Louisville Metro Planning Commission Public Hearing – November 4, 2021
Louisville Metro Land Development & Transportation Committee – October 14, 2021
Neighborhood Meeting – July 22, 2021

Docket No. 21-ZONE-0103

Zone change from PEC to M3 on 7.27 acres in to allow Quadrant International to construct a magnet manufacturing plant at its existing Blankenbaker Station facility, being lots 11 and 12 in Blankenbaker Station II

QUADRANT

in cooperation with

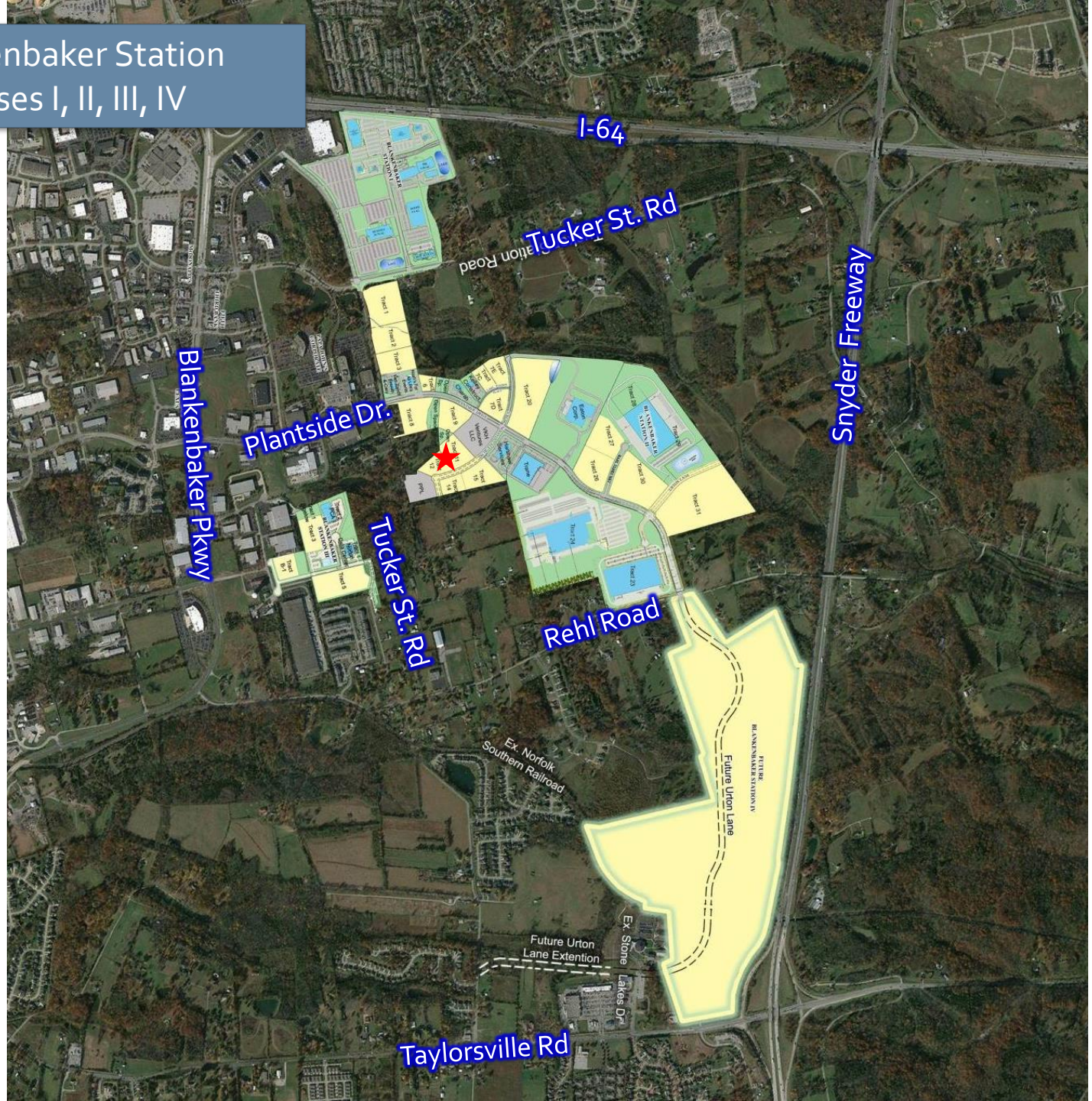
HORIZON COMMERCIAL REALTY

HOLLENBACH OAKLEY

Attorneys: Bardenwerper Talbott & Roberts, PLLC

Land Planners, Landscape Architects & Engineers: Mindel Scott & Associates

Blankenbaker Station
Phases I, II, III, IV



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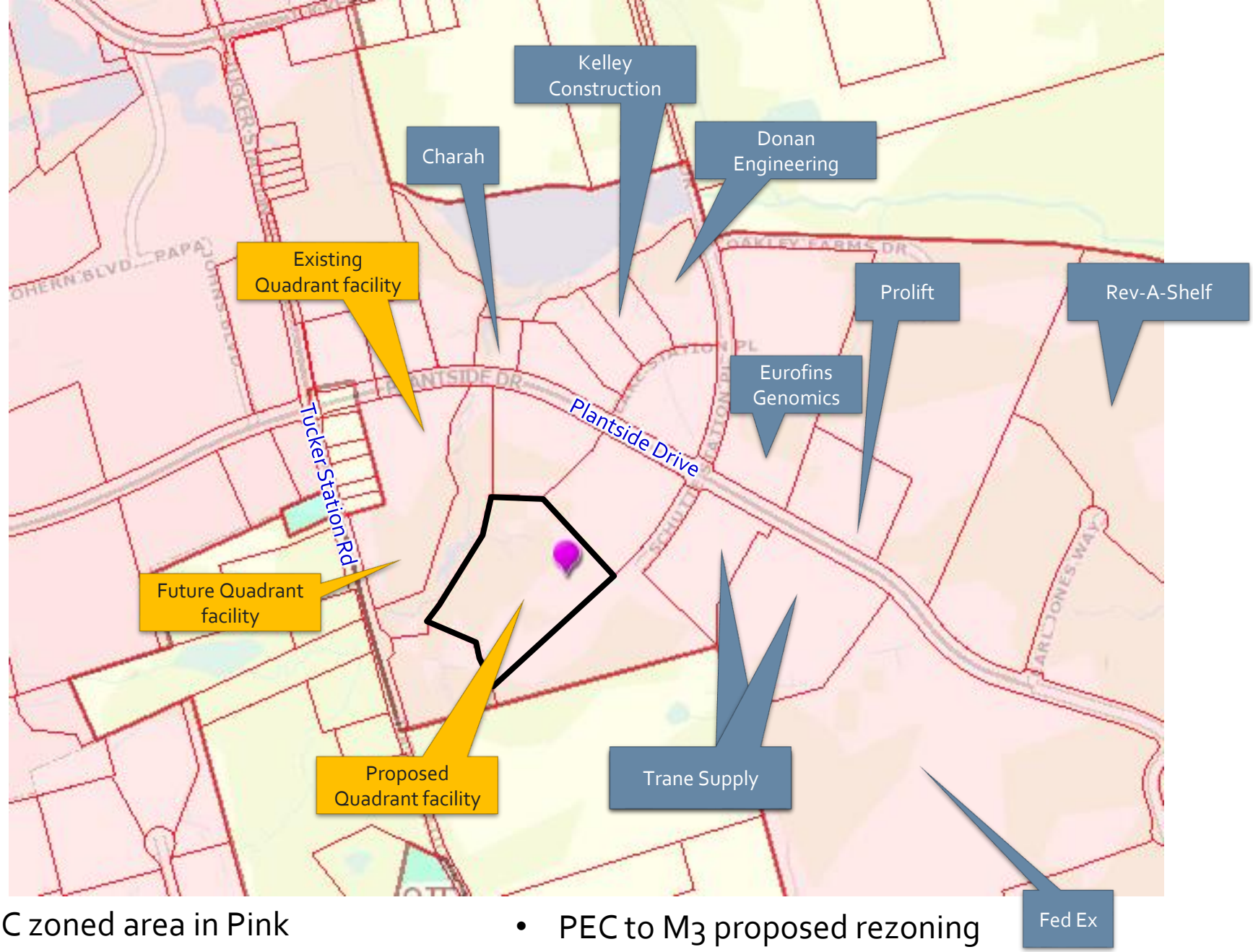
BLANKENBAKER STATION

