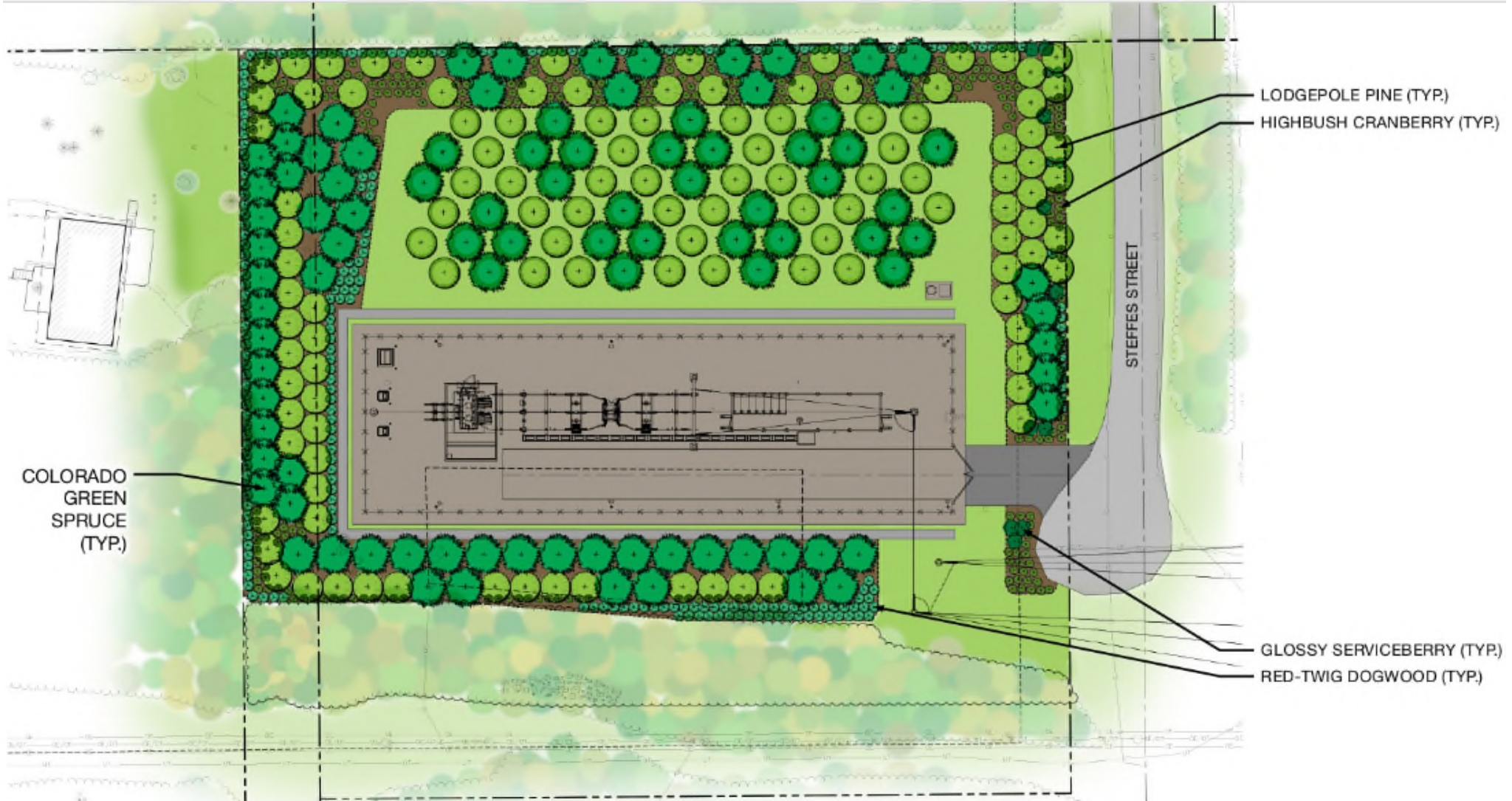


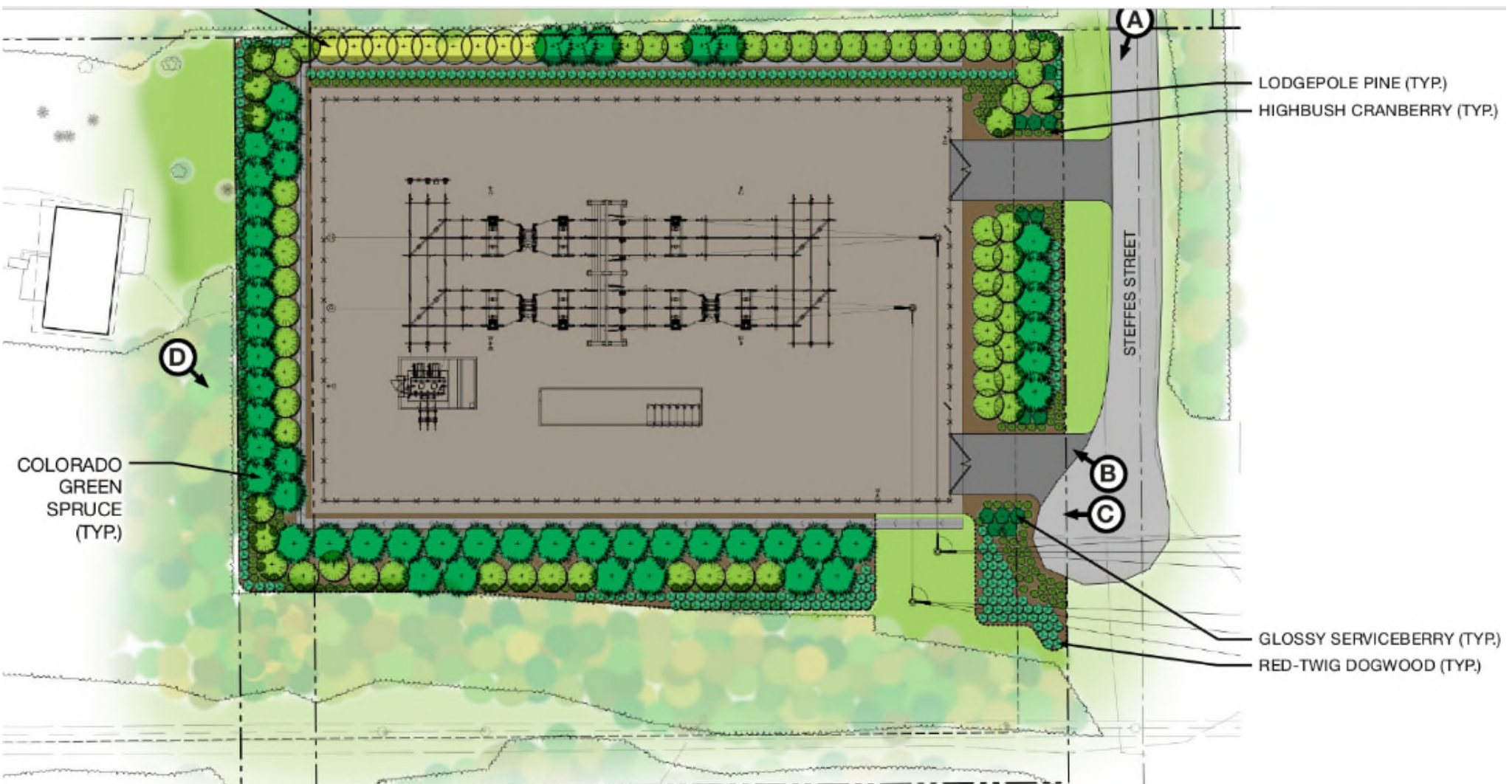
Justine Parks Substation: Design Comparison

