appeals agendas;
- Monitored parade and special events in the City;
- Determined whether properties were in floodways areas for contractors and homeowners for zero residential properties;
- Updated & maintained the department's portion of the city's website as needed;
- Updated, created and maintained electronic forms for multiple permits;
- Revised documentation and permit applications;

CODES ENFORCEMENT

Planning and Codes Department staff investigated a total of four new code enforcement case and complaints during the month of May 2020 (CODE20).

HOME OCCUPATIONS

New home occupations require a fee of \$25.00, while yearly renewals are \$10.00. Currently, there are currently 787 active home occupation permits within the City. (BUS12)

SUMMARY OF FEES -- HOME OCCUPATIONS			
FY 2020			
MONTH	INITIAL	RENEWAL	TOTAL
JULY 2019	\$300.00	\$500.00	\$800.00
AUGUST 2019	\$275.00	\$180.00	\$455.00
SEPTEMBER 2019	\$275.00	\$545.00	\$820.00
OCTOBER 2019	\$275.00	\$485.00	\$760.00
NOVEMBER 2019	\$200.00	\$360.00	\$560.00
DECEMBER 2019	\$275.00	\$100.00	\$375.00
JANUARY 2020	\$500.00	\$260.00	\$760.00
FEBRUARY 2020	\$375.00	\$280.00	\$655.00
MARCH 2020	\$150.00	\$460.00	\$610.00
APRIL 2020	\$175.00	\$440.00	\$615.00
MAY 2020	\$250.00	\$180.00	\$430.00
JUNE 2020			
TOTAL -- FY 2020	\$3,050.00	\$3,790.00	\$6,840.00

(ACCT45)