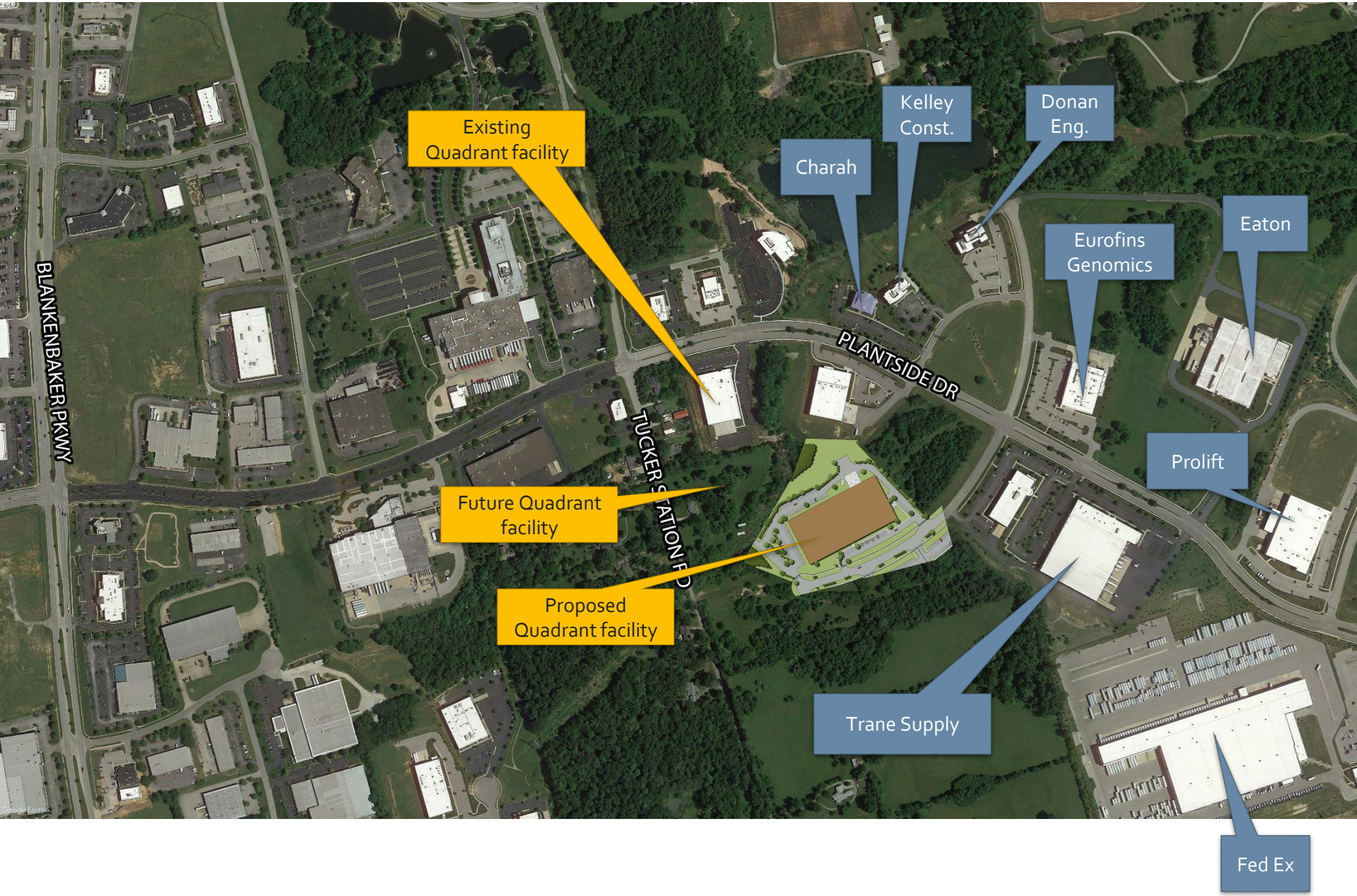
Phase II

MINDEL SCOTT

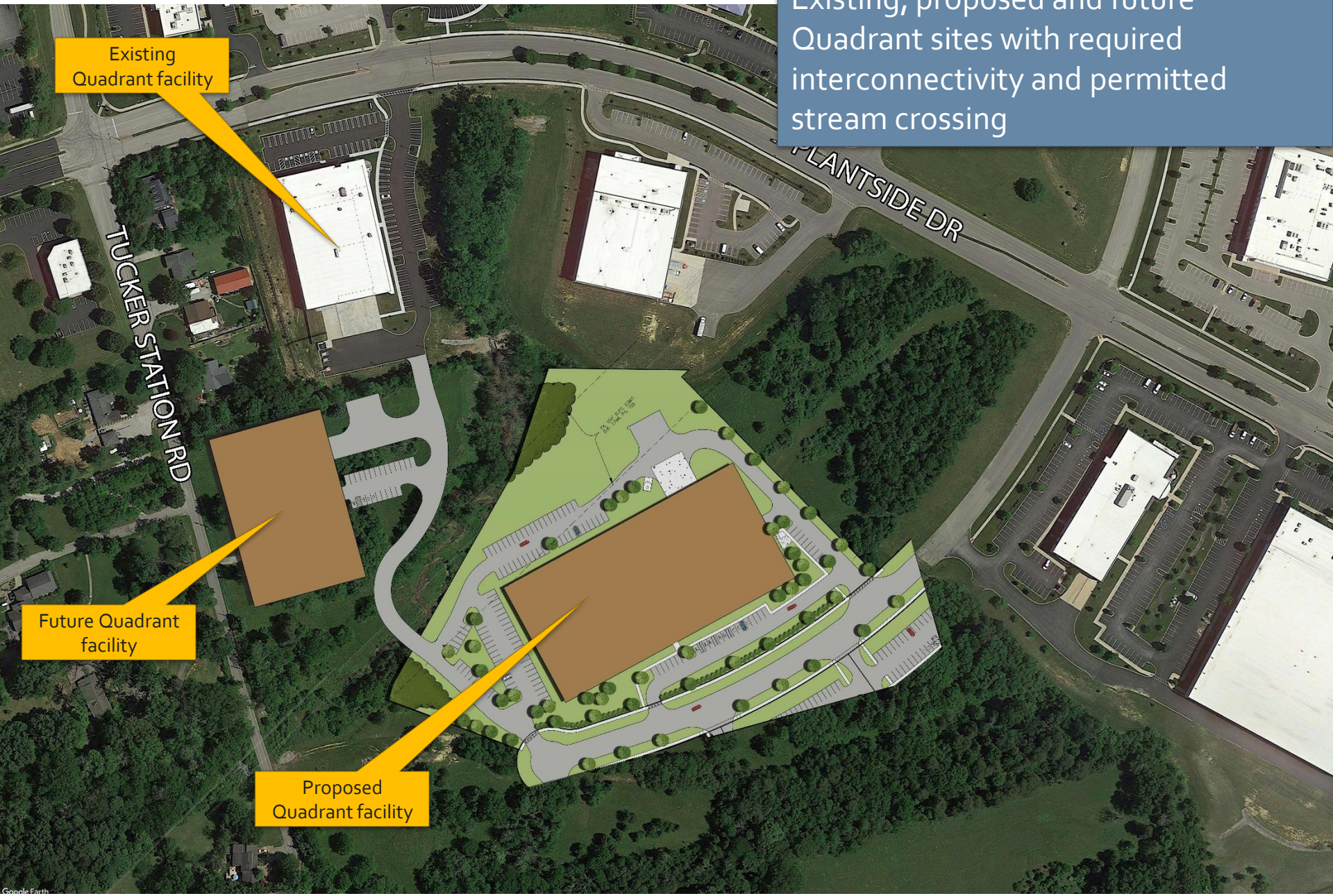
HOLLENBACH OAKLEY



- PEC zoned area in Pink
- R4 zoned area in Yellow
- OR3 & OTF zoned area in Aqua
- PEC to M3 proposed rezoning area outlined in Black


Existing Quadrant facility
Kelley Const.
Donan Eng.
Charah
Eaton
Eurofins Genomics
BLANKENBAKER PKWY
PLANTSIDE DR
TUCKER STATION RD
Prolift
Future Quadrant facility