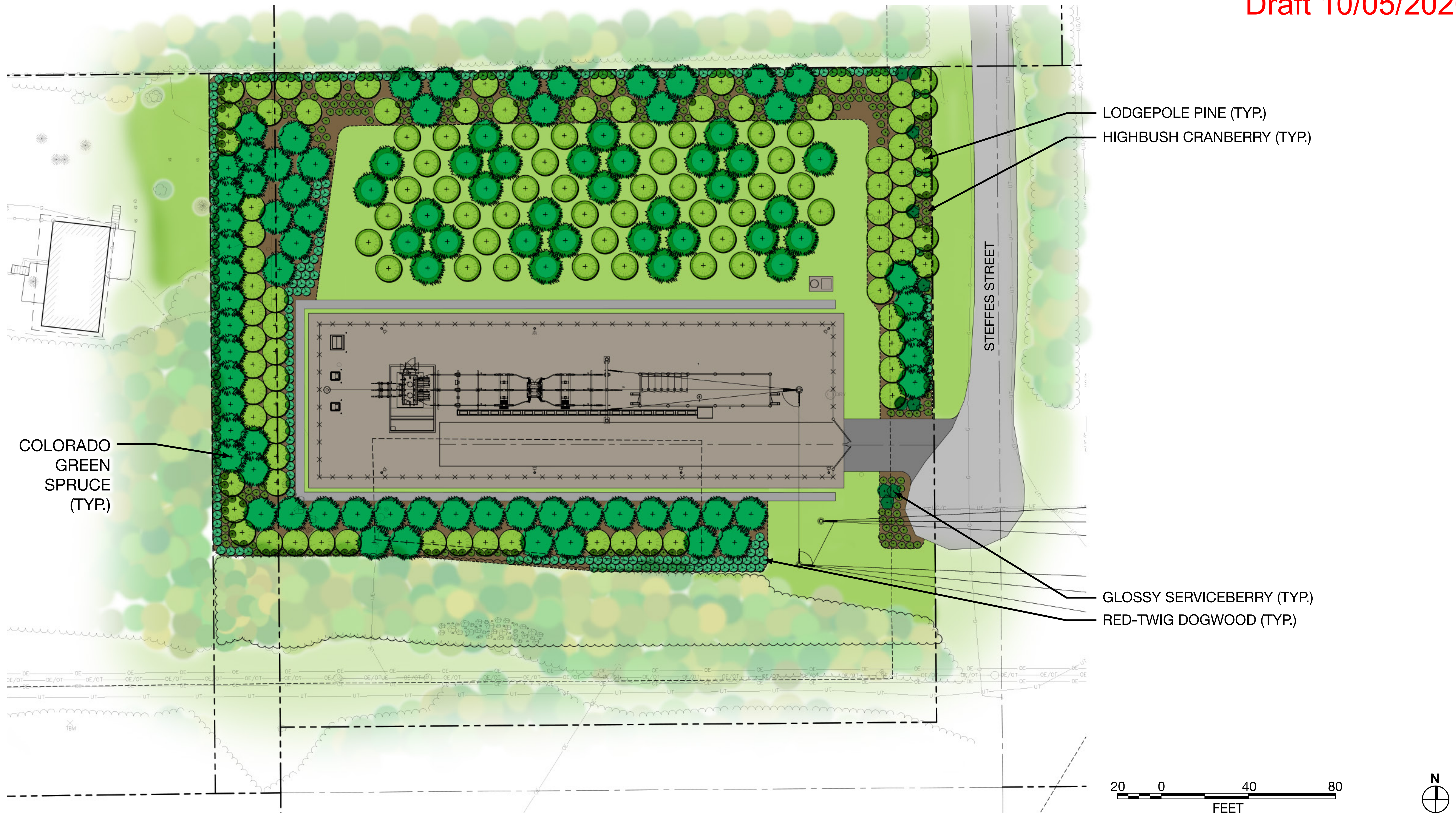


Redesign



Original Design





COLORADO GREEN SPRUCE (TYP.)

LODGEPOLE PINE (TYP.)
HIGHBUSH CRANBERRY (TYP.)

GLOSSY SERVICEBERRY (TYP.)
RED-TWIG DOGWOOD (TYP.)

STEFFES STREET



LANDSCAPE PLAN

MEA PARKS SUBSTATION - BIRCHWOOD, AK



Sept, 2020

IF THIS DIMENSION DOES NOT MEASURE ONE INCH (1") EXACTLY, THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELED SCALES.

PLANT SCHEDULE

| TREES | | 1 L3 TREE PLANTING (TYP.) | | | | |
|-------|--------|---------------------------|-------------------------------|-----------------------|-------------|-------------------|
| QTY. | SYMBOL | ABBR. | LATIN NAME | COMMON NAME | SIZE | FURNISHING NOTES |
| 95 | | PP | PICEA PUNGENS | COLORADO GREEN SPRUCE | 8" HT. MIN. | B&B 5:3 H:W RATIO |
| 116 | | PC | PINUS CONTORTA VAR. LATIFOLIA | LOGEPOLE PINE | 8" HT. MIN. | B&B |

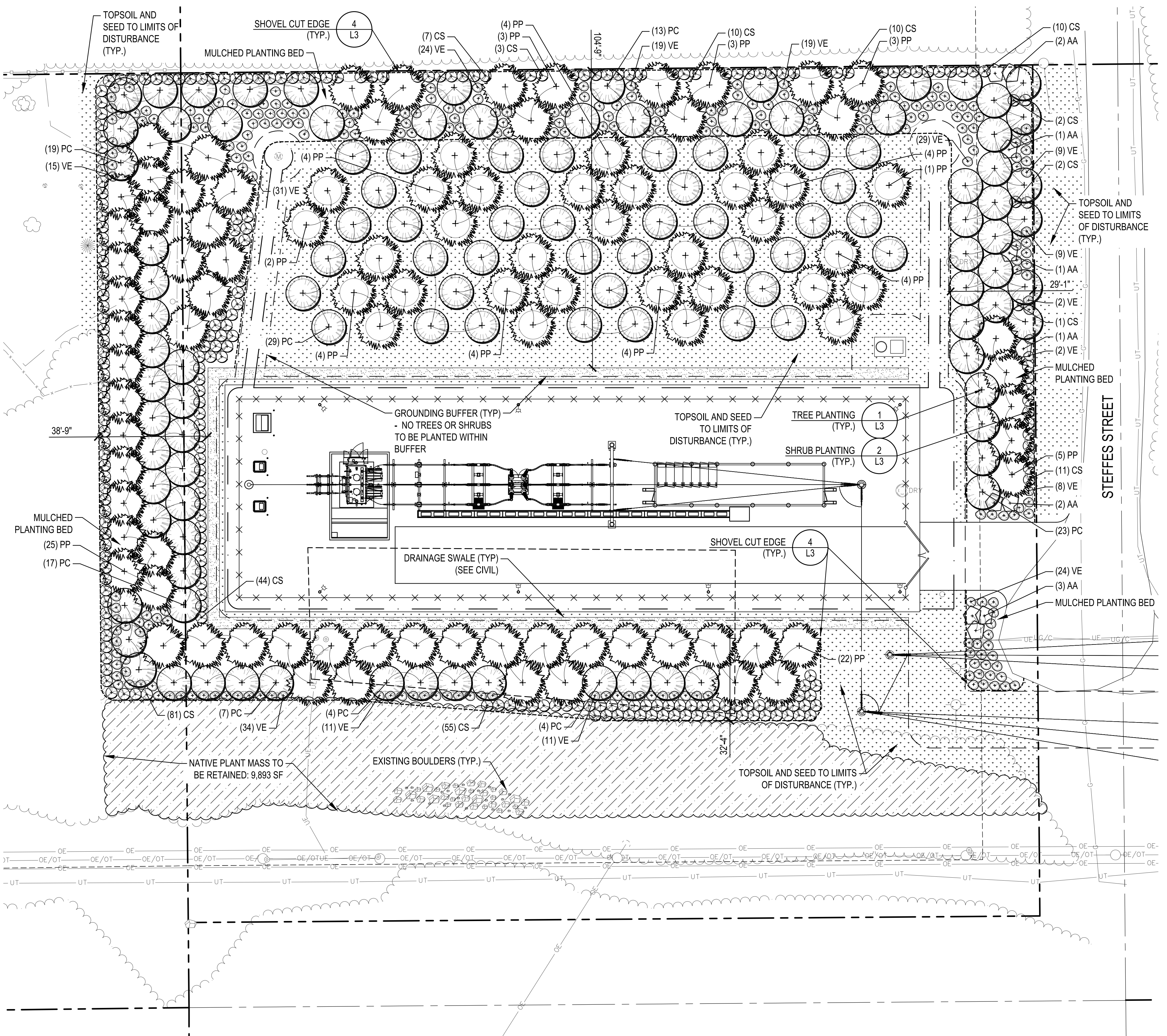
| SHRUBS | | 2 L3 SHRUB PLANTING (TYP.) | | | | |
|--------|--------|----------------------------|--------------------------------|---------------------|---------------|---------------------|
| QTY. | SYMBOL | ABBR. | LATIN NAME | COMMON NAME | SIZE | FURNISHING NOTES |
| 10 | | AA | AMELANCHIER ALNIFOLIA 'REGENT' | GLOSSY SERVICEBERRY | #3 CONT. MIN. | POTTED 36" HT. MIN. |
| 236 | | CS | CORNUS SERICEA | RED-TWIG DOGWOOD | #3 CONT. MIN. | POTTED 24" HT. MIN. |
| 247 | | VE | VIBURNUM EDULE | HIGHBUSH CRANBERRY | #2 CONT. MIN. | POTTED 18" HT. MIN. |