CITY OF BRENTWOOD

SUMMARY OF VACANT RESIDENTIAL LOTS

MAY 2020

SUBDIVISION NAME	GENERAL LOCATION	# OF APPROVED LOTS	# LOTS PLATTED TO DATE	# PERMITS ISSUED	# LOTS UNDER DEVELOPMENT, NOT PLATTED	# VACANT PLATTED LOTS REMAINING	UNDEVELOPED LOT'S REMAINING PER PLAN	AREA (AC)	PLANNING AREA	COMMENTS
ANNANDALE	OLD SMYRNA RD.	168	168	168	0	0	0	208.00	4	All Sections Recorded
ARDEN WOODS	JOHNSON CHAPEL RD.	30	30	27	0	3	0	41.38	1	All Sections Recorded
ARLINGTON HEIGHTS	PINKERTON RD.	43	43	43	0	0	0	56.04	5	All Sections Recorded
AVERY SUBDIVISION	MURRAY LN.	23	23	21	0	2	0	32.14	1	Recorded
BEECH CREEK HILL	BEECH CREEK RD.	6	6	6	0	0	6	10.68	1	Final Plat approved by PC -- 6/4/2018
BELLA COLLINA	CONCORD RD.	8	0	0	8	0	8	17.71	5	Prelim. Plan Appr -- 10/12/2018 & 3/2/2020
BELLE TERRA	CONCORD RD.	5	5	4	0	1	0	8.67	5	Recorded
BERKLEY WALK	EDMONDSON PK.	25	25	25	0	0	0	25.05	5	All Sections Recorded
BERRYMAN PROPERTY	MURRAY LN.	2	0	0	2	0	1	40.45	5	Final Plat not yet Recorded
BORGATA	WILSON PK.	27	27	27	0	0	0	40.67	4	All Sections Recorded
BOYD SUBDIVISION	CONCORD RD.	2	0	0	0	0	1	4.53	5	Preliminary Plan only
BRASS LANTERN FARMS	MURRAY LN.	9	9	9	0	0	0	15.06	1	All Sections Recorded
BREITHORN	SUNNYBROOK DR.	8	8	6	0	2	0	11.00	5	All Sections Recorded
BRENTHAVEN PLACE	UPSCOMB DR.	20	20	19	0	1	0	28.62	3	All Sections Recorded
BRENTWOOD CLOSE	WILSON PK.	29	29	29	0	0	0	34.02	4	All Sections Recorded
BRENTWOOD FARMS	SOUTHERN WOODS	13	0	0	0	0	13	18.52	5	Prelim. Plan App -- 5-1-2017
BRENTWOOD GLEN	WILSON PK.	47	47	47	0	0	0	52.40	5	All Sections Recorded
BRENTWOOD LIGHTS	WILSONWOOD DR.	13	13	9	0	4	0	41.24	1	All Sections Recorded
BROAD OAKS (LAWSON)	CONCORD RD.	146	146	146	0	0	0	77.53	5	All Sections Recorded
BROOKFIELD	WILSON PIKE	8	0	0	8	0	8	23.96	5	Rev. Prelim. Plan Approved by PC -- 5-2020
BROOKFIELD	SUNSET RD.	472	472	472	0	0	0	273.00	5	All Sections Recorded
CANNON SUBDIVISION	MURRAY LN.	2	2	1	0	1	0	9.24	1	Recorded -- PB P72, PG 30
CHEVOIT HILLS	HUNTERBORO DR.	16	16	16	0	0	0	17.98	4	All Sections Recorded
COURTSE AT SOUTHERN WOODS WEST	CONCORD PASS	11	11	11	0	0	0	10.02	5	All Sections Recorded
CROCKETT FORGE ESTATES	SUNSET RD.	255	255	255	0	0	0	169.00	5	All Sections Recorded
CROMWELL SUBDIVISION (LOMBARDY EST.)	CROCKETT RD.	2	2	1	0	1	0	3.92	5	All Sections Recorded
CROSS POINTE	SPLIT LOG RD.	62	62	60	0	2	0	70.67	5	All Sections Recorded
EDENBROOK	LIBERTY CHURCH RD.	13	13	10	0	3	0	19.63	5	Includes the Historic Fly House
ELMBROOKE	CONCORD RD.	47	47	47	0	0	0	55.26	5	All Sections Recorded
ESTATES AT MAGNOLIA VALE	SUNSET RD.	8	8	8	0	0	0	9.10	5	All Sections Recorded
FOUNTAINBROOKE	PINKERTON RD.	188	188	185	0	2	0	151.00	5	All Sections Recorded
FOXCREST SUBDIVISION	CONCORD RD.	6	6	6	0	0	0	8.26	3	Plan Approved -- 8-3-2015, Plat Recorded 4/11/2018
FOXVIEW ESTATES	OLD SMYRNA RD.	2	2	2	0	0	0	3.00	4	Approved March 2013
GLEN ABBEY	SPLIT LOG RD.	75	75	75	0	0	0	100.41	5	All Sections Recorded
GLENELLEN ESTATES	RAGSDALE RD.	68	68	68	0	0	0	81.75	5	All Sections Recorded
GLENSHADOWS SUBDIVISION	EDMONDSON PK.	5	5	5	0	0	0	7.25	4	Plat Recorded -- 4-12-2015 -- Includes Existing Home
GOVERNORS CLUB	CONCORD RD.	424	424	412	0	12	0	610.00	5	All Sections Recorded -- Private Streets
HALCYON ESTATES	HAROGATE DR.	8	8	8	0	0	0	9.96	4	Recorded
HAMPTON RESERVE	CONCORD RD.	91	91	89	0	2	0	105.47	5	All Sections Recorded -- Private Streets
HIDDEN CREEK	PINKERTON RD.	25	25	25	0	0	0	28.92	5	All Sections Recorded
HIGH POINT	CONCORD RD.	5	5	1	0	4	0	7.43	5	All Sections Recorded
INGLEHAM FARM	CONCORD RD.	170	170	170	0	0	0	205.62	5	All Sections Recorded
JOHNSON COVE	JOHNSON CHAPEL RD.	4	4	4	0	0	0	7.16	1	Recorded
KINGS CROSSING	WIKLE RD. WEST	39	39	39	0	0	0	43.00	1	All Sections Recorded
LAURELS WEST	CHARITY DR.	19	19	18	0	1	0	25.44	5	All Sections Recorded
LENOX PARK	HILLSBORO RD.	40	40	37	0	3	0	65.77	1	All Sections Recorded
LIBERTY FARM	CONCORD RD.	6	6	4	0	2	0	32.36	5	All Sections Recorded
MAGNOLIA VALE	STANFIELD RD.	60	60	55	0	5	0	68.64	5	All Sections Recorded
MARSHALL PLACE	WILSON PK.	10	10	3	0	7	0	13.72	4	Private Streets -- Plat Recorded -- 2/2018
MCGAVOCK FARMS	MURRAY LN.	192	192	192	0	0	0	211.00	1	All Sections Recorded
MORGAN FARMS (AZALEA PARK)	SPLIT LOG RD.	173	173	169	0	4	0	209.00	5	All Sections Recorded
MOTHERALL SUBDIVISION	LIBERTY CHURCH RD.	2	2	0	0	2	0	6.32	1	Lot 1 includes an existing home
NICHOLSON SUBDIVISION	BEECH CREEK RD.	2	0	0	0	0	0	4.92	1	Preliminary Plan Approval Only
OLD TOWNE	MURRAY LN.	21	21	21	0	0	0	26.78	1	All Sections Recorded
OLSEN PROPERTY	PANARAMA DR.	4	4	4	0	0	0	19.82	1	Recorded
OMAN SUBDIVISION	FRANKLIN RD.	21	21	8	0	13	0	33.66	1	Recorded -- 9-2019