Proposed Quadrant facility
Trane Supply
Fed Ex

Existing, proposed and future Quadrant sites with required interconnectivity and permitted stream crossing

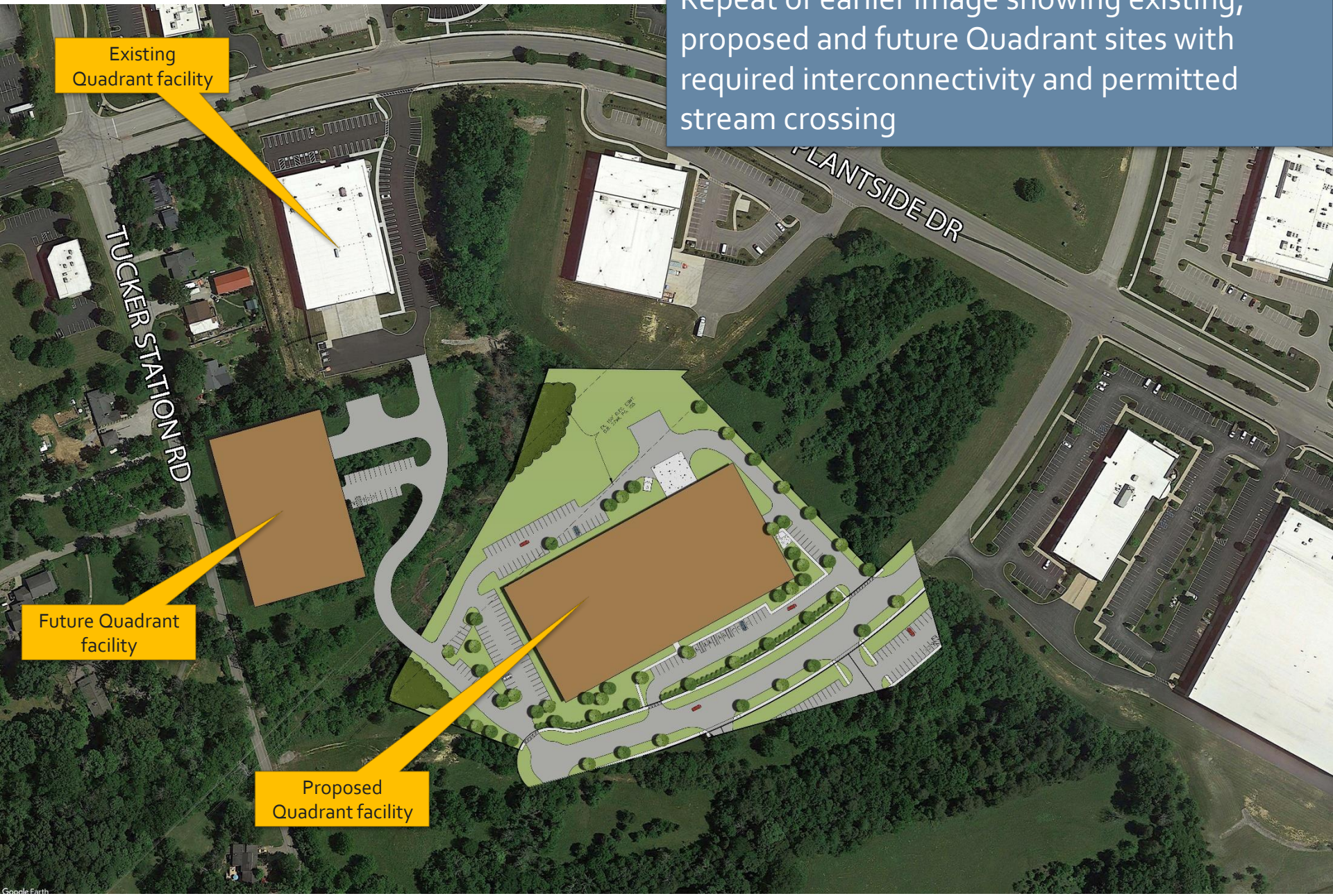


View of existing Quadrant facility.

View from Schutte Station Rd (off Plantside Drive) to the location of the Schutte Station extension and proposed Quadrant facility site also leading to the future and existing Quadrant sites plus other property.