| MISCELLANEOUS | | | |
|---------------|--------|-------------------------|---|
| QTY. | SYMBOL | DESCRIPTION | NOTES |
| | | SHOVEL CUT EDGE | |
| | | TOPSOIL AND SEED MIX | NO MOW (TO LIMITS OF DISTURBANCE, TYP.) |
| | | EXISTING DECIDUOUS TREE | |
| | | EXISTING EVERGREEN TREE | |
| | | EXISTING VEGETATION | |

- GENERAL LANDSCAPE NOTES:**
- IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES IN THE PLANS OR ON THE SITE. MODIFICATIONS IN THE FIELD SHALL NOT BE MADE UNTIL APPROVAL HAS BEEN GRANTED BY THE ENGINEER.
 - SEE CIVIL FOR EXISTING AND PROPOSED UTILITIES.
 - CONTRACTOR TO COORDINATE WITH UTILITY PROVIDERS AND VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
 - ALL PLANTS SHALL BE NURSERY GROWN UNLESS OTHERWISE SPECIFIED.
 - ALL PLANTING BEDS SHALL RECEIVE 18" DEPTH TOPSOIL AND 3" DEPTH SHREDDED BARK MULCH.
 - DO NOT APPLY HYDROSEEDING PRODUCT OR SEED MIX IN THE MULCHED AREA AROUND STEM OR TRUNK OF NEW PLANTINGS.
 - ALL DISTURBED AREAS NOT WITHIN PLANTING BEDS SHALL RECEIVE 4" MINIMUM TOPSOIL AND SEED PER SCHEDULE AS NOTED ON PLANS.
 - REFER TO SHEET L3 FOR LANDSCAPE PLANTING DETAILS.
 - FOR ALL PLANTINGS ON SLOPES OF 2:1 OR GREATER, REFER TO DETAIL 3/L3.
 - EXISTING VEGETATION TO BE SAVED AND PROTECTED SHALL RECEIVE PROTECTION FENCING PER DETAIL 5/L3.

LANDSCAPE ABBREVIATIONS:

| ABBR. | ABBREVIATION | MAX. MIN. | MAXIMUM MINIMUM |
|-------|---------------|-----------|-----------------|
| B&B | BALL & BURLAP | N.I.C. | NOT IN CONTRACT |
| CAL. | CALIPER | O.C. | ON CENTER |
| CONT. | CONTAINER | QTY. | QUANTITY |
| DIA. | DIAMETER | SF | SQUARE FEET |
| Ø | DIAMETER | TYP. | TYPICAL |
| HT. | HEIGHT | | |



1 L2 LANDSCAPE PLAN

BETTISWORTH NORTH
 ARCHITECTURE PLANNING LANDSCAPE INTERIORS
 WWW.BETTISWORTHNORTH.CO

MEA PARKS SUBSTATION

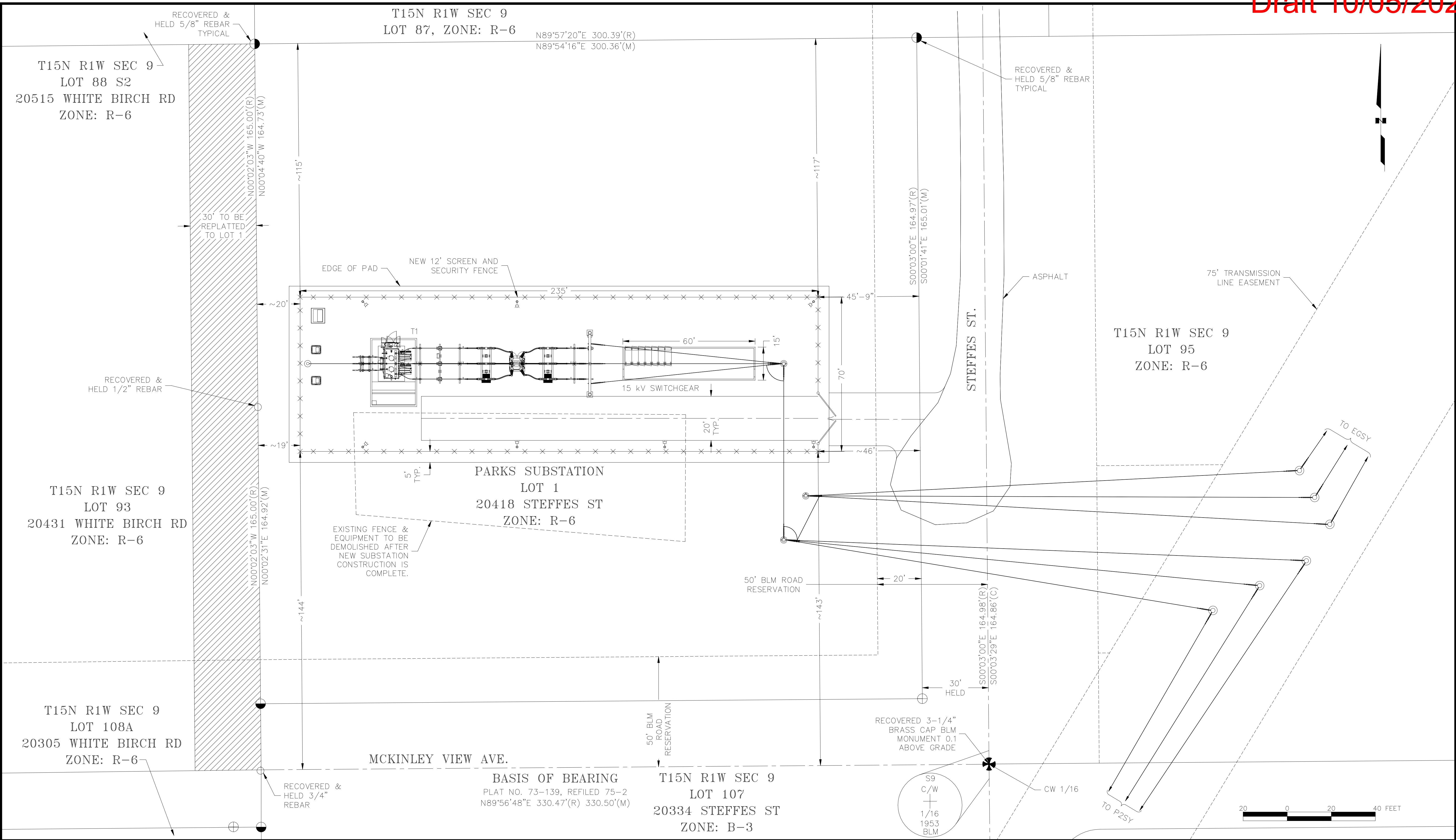
20418 STEFFES STREET CHUGIAK, ALASKA 99567
 MATANUSKA ELECTRIC ASSOCIATION, INC.
 65% CONSTRUCTION DOCUMENTS

CONSULTANT:

PROJECT NO: 19-167
 DATE: 09/21/2020
 DRAWN BY: EJ
 CHECKED BY: MK

| Symbol | Description | Date |
|--------|-------------|------|
| | | |
| | | |

LANDSCAPE PLAN, PLANT SCHEDULE, & GENERAL LANDSCAPE NOTES



PROJECT TITLE: **PARKS SUBSTATION UPGRADE**
 ENG./DESIGN.: **HAILEIGH SEIL-MEA/TIM CONRAD-EPS**

W.O. # **102855**

| REV # | DESIGN/CONSTRUCTION/ASBUILT REVISION | DRAFTED BY | DATE DRAFTED | MGR./SUPLY. REVIEWED | DATE REVIEWED | DIRECTOR APPROVED | DATE APPROVED | ENG. STAMP |
|-------|--------------------------------------|------------|--------------|----------------------|---------------|-------------------|---------------|------------|
| A | ISSUED FOR PERMITTING | KER | 01/14/20 | TCC | 01/14/20 | | | |
| B | ISSUED FOR PERMITTING | KER | 09/04/20 | TCC | 09/04/20 | | | |

Matanuska Electric Association

163 East Industrial Way
 Palmer, AK 99645
 (907) 761-9300
 WWW.MEA.COOP

| REV # | RECORD REVISION DESCRIPTION | DRAFTED BY | TECH/ENG APPROVED | WORK ORDER APPROVED | APPROVED BY | DATE APPROVED |
|-------|-----------------------------|------------|-------------------|---------------------|-------------|---------------|
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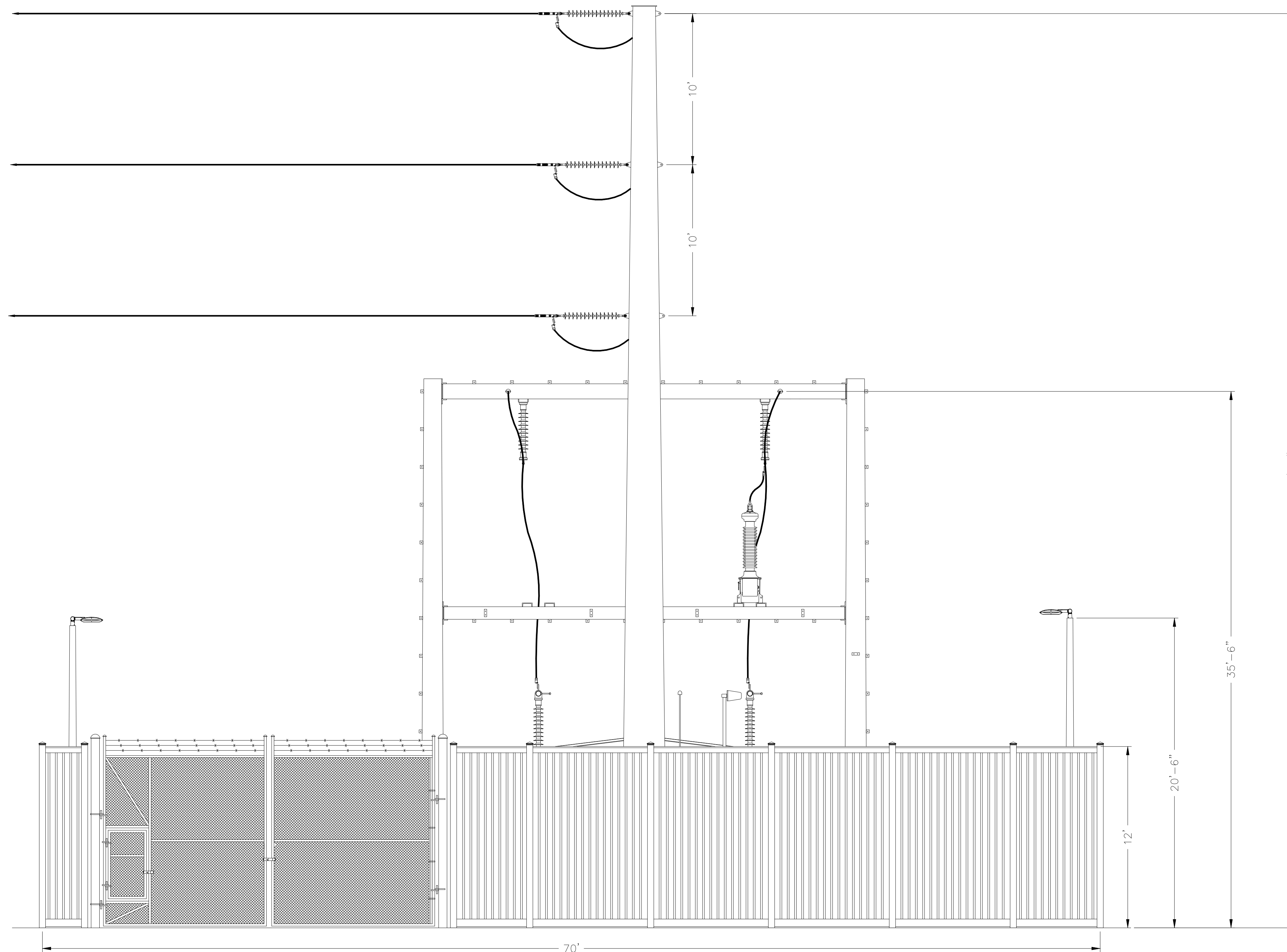
DRAWING NAME: **PARKS SUBSTATION SITE PLAN**

GRID NUMBER **1358**

PREVIOUS DRAWING NUMBER: _____

DRAWING NUMBER: _____

SER. SHIT 1 OF 1
 PKG. PG. 1 OF 1



PROJECT TITLE: PARKS SUBSTATION UPGRADE
 ENG./DESIGN.: HAILEIGH SEIL-MEA/TIM CONRAD-EPS W.O. # 102855

| REV # | DESIGN/CONSTRUCTION/ASBUILT REVISION | DRAFTED BY | DATE DRAFTED | MGR./SUPT. REVIEWED | DATE REVIEWED | DIRECTOR APPROVED | DATE APPROVED | ENG. STAMP |
|-------|--------------------------------------|------------|--------------|---------------------|---------------|-------------------|---------------|------------|
| A | ISSUED FOR PERMITTING | KER | 01/14/20 | TCC | 01/14/20 | | | |
| B | ISSUED FOR PERMITTING | KER | 03/04/20 | TCC | 03/04/20 | | | |
| C | ISSUED FOR PERMITTING | KER | 09/04/20 | TCC | 09/04/20 | | | |

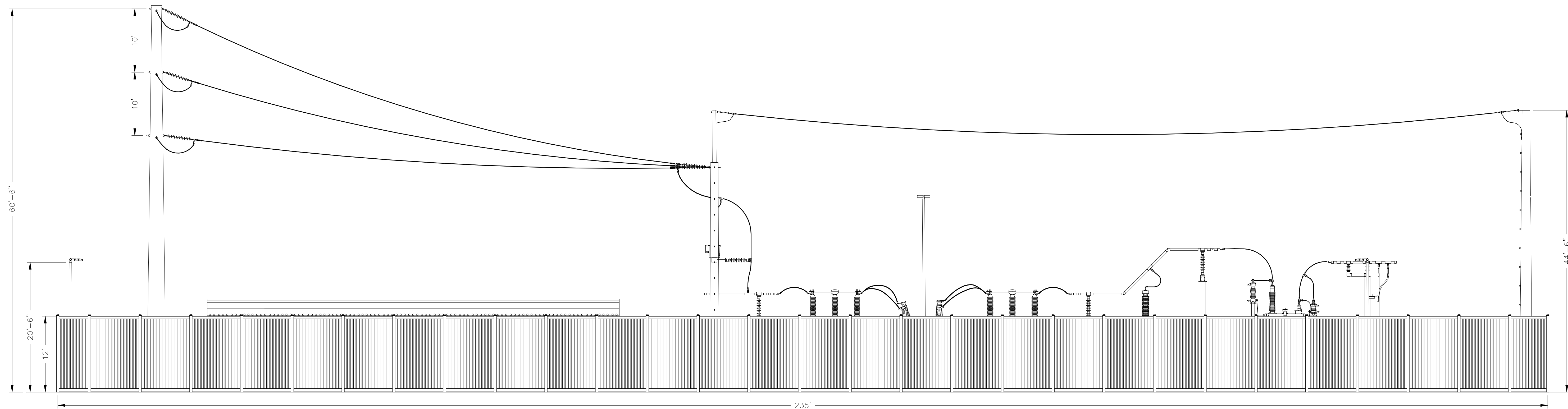
Matanuska Electric Association



163 East Industrial Way
 Palmer, AK 99645
 (907) 761-9300
 WWW.MEA.COOP

| REV # | RECORD REVISION DESCRIPTION | DRAFTED BY | TECH/ENG APPROVED | WORK ORDER APPROVED | APPROVED BY | DATE APPROVED |
|-------|-----------------------------|------------|-------------------|---------------------|-------------|---------------|
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DRAWING NAME: **PARKS SUBSTATION EAST SITE ELEVATION**
 GRID NUMBER 1358
 PREVIOUS DRAWING NUMBER: _____
 DRAWING NUMBER: _____
 SER. SHIT 1 OF 1
 PKG. PG. _____ OF _____