SUMMARY OF VACANT RESIDENTIAL LOTS

MAY 2020

SUBDIVISION NAME	GENERAL LOCATION	# OF APPROVED LOTS	# LOTS PLATTED TO DATE	# PERMITS ISSUED	# LOTS UNDER DEVELOPMENT, NOT PLATTED	# VACANT PLATTED LOTS REMAINING	UNDEVELOPED LOT'S REMAINING PER PLAN	AREA (AC)	PLANNING AREA	COMMENTS
OWL CREEK, ALL PHASES	CONCORD RD.	85	85	77	0	8	0	87.60	5	All Sections Recorded
PARKSIDE AT BRENTHAVEN PH. II, SEC. I	DEVENS DR.	69	69	40	0	29	0	210.00	3	Phase II Not Recorded
PARKSIDE DOWNS	WILSON PK.	8	8	6	0	2	0	40.00	3	Recorded
PENA ESTATES	CONCORD PASS	2	2	2	0	0	0	5.19	5	Recorded
PRESERVE AT ARDEN WOODS	FISCHER CT.	4	4	0	0	4	0	10.17	1	Prelim Plan App -- 6-6-2017 -- Final Plat Recorded 3/30/2020
PRESERVE AT CONCORD	CONCORD RD.	22	22	21	0	1	0	25.10	4	All Sections Recorded
PRINCETON HILLS	MURRAY LN.	162	162	161	0	1	0	224.00	1	All Sections Recorded
PRIMM FARM	MOORES LANE	24	0	0	0	0	24	29.00		Prelim Plan Approved by PC -- 12-3-2018
RAGSDALE SUBDIVISION	RAGSDALE RD.	71	0	0	0	0	71	115.29	5	Rev. Plan Approved -- 6-6-2017
RAINTREE FOREST	CROCKETT RD.	222	222	222	0	0	0	240.00	6	All Sections Recorded
RAINTREE FOREST SOUTH (HIGHLAND PARK)	RAINTREE PARKWAY	235	235	235	0	0	0	272.48	6	All Sections Recorded
RESERVE AT MAGNOLIA VALE	SUNSET RD.	5	5	5	0	0	0	7.04	5	All Sections Recorded
RESERVE AT RAIN TREE FOREST, SEC 1-3	EASTWOOD DR.	100	100	97	0	3	0	272.00	6	All Sections Recorded
RESERVE AT RAIN TREE FOREST, SEC 4-10	EASTWOOD DR.	113	27	4	0	23	86	282.00	6	Prelim Plan App -- 6-6-2017 -- Construction on-going -- Sec 4 -- Recorded
RESERVE AT SONOMA	SPLIT LOG RD.	9	9	9	0	0	0	19.57	5	All Sections Recorded
ROYD MAYNARD SUBDIVISION	WALLER RD.	2	2	2	0	0	0	5.87	5	Existing home on Lot 1
SHADOW CREEK AT SOUTHERN WOODS WEST	SUNSET RD.	145	145	145	0	0	0	79.30	5	All Sections Recorded
SHERIDAN PARK	SADDLEWOOD LN.	22	22	22	0	0	0	24.50	4	Recorded -- Private Streets
SNEED MANOR	OLD SMYRNA RD.	6	6	1	0	5	0	31.42	4	Private Streets -- Plan Approved -- 11-2-2015 -- Plat Recorded -- 7-16-2017
SONOMA	SPLIT LOG RD.	66	66	66	0	0	0	84.50	5	All Sections Recorded
STONECREST	BLUFF RD.	29	29	29	0	0	0	36.00	5	Recorded
TERRABROOKE	SPLIT LOG RD.	8	8	4	0	4	0	13.12	5	Recorded
THE HEIGHTS	CONCORD RD.	7	7	2	0	5	0	7.56	5	Preliminary Plan Last APP by PC 4/3/2018 -- Recorded -- 9-2019
TARAMORE	SPLIT LOG RD.	275	275	255	0	20	0	312.00	5	All Phases Recorded
THOMAS PROPERTY	MAUPIN RD.	2	2	1	0	1	0	5.01	5	Revised Final Plat App by PC -- 1/3/2017
TRADITIONS	WILSON PK.	127	127	59	0	68	0	146.74	5	Sections 1, 2, 3, 4 & 5 -- Recorded
TUSCANY HILLS	SPLIT LOG RD.	125	125	119	0	6	0	97.70	5	Sections 1 - 7 -- Recorded
VALLE VERDE	MOORES LN.	40	40	40	0	0	0	75.05	2	Recorded -- Private Streets
VALLEY VIEW SUBDIVISION	OLD SMYRNA RD.	11	11	7	0	4	0	14.00	4	Recorded
WATHERSPOON SUBDIVISION	CROCKETT RD.	154	125	96	29	29	29	260.72	6	Sec. 1, 2, 3, 4, 5, 6 & R-2 Lot Recorded
WETHERBROOK	LIBERTY CHURCH RD.	55	55	55	0	0	0	62.21	5	All Sections Recorded
WHEISTONE	EDMONDSON PK.	141	141	141	0	0	0	167.00	4	All Sections Recorded
WILLIAM'S GROVE	OLD SMYRNA RD.	63	63	63	0	0	0	78.09	4	All Sections Recorded
WILLOWMET	CONCORD RD.	129	129	129	0	0	0	132.00	6	All Sections Recorded
WINDSTONE	MURRAY LN.	108	108	105	0	3	0	197.00	6	All Sections Recorded
WILSON PROPERTY	MURRAY LN.	2	0	0	2	0	2	5.60	6	Final Plat not yet Recorded -- Lot 1 Inc. Existing Home
WOODLANDS AT COPPERSTONE	SUNSET RD.	119	119	119	0	0	0	75.87	5	All Sections Recorded
TOTALS		5,959	5,712	5,418	49	294	250	7,272		
TOTAL VACANT LOTS IN CITY						Available**	W/Plans**			
						343	593			
PROJECTED SUPPLY OF LOTS -- BY YEAR (VARIOUS BUILD-OUT SCENARIOS)										
- 50 new homes annually						6.9	11.9			
- 75 new homes annually						4.6	7.9			
- 100 new homes annually						3.4	5.9			
- 150 new homes annually						2.3	4.0			
- 175 new homes annually						2.0	3.4			
- 200 new homes annually						1.7	3.0			
- 250 new homes annually						1.4	2.4			
- 300 new homes annually						1.1	2.0			
- 350 new homes annually						1.0	1.7			
- 400 new homes annually						0.9	1.5			
- 450 new homes annually						0.8	1.3			
- 500 new homes annually						0.7	1.2			