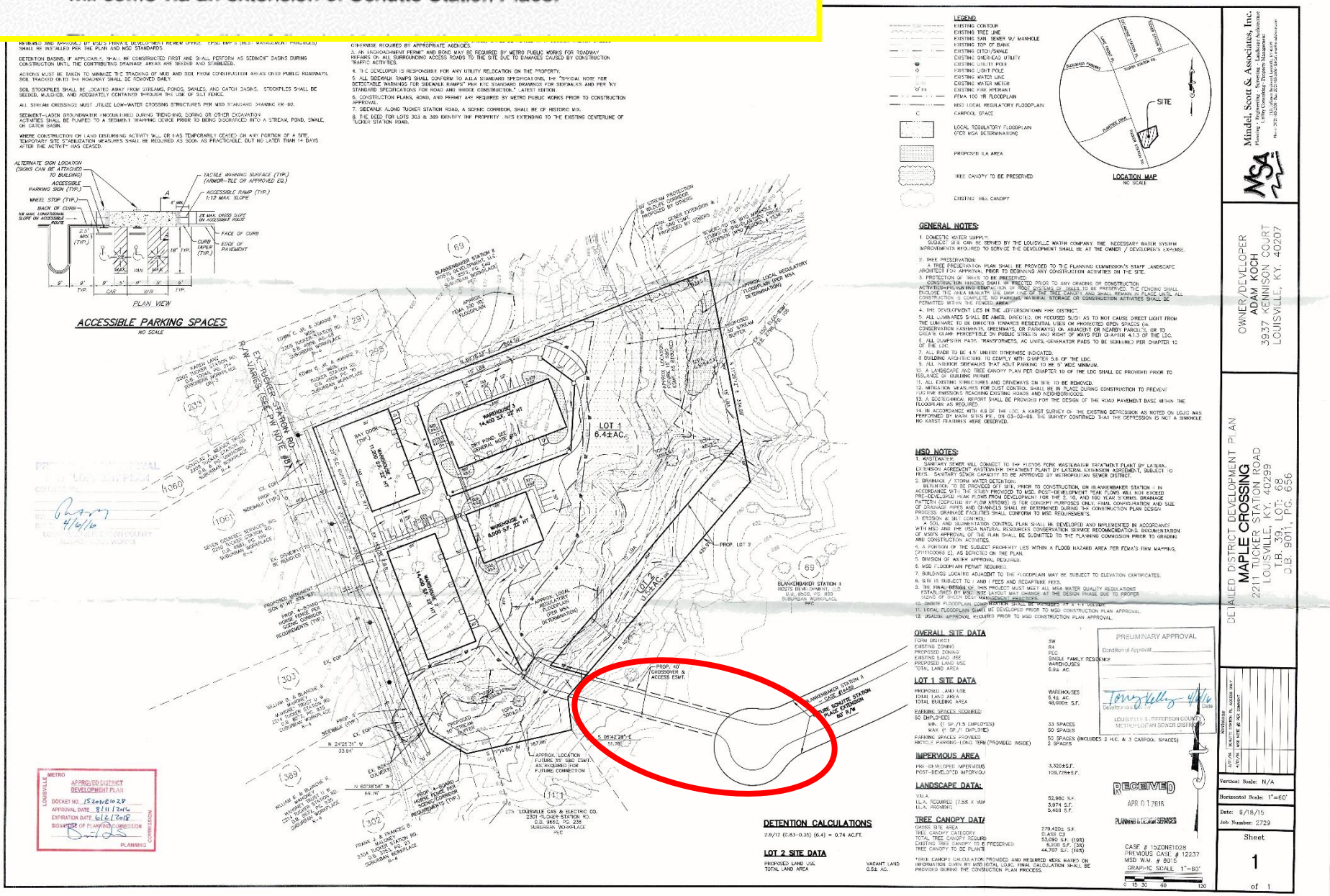
View from existing Quadrant site across future Quadrant site to proposed Quadrant site, completing what is essentially a circular access from Plantside Drive east to Plantside Drive west.

Repeat of earlier image showing existing, proposed and future Quadrant sites with required interconnectivity and permitted stream crossing



#15ZONE1028 Binding Element #11

11. There is no direct access to the site from Tucker Station Road. Access will come via an extension of Schutte Station Place.



6.2.5 General Layout of Streets

A. Coordination with Surrounding Streets - A proposed street shall recognize and extend the plan and profile of off-site existing streets, and shall make possible the future extension of streets into adjacent undeveloped land. Collector streets shall intersect with surrounding collector or arterial streets at safe and convenient locations.

Continuation of Existing Streets – Subdivisions shall be designed to ensure that existing public and private streets, which stub into the subject property must be extended through the subject property. For subdivisions creating any lot that abuts or has access to any proposed stub street extension, right-of-way shall be dedicated sufficient to accommodate the extension of the street, and the street shall be constructed in accordance with the requirements of this Land Development Code for constructing public or private roads.

7.3.10 Streets

B. Continuation of existing streets. Subdivisions shall be designed to ensure that existing public and private streets which stub into the subject property can be extended through the subject property. For subdivisions creating any lot that abuts or has access to any proposed stub street extension, right-of-way shall be dedicated sufficient to accommodate the extension of the street, and the street shall be constructed in accordance with the requirements of this Land Development Code for constructing public or private roads.

1.5 Joint and Cross Access

B. Required cross-access corridors shall be shown on any subdivision or site plan. A system of joint use driveways and cross access easements shall be required to provide unified access and circulation among parcels and assist in local traffic movement. In such cases, the building site shall incorporate the following:

2. Stub-outs and other design features to make it visually obvious that abutting vacant properties should be tied in to provide cross access at the time they are developed.

1.6 Requirements for Unified Access and Circulation

B. Where abutting properties are in different ownership and not part of an overall development plan, cooperation between the various owners to create a unified access and circulation system is encouraged. Abutting properties shall provide unified access and circulation at the time that they are developed, or are redeveloped as provided in Section 1.8.

Table 4.8.1		
Type of Protected Waterway	Buffer Area Type & Minimum Buffer Area Width (Feet) By Form District	
	Type "A" Buffer Area Applies in the Following Form Districts • Downtown • Traditional Neighborhood • Traditional Marketplace Corridor • Traditional Workplace • Village FD Center	Type "B" Buffer Area Applies in the Following Form Districts: • Regional Marketplace Center • Town Center • Suburban Marketplace Corridor • Neighborhood • Suburban Workplace • Campus • Village FD Area outside of Center
Protected Waterways Other than Wetlands	Total Buffer Area = 25 feet	Total Buffer Area = 100 feet, comprised of the following 3 zones: 1. Streamside zone: 25 feet: 2. Middle zone: 50 feet. 3. Outer zone: 25 feet.

The proposed road does not cross a regulated perennial stream, but rather an intermittent stream. However, even if it were perennial, the stream could be crossed.

4.8.6 Standards for Protected Waterways and All Buffer Areas

A. General Rule.

No land-disturbing activity, development, or subdivision of any type shall occur in a protected waterway or Buffer Area, except as expressly allowed in this part and other applicable County, state, or federal laws and regulations. The County shall not approve any land-disturbing activity, development, or subdivision until the Applicant obtains all other necessary county, state, and/or federal permits. All Buffer Areas shall remain in a vegetated, natural state and shall not be modified in any manner except as expressly allowed in this section. Plant material adequate for filtering surface drainage shall be maintained within all Buffer Areas.