PROJECT TITLE: PARKS SUBSTATION UPGRADE
 ENG./DESIGN.: HAILEIGH SEIL-MEA/TIM CONRAD-EPS W.O. # 102855

| REV # | DESIGN/CONSTRUCTION/ASBUILT REVISION | DRAFTED BY | DATE DRAFTED | MGR./SUPIV. REVIEWED | DATE REVIEWED | DIRECTOR APPROVED | DATE APPROVED | ENG. STAMP |
|-------|--------------------------------------|------------|--------------|----------------------|---------------|-------------------|---------------|------------|
| A | ISSUED FOR PERMITTING | KER | 01/14/20 | TCC | 01/14/20 | | | |
| B | ISSUED FOR PERMITTING | KER | 03/04/20 | TCC | 03/04/20 | | | |
| C | ISSUED FOR PERMITTING | KER | 09/04/20 | TCC | 09/04/20 | | | |

Matanuska Electric Association



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| REV # | RECORD REVISION DESCRIPTION | DRAFTED BY | TECH/ENG APPROVED | WORK ORDER APPROVED | APPROVED BY | DATE APPROVED |
|-------|-----------------------------|------------|-------------------|---------------------|-------------|---------------|
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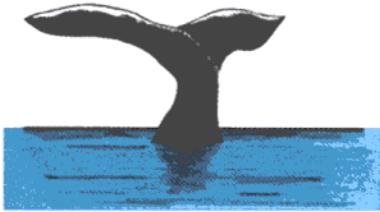
DRAWING NAME: **PARKS SUBSTATION NORTH SITE ELEVATION**

GRID NUMBER 1358

PREVIOUS DRAWING NUMBER: _____

DRAWING NUMBER: _____

SER. SHIT 1 OF 1
 PKG. PG. OF



**Travis/Peterson
Environmental Consulting, Inc.**

Draft 10/05/2020

Michael D. Travis P.E.

President

3305 Arctic Boulevard, Suite 102
Anchorage, Alaska 99503

Phone: 907-522-4337
Fax: 907-522-4313
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Laurence A. Peterson

Operations Manager

329 2nd Street
Fairbanks, Alaska 99701

Phone: 907-455-7225
Fax: 907-455-7228
e-mail: larry@tpeci.com

September 24, 2020

1097-50

Mr. Tim Conrad
Electric Power Systems, Inc.
3305 Arctic Blvd, Suite 201
Anchorage, AK 99503

**Attention: Mr. Conrad
Project Manager**

Re: Matanuska Electric Association Parks Substation Noise Analysis

Dear Mr. Conrad:

Travis/Peterson Environmental Consulting, Inc. (TPECI) conducted an analysis of the noise impacts from the proposed Matanuska Electric Association (MEA) Parks Substation in Chugiak, Alaska. The proposed substation is located on 20418 Steffes Street on an approximately 2.07-acre lot. The property is in a residential neighborhood and is generally flat. While security fencing is planned as part of the proposed development, TPECI did not consider the noise attenuation associated with a fence. Additional noise reduction may occur depending on the type and height of the fence installed at the site.

In accordance with the November 21, 2019 Anchorage Municipal Code, Section 15.70.060 B.14, *Prohibited Acts and Conditions; Public Service Utilities*, electrical substations shall not produce noise exceeding an hourly average of 65 decibels in the A Weighted range (dBA) at the residential property boundary or within a noise-sensitive zone. This noise threshold is consistent with the U.S. Housing and Urban Development (HUD) guidelines.

A site drawing detailing the specific location of the transformer in relation to the property boundaries is enclosed with this letter. The distances from the transformer to each property boundary are described as follows:

North Boundary: 139 feet
East Boundary: 236 feet
South Boundary: 147 feet
West Boundary: 88 feet

The proposed substation will utilize a single 20 Mega Volt Ampere (MVA) transformer. The transformer will be cooled with oil and a fan. TPECI utilized National Electrical Manufacturers Association (NEMA) TR 1-2013 Table 1 to determine the audible noise levels for the specified transformer at the proposed site. A copy of this table has been enclosed with this letter. The table utilizes a reference distance of six (6.0) feet for the listed noise levels. For the proposed 20 MVA transformer, an average noise level of 74 dBA can be expected at six feet.

TPECI used the Federal Highway Administration (FHWA) model for a soft site to calculate noise attenuation over distance for this facility.

FHWA Soft Site Formula:

$$\text{Noise Reduction dBA} = 15 * \log \frac{D_o}{D}$$

Where D_o = Reference distance at which measurements are made

And

D = Perpendicular distance to observation point

Noise calculations at each of the facility property boundaries are calculated as follows:

North

D_o = 6.0 feet

D = 139 feet (distance to north property boundary)

$$15 * \log \frac{6.0}{139} = -20.47 \text{ dBA reduction}$$

Transformer Noise Level per NEMA TR 1-2013 = 74 dBA

Noise at North Property Boundary = Reference Noise – Attenuation Due to Distance

$$74 \text{ dB} - 20.47 \text{ dB} = \mathbf{53.57 \text{ dBA at North Property Boundary}}$$

East

D_o = 6.0 feet

D = 236 feet (distance to east property boundary)

$$15 * \log \frac{6.0}{236} = -23.92 \text{ dBA reduction}$$

Transformer Noise Level per NEMA TR 1-2013 = 74 dBA

Noise at North Property Boundary = Reference Noise – Attenuation Due to Distance

$$74 \text{ dB} - 23.92 \text{ dB} = \mathbf{50.08 \text{ dBA at East Property Boundary}}$$

South

D_o = 6.0 feet

$D = 147$ feet (distance to south property boundary)

$$15 * \log \frac{6.0}{147} = -20.84 \text{ dBA reduction}$$

Transformer Noise Level per NEMA TR 1-2013 = 74 dBA

Noise at North Property Boundary = Reference Noise – Attenuation Due to Distance

$$74 \text{ dB} - 20.84 \text{ dB} = \mathbf{53.16 \text{ dBA at South Property Boundary}}$$

West

$D_0 = 6.0$ feet

$D = 88$ feet (distance to west property boundary)

$$15 * \log \frac{6.0}{88} = -17.50 \text{ dBA reduction}$$

Transformer Noise Level per NEMA TR 1-2013 = 74 dBA

Noise at North Property Boundary = Reference Noise – Attenuation Due to Distance

$$74 \text{ dB} - 17.50 \text{ dB} = \mathbf{56.50 \text{ dBA at West Property Boundary}}$$

Based on these calculations, the anticipated highest noise level will occur at the western property boundary (56.50 dBA). All property boundary noise levels will be less than the 65 dBA HUD guidelines. Thus, noise from the proposed substation will not adversely impact the surrounding residential properties.

If you have any questions or comments, please contact me a (907) 522-4337 or EMundahl@tpeci.com.