* Equals Lots Under Development (F) + Vacant Platted Lots (G)

** Equals Lots Under Development (F) + Vacant Platted Lots (G) + Undeveloped Lots Per Sign (H)

**BRENTWOOD PLANNING
COMMISSION**

2.

Meeting Date: 07/06/2020

Information

PROJECT NUMBER

PROJECT DESCRIPTION

ZONING OF PROPERTY

APPLICANT NAME/ADDRESS

Attachments

City Calendar -- July 2020



JULY 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2 8:00 am Planning Commission Informational meeting	3 City Offices closed	4 Library Closed
5	6 5:30 pm Park Board meeting 7:00 pm Planning Commission meeting	7 8:00 am City Court 4:00 pm Juvenile Court	8	9 8:00 am City Court 9:00 am City Commission Informational meeting	10 10:00 Friends of the Library Used Book Sale	11 10:00 Friends of the Library Used Book Sale
12 1:00 Friends of the Library Used Book Sale	13 6:00 pm Environmental Advisory Board meeting 7:00 pm City Commission meeting	14	15	16	17 9:30 am Historic Commission meeting	18
19 2:00 pm Boiling Spring Academy Open House	20 5:30 pm Board of Zoning Appeals meeting	21 7:30 am Tree Board meeting 12:00 pm Library Board Strategic Planning Committee meeting	22	23 9:00 am City Commission Informational meeting	24	25
26	27 6:45 pm ECD meeting 7:00 pm City Commission meeting	28	29	30 8:00 am Planning Commission Informational meeting	31	