B. Permitted Uses and Activities in the 100-Year Floodplain.

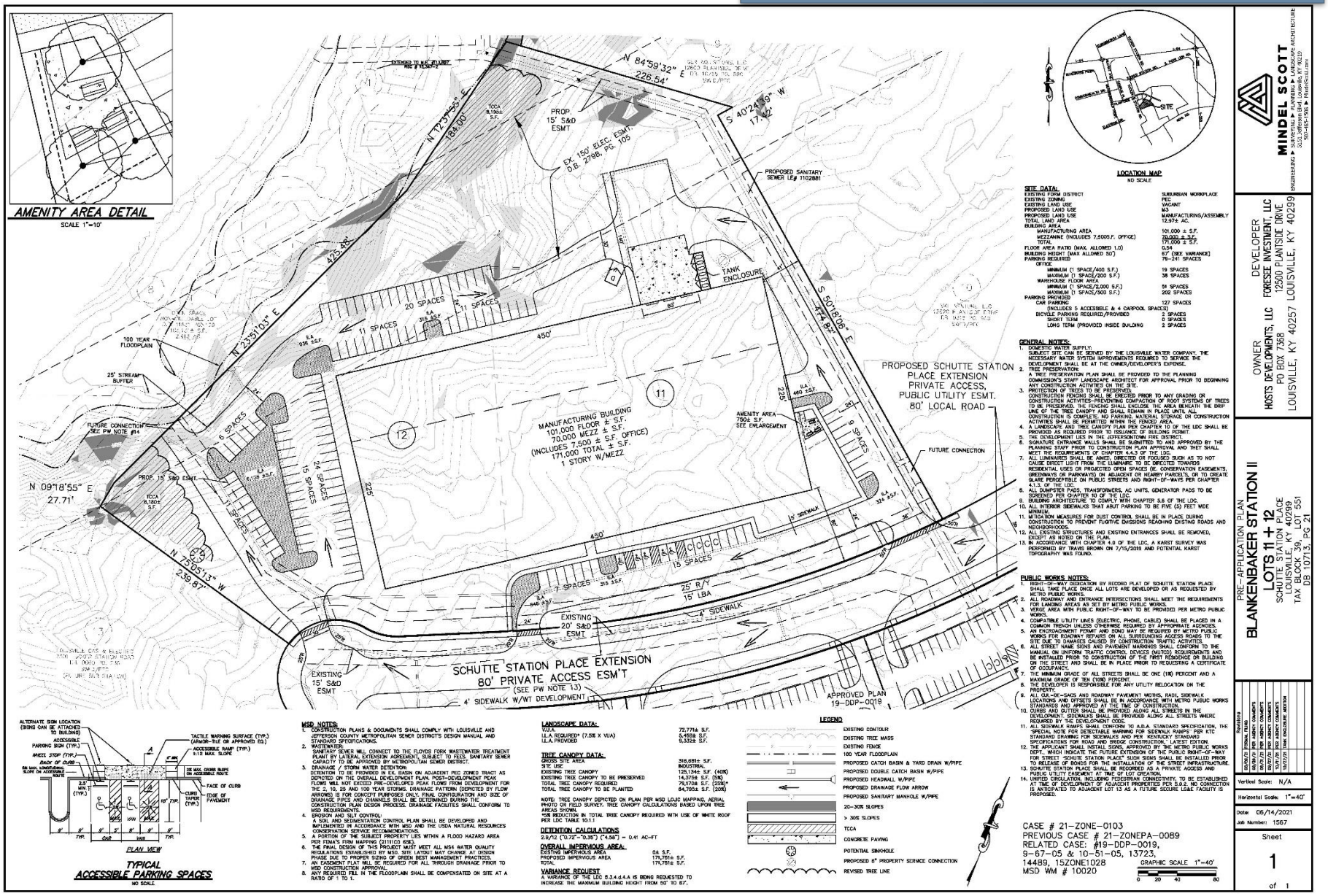
Any land disturbing activity, development, or subdivision in the 100-year floodplain shall demonstrate compliance with the Jefferson County Floodplain Ordinance, as amended.

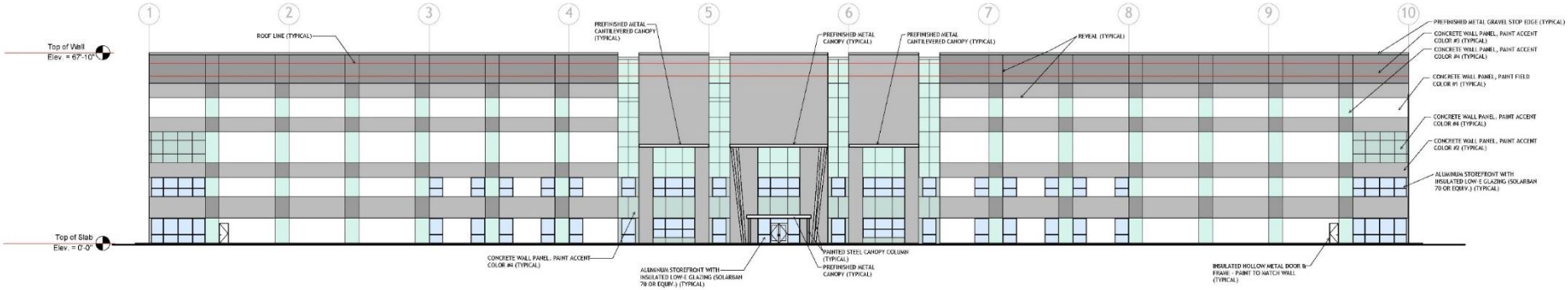
C. Uses Permitted in the Type A Buffer Areas and the Streamside Buffer Zone.

Within a Type "A" Buffer Area and the Streamside Zone of a Type "B" Buffer Area, allowable uses and activities are restricted to:

1. Public flood control structures,
2. Utility rights of way (Type A buffer only),
3. Pedestrian-only trails, and
4. Road crossings, where permitted.

Updated DDDP since time of LD&T

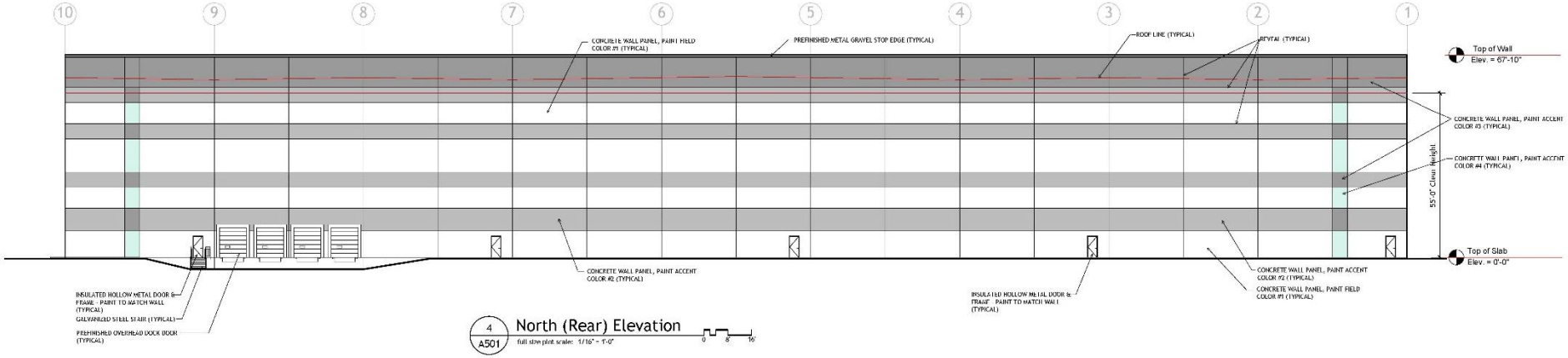




1 A501 **South (Front) Elevation**

full size plot scale: 1/16" = 1'-0"