Sincerely,



Erik D. Mundahl, P.E.
Environmental Engineer

Encl.: 1) MEA Parks Substation Noise Analysis Site Plan
2) NEMA TR 1-2013 Table 1

**Table 1
AUDIBLE SOUND LEVELS FOR OIL-IMMERSED POWER TRANSFORMERS**

| Average Sound Level tt. Decibels | Equivalent Two-Winding Rating* | | | | | | | | | | | | | | | | | |
|----------------------------------|--------------------------------|--------|--------|----------------------|--------|--------|--------------------|--------|--------|---------------------|--------|--------|-------------|--------|--------|------------------------|--------|--------|
| | 350 kV BIL and Below | | | 450, 550, 650 kV BIL | | | 750 and 825 kV BIL | | | 900 and 1050 kV BIL | | | 1175 kV BIL | | | 1300 kV BIL. and Above | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| 57 | 700 | | | | | | | | | | | | | | | | | |
| 58 | 1000 | | | | | | | | | | | | | | | | | |
| 59 | | | | 700 | | | | | | | | | | | | | | |
| 60 | 1500 | | | 1000 | | | | | | | | | | | | | | |
| 61 | 2000 | | | | | | | | | | | | | | | | | |
| 62 | 2500 | | | 1500 | | | | | | | | | | | | | | |
| 63 | 3000 | | | 2000 | | | | | | | | | | | | | | |
| 64 | 4000 | | | 2500 | | | | | | | | | | | | | | |
| 65 | 5000 | | | 3000 | | | | | | | | | | | | | | |
| 66 | 6000 | | | 4000 | | | 3000 | | | | | | | | | | | |
| 67 | 7500 | 6250▲▲ | | 5000 | 3750▲▲ | | 4000 | 3125▲▲ | | | | | | | | | | |
| 68 | 10000 | 7500 | | 6000 | 5000 | | 5000 | 3750 | | | | | | | | | | |
| 69 | 12500 | 9375 | | 7500 | 6250 | | 6000 | 5000 | | | | | | | | | | |
| 70 | 15000 | 12500 | | 10000 | 7500 | | 7500 | 6250 | | | | | | | | | | |
| 71 | 20000 | 16667 | | 12500 | 9375 | | 10000 | 7500 | | | | | | | | | | |
| 72 | 25000 | 20000 | 20800 | 15000 | 12500 | | 12500 | 9375 | | | | | | | | | | |
| 73 | 30000 | 26667 | 25000 | 20000 | 16667 | | 15000 | 12500 | | 12500 | | | | | | | | |
| 74 | 40000 | 33333 | 33333 | 25000 | 20000 | 20800 | 20000 | 16667 | | 15000 | | | 12500 | | | | | |
| 75 | 50000 | 40000 | 41687 | 30000 | 26667 | 25000 | 25000 | 20000 | 20800 | 20000 | 16667 | | 15000 | | | | 12500 | |
| 76 | 60000 | 53333 | 50000 | 40000 | 33333 | 33333 | 30000 | 26667 | 25000 | 25000 | 20000 | 20800 | 20000 | 16667 | | | 15000 | |
| 77 | 80000 | 66687 | 66667 | 50000 | 40000 | 41667 | 40000 | 33333 | 33333 | 30000 | 26667 | 25000 | 25000 | 20000 | 20800 | 20000 | 16667 | |
| 78 | 100000 | 80000 | 83333 | 60000 | 53333 | 50000 | 50000 | 40000 | 41667 | 40000 | 33333 | 33333 | 30000 | 26667 | 25000 | 25000 | 20000 | 20800 |
| 79 | | 106667 | 100000 | 80000 | 66667 | 66667 | 60000 | 53333 | 50000 | 50000 | 40000 | 41667 | 40000 | 33333 | 33333 | 30000 | 26667 | 25000 |
| 80 | | 133333 | 133333 | 100000 | 60000 | 83333 | 80000 | 66667 | 66667 | 60000 | 53333 | 50000 | 50000 | 40000 | 41667 | 40000 | 33333 | 33333 |
| 81 | | | 166667 | | 106667 | 100000 | 100000 | 80000 | 83333 | 80000 | 66667 | 66667 | 60000 | 53333 | 50000 | 50000 | 40000 | 41667 |
| 82 | | | 200000 | | 133333 | 133333 | | 106867 | 100000 | 100000 | 80000 | 83333 | 80000 | 66667 | 66667 | 60000 | 53333 | 50000 |
| 83 | | | 250000 | | | 166667 | | 133333 | 133333 | | 10686 | 100000 | 100000 | 80000 | 83333 | 80000 | 66667 | 68667 |
| 84 | | | 300000 | | | 200000 | | | 166667 | | 133333 | 133333 | | 106667 | 100000 | 100000 | 80000 | 83333 |
| 85 | | | 400000 | | | 250000 | | | 200000 | | | 166667 | | 133333 | 133333 | | 106667 | 100000 |
| 86 | | | | | | 300000 | | | 250000 | | | 200000 | | | 166667 | | 133333 | 133333 |
| 87 | | | | | | 400000 | | | 300000 | | | 250000 | | | 200000 | | | 168667 |
| 88 | | | | | | | | | 400000 | | | 300000 | | | 250000 | | | 200000 |
| 89 | | | | | | | | | | | | 400000 | | | 300000 | | | 250000 |
| 90 | | | | | | | | | | | | | | | 400000 | | | 300000 |
| 91 | | | | | | | | | | | | | | | | | | 400000 |

Column 1 • Class*ONAN, ONWN and OFWF Rating*
 Column 2 • Class* ONAF and ODAF First stage Auxiliary Cooling"t
 Column 3 • Straight OFAF Ratings, ONAF * and ODAF * Second stage Auxiliary Cooling"t
 Classes of cooling, see section 5.1 IEEE Std.. C57.12-2010

"First- and second stage auxiliary cooling, see section 4 Table 1 of IEEE Std.. C57-12-2010
 f For column 2 and 3 ratings, the sound levels are with the auxiliary cooling equipment in operation.
 f For intermediate kVA ratings, use the average sound level of the next larger kVA rating.
 ▲ The equivalent two-winding 55°C or 65°C rating is defined as one-half the sum of the kVA rating of all windings
 ▲▲ Sixty-seven decibels for all kVA ratings equal to this or smaller.

**MEA's Response to Reso # 0001
9/22/20**

Responses to the resolution are in **RED**.

Resolution to Change Building of Matanuska Electric Association's New, Expanded Substation from the Justin Parks Site to Their Previously Considered 21740 Tarika Location (S. End, Upper Bowery Lane)

WHEREAS, size and scope of the proposed new Justin Parks Substation, planned to be six times larger than the original, simply does not fit Birchwood's Comprehensive Land Use Plan, falling far short of protecting (as code directs) "the scale, character, and unique appeal of the existing residential neighborhood," and

In response to the concerns of residents and the Planning and Zoning Commissioners expressed at the June 1st public hearing on the CUP application, MEA has been working to redesign the site to reduce the overall footprint of the upgraded Justine Parks Substation and increase buffer and vegetation. The drafted redesigned site reduces the original upgrade design by 70%. MEA is committed to working with the community and is making significant changes to the proposed upgrade design. The single transformer design will not have the same reliability and redundancy for the Birchwood and Chugiak community's long-term electricity demand the initial design featured, however, based on feedback from the local residents, we are willing to make that tradeoff for the other 2100 members being served by Justine Parks Substation. Code requirements for protecting the character of the residential neighborhood are described in the following response.

WHEREAS, Title 21.10 places great emphasis on buffering protection for residences—even where residential use is not the priority, but Heavy Industrial is the primary dedicated land use, Subchapter E-4.b CE-1-2 requires protecting abutting residences with a vegetated buffer of 100 feet—it follows that in the middle of an R-6 C-3 low density rural residential neighborhood a project of this magnitude should be required to protect surrounding residences with an even significantly greater buffer, but certainly never less than that vegetated buffer of 100 feet should ever be considered, and

A utility substation is a community use, as defined in AMC Table 21.10-4 Table of Allowed Uses, not Heavy Industrial; therefore, the 100-foot buffer is not applicable. Utility substations are permitted conditionally in all CE residential districts, including the CE-R-6 district.