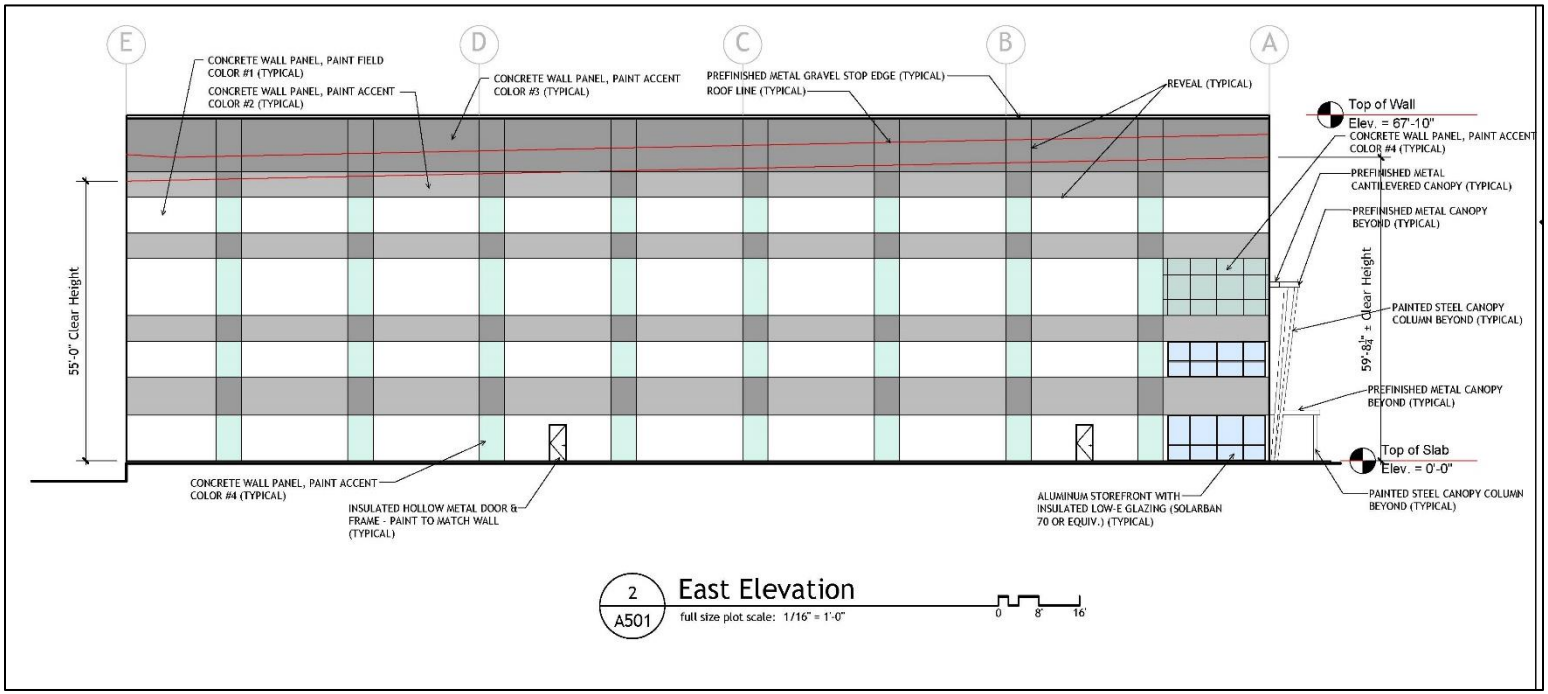
0 8 16'

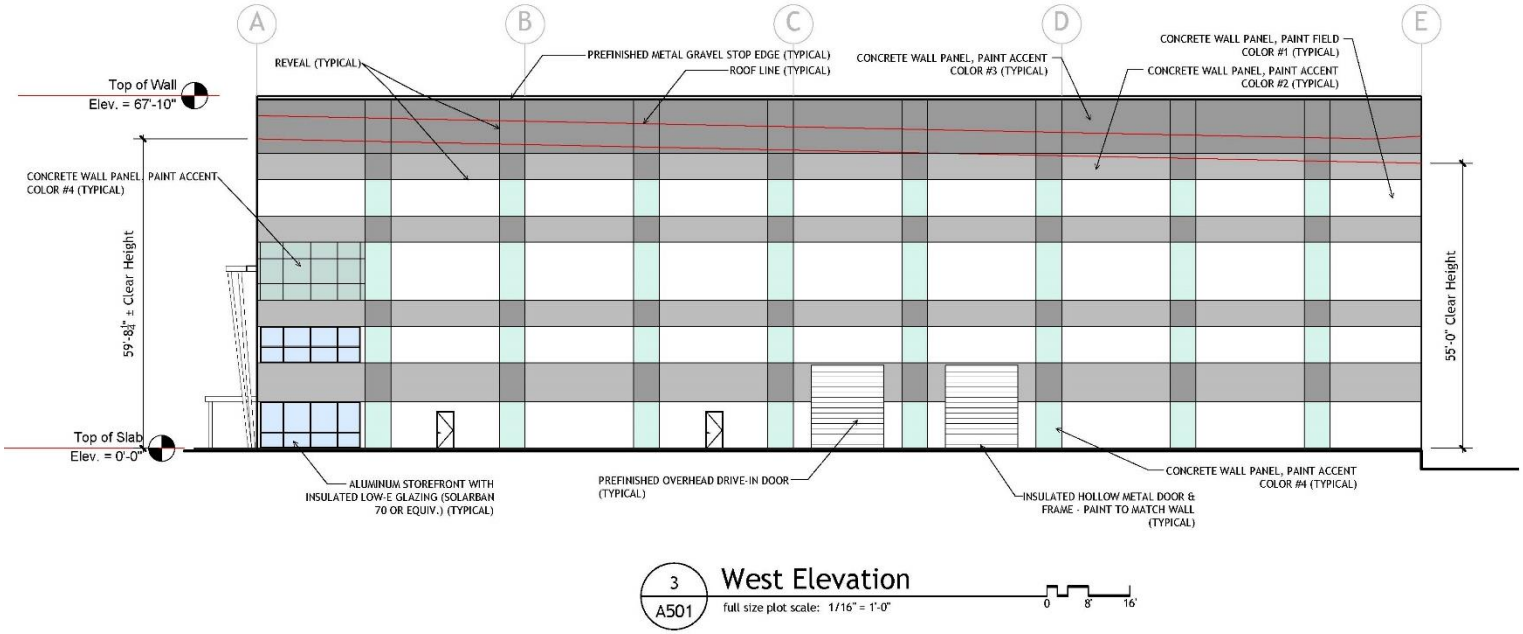


4 A501 **North (Rear) Elevation**

full size plot scale: 1/16" = 1'-0"

0 8 16'