21.05.040(J)(3) Utility Substation.

a. *Definition.* A service that is necessary to support development within the immediate vicinity, and is typically not staffed. Examples include, but are not limited to, electric transformer stations; gas regulator stations; water reservoirs; telephone exchange facilities; and water and sewage collection or pumping stations.

b. *Use-specific standard.* The facility shall be designed and constructed to ensure visual and aesthetic compatibility with the surrounding neighborhood. Compatibility may be achieved either by using similar architectural design and materials as building(s) in the surrounding neighborhood, or by screening the facility with L2 buffer landscaping.

AMC 21.05.040.J.3.b. requires L2 buffer landscaping to screen utility substations from the surrounding neighborhood. The minimum average planting width is 15 feet for L2 landscaping, and a 6-foot high ornamental sight obscuring fence may be used in lieu of five feet of planting

MEA Parks Substation Permitting

bed width. See Table 21.07-1 or the current Conditional Use application for more information about L2 landscaping requirements. The site design proposed at the June 1st PZC hearing met or exceeded all landscaping and buffering requirements; MEA prioritized additional landscape buffering in the new redesign and it will be significantly larger than the original design presented.

WHEREAS, to shoehorn their expansion into the too-small constraints of the mere two-acre Justin Parks parcel, MEA has only proposed narrow buffers, on one side merely 15-foot wide, which would impose great impact on the adjoining properties and fail to come anywhere close to the letter and spirit of Title 21.10's Birchwood's Comprehensive Land Use Plan, and

AMC Table 21.10-6 Minimum Lot Dimensions states that all non-residential uses within the CE-R-6 district the minimum are required is 43,560 square feet, with a width of 135 feet. The Justine Parks Substation lot is 99,132 square feet and exceeds the required lot width. Therefore, the site is of sufficient size for the existing and proposed utility substation use by code. Additionally, based on feedback from previous Planning and Zoning Commission, MEA went through the process and expense to replat the property to increase separation and buffering from adjacent residents, for the community's benefit. The buffering meets or exceeds code requirements, as explained in the Conditional Use (CU) application and in responses in other sections of this document.

Part of MEA's goal in designing the proposed upgraded facility was to locate the new equipment in such a way that the existing Justine Parks Substation could remain online and fully operational during construction of the new substation. This was to ensure the 2100 members, including the neighborhood residents, schools, post office, stores and churches would continue to have reliable power throughout construction. This location requirement resulted in the 15-foot wide buffer on one side. However, the landscape buffers are increasing significantly with the smaller footprint included in the new redesign of the site.

WHEREAS, a viable alternative land parcel at the south end of Upper Bowery Lane is over twice the size of Justin Parks, with room to leave a wide swath of the heavy natural forest for buffering as well as space for future expansion to build for every performance function MEA desires, and

A Relocation Feasibility Report was conducted in 2015 and analyzed alternative utility substation sites. It concluded that the Justine Parks Substation's current location best meets current and long-term needs in a manner that is cost-effective and limits the overall impact to the community and adjacent property owners. Size of a parcel and available existing buffering are not the only requirements for location of a utility substation. Lot configuration, access, proximity to the electrical load, ease of connecting to existing transmission and distribution lines to the new location, and topography are all factors to consider when locating a substation. See the CUP Application and the Relocation Feasibility Study for more information.

WHEREAS, while the Upper Bowery land is apparently perfect as a substation site, it is useful for almost nothing else, sandwiched as it is between the Eklutna Transmission Line and the noisy Glenn Highway, thus perfectly qualifying under Title 21.10 Subchapter E-4.b CE-1-2 as "Rural Industrial" land, and

MEA Parks Substation Permitting

The alternative site off Upper Bowery Lane is zoned CER5A, which Table 21.10-2 Chugiak-Eagle River Zoning Districts Established describes as rural residential with mobile homes, not rural industrial. A utility substation is considered a community use, generally compatible with residential development, subject to design standards in Title 21. The purpose and function of a utility substation is only fulfilled when it is located near the residents it is providing power to. Because of this, utility substations are allowed conditionally in residentially zoned areas throughout Anchorage, Eagle River, Birchwood and Chugiak.

A substation needs to be near the load center to provide safe, reliable and economic power to the area it serves. The load center in this area includes the residential neighborhood the Justine Parks Substation currently exists in. The Upper Bowery site would require impacting between 10-15 private properties by running new distribution lines, requiring 30-40 foot easements through resident's yards to provide the same level of service.

WHEREAS, Upper Bowery substation would be virtually invisible from any dwellings, the prime substation location separated from even the nearest neighbors by the broad distance across the power line swath, the wide expanse of tall, thick forest, and the topography-a 20-foot or more elevation drop over the hill, and

It has been determined that the Upper Bowery site is not a "prime substation location", as shown in the Relocation Feasibility Study. The alternative property off Upper Bowery Lane is adjacent to 4 principle residences. New distribution lines and utility easements, which include clearing whether lines are constructed overhead or underground, would be required and would impact more private property than the proposed upgrade of the Justine Parks Substation. In addition, the topography, "a-20-foot or more elevation drop" does present significant access and drainage concerns for MEA and locating a substation.

WHEREAS, Upper Bowery transformer sound would be effectively inaudible to neighbors, the traffic roar being so intense it would overwhelm even over-code transformer hum, and

The proposed upgraded substation equipment will have comparable noise level to the existing Justine Parks Substation.

WHEREAS, according to MEA's own feasibility report, the Upper Bowery site is an ideal location for tapping into the Eklutna Transmission Line which actually crosses the west side of that property, and

While the Upper Bowery site is in close proximity to the Eklutna Transmission line, there are other important factors that make this site undesirable. The feasibility study concluded that the existing site is the least impactful to the community members (not just the adjacent neighbors) of the sites that were studied. See the feasibility study or the CU application (p.5 of 21):

WHEREAS, the feeder lines from the Upper Bowery site can be routed underground along the Eklutna Transmission Line back to the Parks substation and to the distribution line on the east side of Upper Bowery Lane for which a right-of-way exists for running the connection, and

During the 2015 alternative site analysis MEA looked at several routes to bring the 3 existing and one planned feeders from their existing location near the current Justine Parks Substation to the possible new location. Each resulted in significant loss to vegetation and buffers of the members

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along that road. During the reconstruction of the Eklutna Transmission Line, in 2011, efforts were made to acquire additional rights to construct distribution facilities. 6 out of the 13 properties along the transmission line easement, between the alternative property off Upper Bowery Lane and the existing Justine Parks Substation, refused to grant additional rights for distribution facilities. Therefore, new easements would need to be acquired and significant clearing is necessary to connect the alternative property to the existing distribution facilities.

The existing utility equipment at the Justine Parks Substation is outdated to the point where many necessary parts are no longer being manufactured. If a failure on existing equipment occurs, it will be increasingly challenging to provide safe, reliable service to members.

WHEREAS, it appears the Upper Bowery site would impact no one or if, by utmost scrutiny, any harmful effect could be detected from the two closest dwellings, it would be extremely slight compared to blatant damage that would hit any and all of the seven (much closer, in plain sight) Parks perimeter neighbors, and

As stated in the Feasibility Study, between 10-15 members' properties would be impacted by the installation of new distribution feeders alone along with the 4 principle residences that are directly impacted with the Upper Bowery Lane site.

WHEREAS, at the time, construction would be an inconvenience to adjacent Upper Bowery Lane property owners, it would only be temporary, just during installation, greatly differing from the constant, never-ending effects the proposed new Parks Substation would have on its surrounding neighbors, and

As stated in the Feasibility Study, between 10-15 members' properties would be impacted by the installation of new distribution feeders alone along with the 4 principle residences that are directly impacted with the Upper Bowery Lane site.

WHEREAS, according to MEA's own testimony the construction cost difference between the Upper Bowery and Justin Parks sites is negligible, and

More than cost of construction is taken into consideration of substation location and includes impacts to adjacent residents and the greater community.

WHEREAS, the Justin Parks site is so egregious to Birchwood's Comprehensive Land Use Plan it incurs great resistance, but the Upper Bowery site so well fits the Plan it would predictably have wide Birchwood support,

The Justine Parks Substation was installed approximately 47 years ago, bringing power to Birchwood/Chugiak area. It has been a part of the community for decades but has reach the end of its useful life and needs to be upgraded. The substation upgrade will provide screening of the electrical equipment with a 12' Trex interlocking composite (wood-like) fence and landscaping that goes above and beyond AMC Title 21 requirements to maintain the neighborhood character.