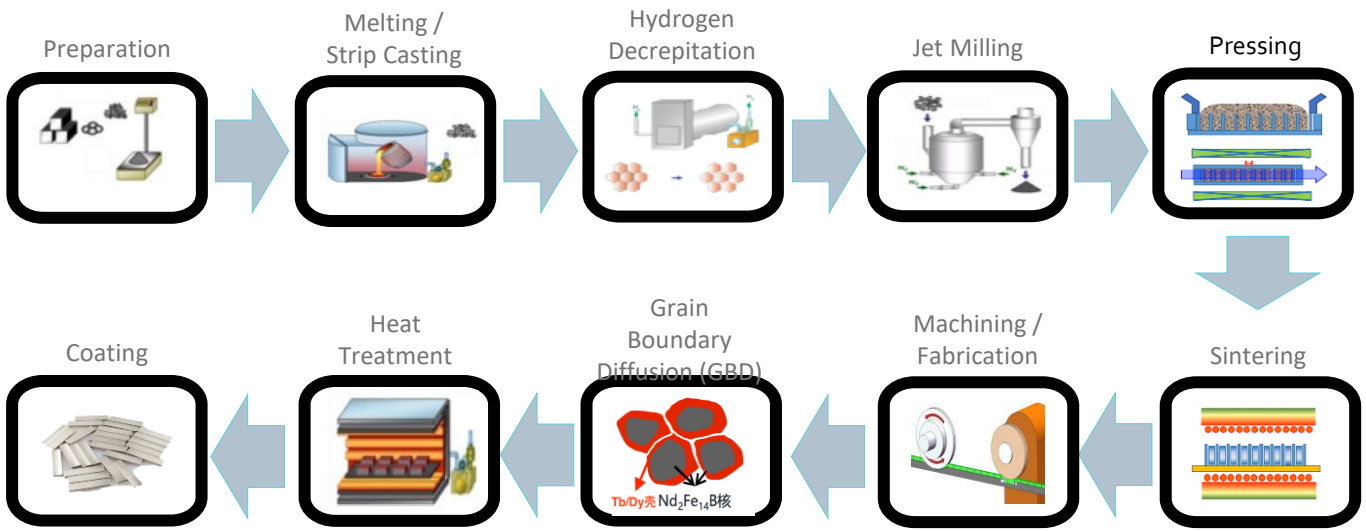

E
D
C
B
A
CONCRETE WALL PANEL, PAINT FIELD COLOR #1 (TYPICAL)
CONCRETE WALL PANEL, PAINT ACCENT COLOR #2 (TYPICAL)
CONCRETE WALL PANEL, PAINT ACCENT COLOR #3 (TYPICAL)
PREFINISHED METAL GRAVEL STOP EDGE (TYPICAL)
ROOF LINE (TYPICAL)
REVEAL (TYPICAL)
Top of Wall
Elev. = 67'-10"
CONCRETE WALL PANEL, PAINT ACCENT COLOR #4 (TYPICAL)
PREFINISHED METAL CANTILEVERED CANOPY (TYPICAL)
PREFINISHED METAL CANOPY BEYOND (TYPICAL)
55'-0" Clear Height
59'-8¼" ± Clear Height
PAINTED STEEL CANOPY COLUMN BEYOND (TYPICAL)
PREFINISHED METAL CANOPY BEYOND (TYPICAL)
Top of Slab
Elev. = 0'-0"
CONCRETE WALL PANEL, PAINT ACCENT COLOR #4 (TYPICAL)
INSULATED HOLLOW METAL DOOR & FRAME - PAINT TO MATCH WALL (TYPICAL)
ALUMINUM STOREFRONT WITH INSULATED LOW-E GLAZING (SOLARBAN 70 OR EQUIV.) (TYPICAL)
PAINTED STEEL CANOPY COLUMN BEYOND (TYPICAL)
2
A501
East Elevation
full size plot scale: 1/16" = 1'-0"
0
8'
16'


A
B
C
D
E
REVEAL (TYPICAL)
PREFINISHED METAL GRAVEL STOP EDGE (TYPICAL)
ROOF LINE (TYPICAL)
CONCRETE WALL PANEL, PAINT ACCENT COLOR #3 (TYPICAL)
CONCRETE WALL PANEL, PAINT FIELD COLOR #1 (TYPICAL)
CONCRETE WALL PANEL, PAINT ACCENT COLOR #2 (TYPICAL)
Top of Wall
Elev. = 67'-10"
CONCRETE WALL PANEL, PAINT ACCENT COLOR #4 (TYPICAL)
59'-8¼" ± Clear Height
55'-0" Clear Height
Top of Slab
Elev. = 0'-0"
ALUMINUM STOREFRONT WITH INSULATED LOW-E GLAZING (SOLARBAN 70 OR EQUIV.) (TYPICAL)
PREFINISHED OVERHEAD DRIVE-IN DOOR (TYPICAL)
INSULATED HOLLOW METAL DOOR & FRAME - PAINT TO MATCH WALL (TYPICAL)
CONCRETE WALL PANEL, PAINT ACCENT COLOR #4 (TYPICAL)
3
A501
West Elevation
full size plot scale: 1/16" = 1'-0"
0
8'
16'

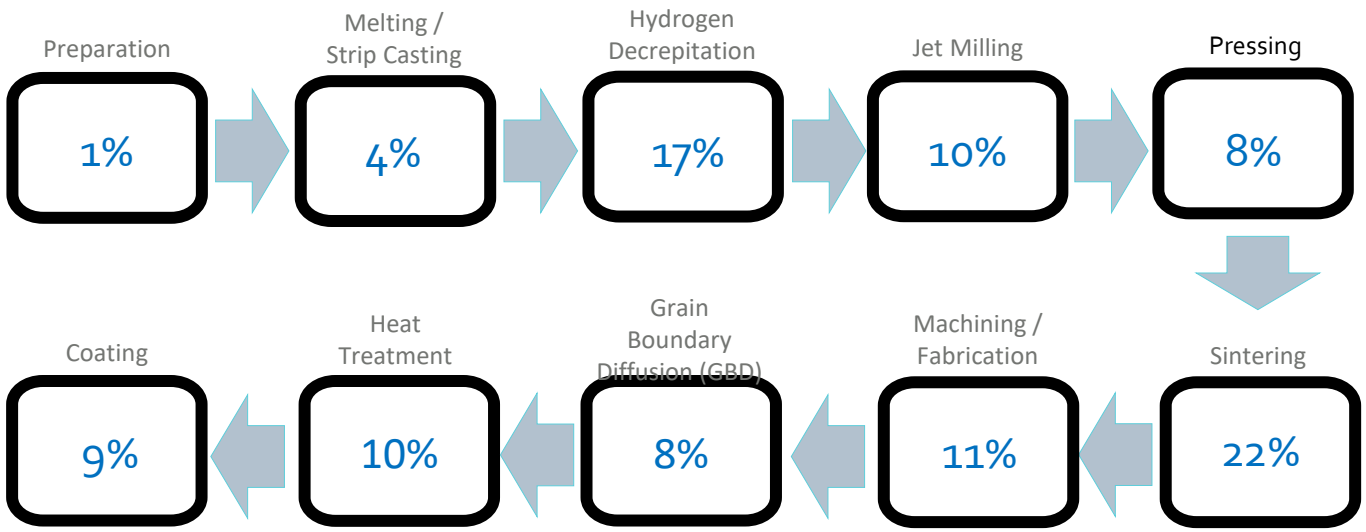
Proposed Additional Binding Element

- No other M3 uses are allowed, except those in M1 & M2 and this one, unless approved by the Planning Commission.