Whether thinking about the Upper Bowery site or other locations, one thing to remember is that to move this substation, it could and would likely be proposed in another residentially zoned lot,

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which means those residents and constituents could also be in opposition to a new substation located in their neighborhood. It is presumptuous to assume a new substation in a residential neighborhood would be met with less opposition than upgrading an existing substation.

THEREFORE, for these most evident reasons and superb advantages we, the undersigned Justin Parks perimeter property owners and dwellers strongly recommend that MEA moves construction to their previously considered site, an obviously ideal location for the substation, at 21740 Tarika (located at the south end of Upper Bowery Lane).

Alternative Property: 21740 Tarika Avenue

IMPACT:

6 property owners view sheds are impacted by alternative location.

Cady Raymond E & Kristen L
Abacus Finance LTD
Whaley Stephanie F
Rasey Kristi K
Waliser Anthony
Suprenant Michael

3 routing options were considered for this alternative property.



Legend:
Yellow – Existing Substation Site
Green – Alternative Substation Site
White – Clearing area for alternative location wires
Purple – Existing Transmission Line



Option A: Routing all feeders along Upper Bowery Lane.

IMPACT:
17 property owners impacted by clearing area for proposed wires.

- Whaley Stephanie F
- Kuersten Robert E & Kathleen L
- Eggiman Brett & Aleah
- Palmer Bryce P
- Smith-Marguiss Janine A
- Williams Shawn & Kathy
- Brink Donald E & Jennifer
- Curry John M
- Horttor Tim
- MEA
- Abacus Finance LTD
- Kimzey William T
- Castle Rock Trust Nelson Carl A & Jennifer R/TTES
- Rainey Gary L & Jeannie L
- Gunderson Cameron & Jessica
- Johnston Jason J & Lauren E
- Baker Jade A

Legend:

- Yellow – Existing Substation Site
- Green – Alternative Substation Site
- White – Clearing area for alternative location wires
- Purple – Existing Transmission Line



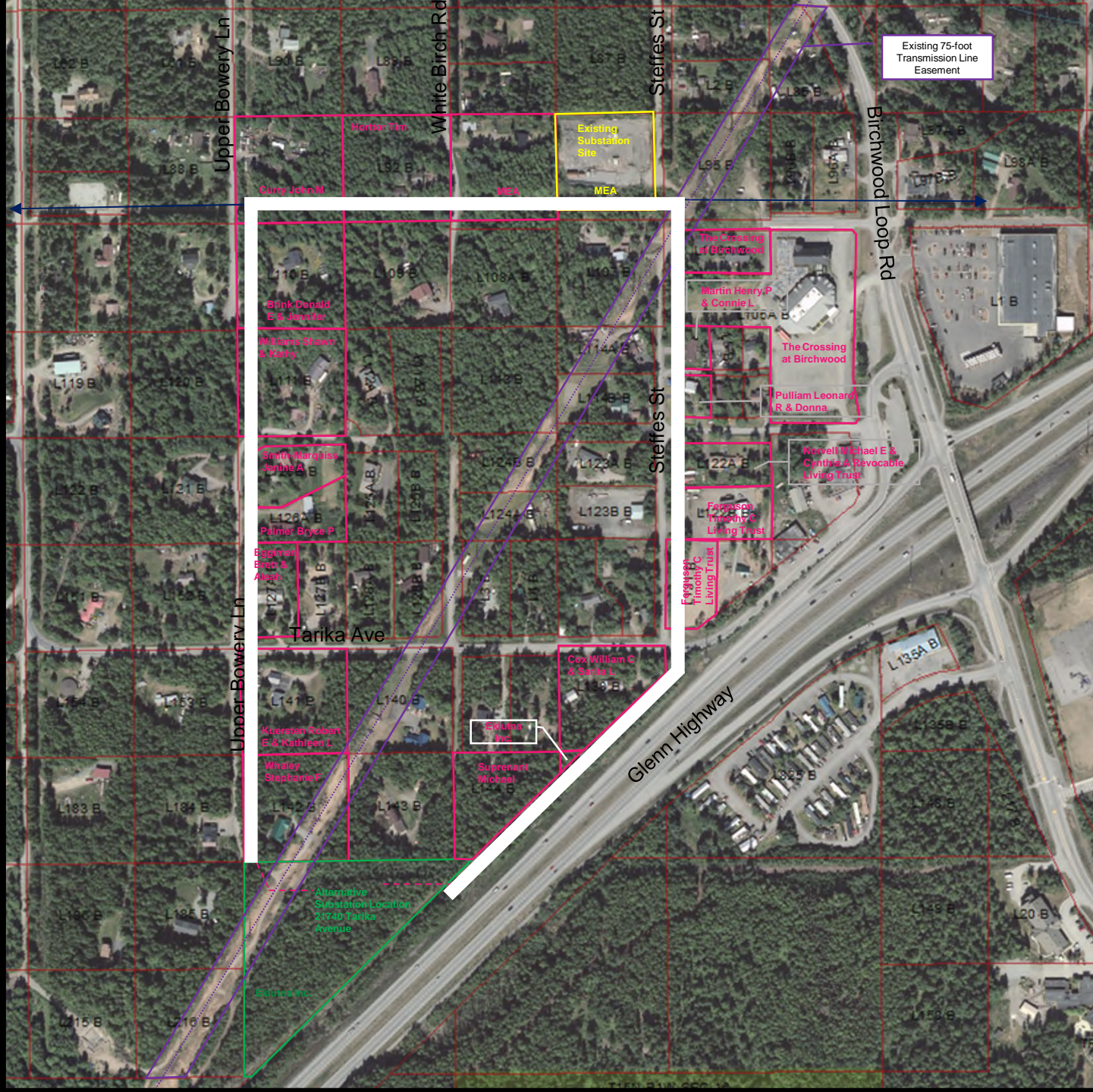
Option B: Routing two of the three feeders along the existing Eklutna Transmission Line right-of-way. The third feeder along Upper Bowery Lane.

IMPACT:
22 property owners impacted by clearing area for proposed wires.

- Whaley Stephanie F
- Kuersten Robert E & Kathleen L
- Eggiman Brett & Aleah
- Palmer Bryce P
- Smith-Marguiss Janine A
- Williams Shawn & Kathy
- Brink Donald E & Jennifer
- Curry John M
- Horttor Tim
- MEA
- The Crossing at Birchwood
- Miller Wanneta Loys Jennings & Miller Bruce & Carolawn
- Lake Michael K & Julie A
- Rodriquez Oscar H & Tracy E
- Pryor Lynn A & Mary L
- Whaley Stephanie F
- Watts L Anita
- Rentmeester Arthur J & Diane M
- Chalifour Peter G
- Morris Wanda D
- Hughes Mary C & Hughes Robert C & Rochelle
- Rasey Kristi K

Legend:

- Yellow – Existing Substation Site
- Green – Alternative Substation Site
- White – Clearing area for alternative location wires
- Purple – Existing Transmission Line



Option C: Routing two of the three feeders east along the Glenn Highway right-of-way, then turning north along Steffes Street. The third feeder along Upper Bowery Lane.

IMPACT:

20 property owners impacted by clearing area for proposed wires.

- Whaley Stephanie F
- Kuersten Robert E & Kathleen L
- Eggiman Brett & Aleah
- Palmer Bryce P
- Smith-Marguiss Janine A
- Williams Shawn & Kathy
- Brink Donald E & Jennifer
- Curry John M
- Horttor Tim
- MEA
- Suprenant Michael
- Eklutna Inc.
- Cox William C & Sarita L
- Ferguson Timothy C Living Trust
- Norvell Michael E & Cynthia A Revocable Living Trust
- Pulliam Leonard R & Donna
- Martin Henry P & Connie L
- The Crossing at Birchwood

Legend:

- Yellow – Existing Substation Site
- Green – Alternative Substation Site
- White – Clearing area for alternative location wires
- Purple – Existing Transmission Line