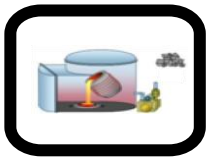
Magnet Manufacturing Process



Magnet Manufacturing Process Percentages



Melting /
Strip Casting



Melting / Strip Casting

Smelting Furnace GVIM-800-SC

Equipment Specifications

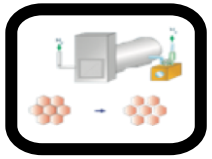
Maximum Capability: 800kg
Limiting Vacuum: 0.4Pa
Melting Power: 0.8kHz 700kW Area: W12m x L14m x H8m

Overview

Turn solid metals into liquid. The intent of the process is to combine different materials / metals into a homogeneous mixture.

The Strip Casting process produces small “flakes” of materials that includes a consistent mixture of rare earths and metals. These flakes are the basis for determine the magnetic grade that will be produced, and the starting point for the remaining processes.

Hydrogen Decrepitation



Hydrogen Decrepitation

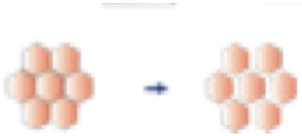
Hydrogen Decrepitation Furnace BQDHD-1200C

Equipment Specifications

Maximum Capability: 1,200kg
Power: 75kW
Rated Heating Temp: 550C
Maximum Pressure: 0.7Mpa

Overview

To break apart material particles into smaller sizes.



Hydrogen is fed from a hydrogen station into the furnace, which is then heated. This process is in a closed state and no dust or chemicals are produced. Once the process is completed, the materials continue to the next stage of production while remaining in a closed state to avoid contamination from oxygen.

Jet Milling

Jet Milling

Jet Milling Equipment QLMR-300G

Equipment Specifications

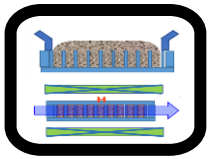
Maximum Capability: 50-100 kg/h
Power: 78kW
Oxygen Content of Supply Gas: <10ppm

Overview

To use a tornadic movement of particles to achieve a 3-5 micron size.

Parts are circulating in a nitrogen filled sealed chamber. The particles are continually moving and forming smaller sizes of particles until a 3-5 micron size is achieved. A screening processes within the chamber allows for passage of only the correct sized particles.

Pressing



Pressing

Pressing Equipment BDM-350/2W

Equipment Specifications

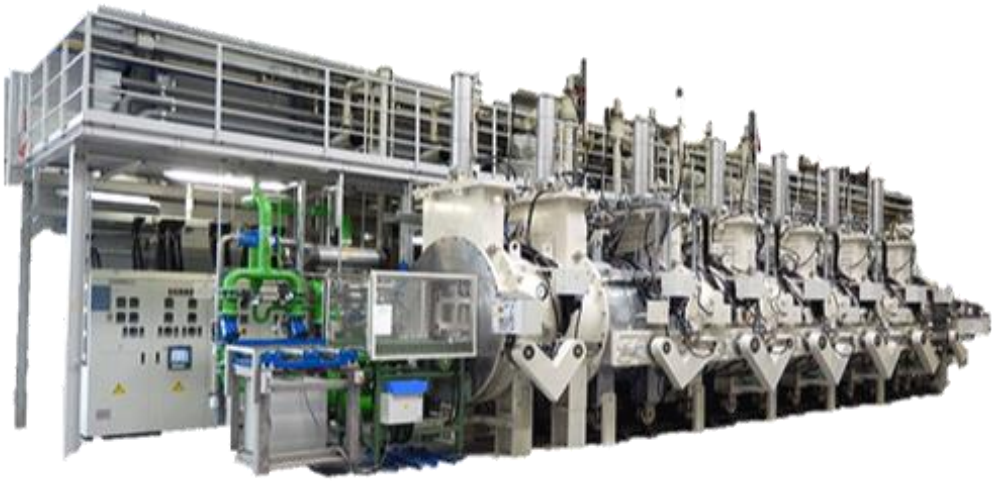
Rated Pressure: 40T
Power: 80kW
Electromagnetic Pole Diameter: 350mm

Overview

To press powders from Jet Milling into semi-finished blocks and orient the domains within the powder.

Under a nitrogen-filled state, the powdered material is pressed into blocks or cylinders under a magnetic field in order to orient the material. This is done in a sealed-stated to avoid contact with oxygen.

Sintering



Continuous Vacuum Sintering Furnace FSC-6090C-7

Equipment Specifications

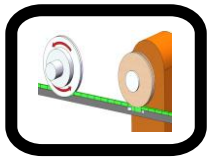
Maximum Temp: 1200C
Power: 900kW
Loading Capacity: 300kg

Overview

To increase the density and performance of the magnetic materials.

In a vacuum condition, the pressed blocks & cylinders are sintered into a denser material. These blocks and cylinders are exposed to temperatures of approximately 1150C. This process is performed using argon in a closed, vacuum chamber to prevent oxidation, and the result is a magnetic block that exhibits better magnetic properties.

Machining / Fabrication



Machining & Fabrication

Multi-Wire Cutting Machine DX2260

Equipment Specifications

Max. Work Size: 220mm x 600mm x 160mm
Steel Wire Diameter: 0.10mm – 0.18mm
Power: 65kW

Overview

To cut, grind, and shape permanent magnet materials to customer specifications.

This cutting process results in high accuracy in large volumes, and effectively reduces the scrap rate and improves overall output. This equipment is highly automated and allows 1 operator to operate several machines at a time.

Grain Boundary Diffusion (GBD)

Grain Boundary Diffusion (GBD)

PVD Equipment TS1400CJLW

Equipment Specifications

Maximum Capacity: 100kg
Power: 300kW
Ultimate Vacuum: 0.002 Pa

Overview

To infuse Dy or Tb to the surface of a magnet via PVD

During the PVD process, the process is completed in a closed chamber. Heavy Rare Earths of Dy and TB are layered into the surface of the magnetic materials via PVD for 24-36 hours. The result is a magnetic material that has a rich layer of Dy and Tb within its surface, and now prepared for the next step of the process, Heat Treatment.

Heat Treatment

Heat Treatment

Diffusion Furnace FHB-60C

Equipment Specifications

Maximum Temp: 1,350C
Power: 150kW
Ultimate Vacuum: 0.002 Pa
Loading Capacity: 500kg

Overview

To diffuse the PVD layered material into the magnet

Heat Treatment is the second step in the diffusion process. Heavy Rare Earth materials deposited on the surface of the magnets using PVD are diffused further into the magnets during Heat Treatment. The furnace operates in a closed state. This process improves the performance of the magnet, which are best suited for high heat applications such as electric vehicles and high-performance motors.

Coating

Coating

Nickel Plating Line

Overview

To apply a layer of nickel-copper-nickel, or zinc, over a magnet to ensure no oxidation in, or on, the magnet.

The coating process uses a series of electrically charged baths of fluids to coat a magnet. This process involves ultra-sonic washing stations, chemical baths, rinsing stations, drying stations, and quality control checks. The process is semi-automated and requires the precise use of electricity and time to ensure the proper coating and thickness are applied.