

D.C. BOUNDARY NOTE

BOUNDARY INFORMATION SHOWN HEREON WAS OBTAINED FROM THE DISTRICT OF COLUMBIA SURVEYOR'S OFFICE. PROPERTY LINE DIMENSIONS FROM OFFICIAL RECORDS MAY NOT NECESSARILY AGREE WITH ACTUAL MEASURED DIMENSIONS. A "SURVEY TO MARK" PREPARED BY A DISTRICT OF COLUMBIA REGISTERED LAND SURVEYOR AND VERIFIED BY THE OFFICE OF THE SURVEYOR MAY BE REQUIRED TO ESTABLISH THE FINAL BOUNDARY LOCATION FOR THIS PROPERTY.

UTILITY NOTE

THE UNDERGROUND UTILITY LOCATIONS SPECIFICALLY NOTED AND GRAPHICALLY SHOWN HEREON HAVE BEEN LOCATED FROM A COMBINATION OF FIELD SURVEY INFORMATION AND/OR EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES 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 ALTHOUGH HE DOES CERTIFY THAT THEY ARE INDICATED FROM THE INFORMATION NOTED IN THE TABLE BELOW WHICH COMPRISES THE RECORD INFORMATION OBTAINED BY THE SURVEYOR. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES, UNLESS SPECIFICALLY NOTED ON THE DRAWING. THE FOLLOWING UTILITY COMPANIES HAVE BEEN SOLICITED FOR THEIR PLANS AND RECORD UTILITY DRAWINGS, LISTED BELOW ARE SPECIFIC PLAN/SHEET NUMBERS OF DRAWINGS PROVIDED BY THE UTILITY COMPANY OR LACK OF RESPONSE IS NOTED.

WATER & SEWER PLANS - WASA
 W.A.S.A. WATER & SEWER PLAN CD-11-12-NE (WATER & SEWER)
 THE OWNER/DEVELOPER OF THE SUBJECT PROPERTY IS RESPONSIBLE FOR OBTAINING INFORMATION AND COORDINATING WITH ALL OTHER UTILITIES NOT LISTED IN THE TABLE ABOVE. THE OWNER/DEVELOPER IS ALSO RESPONSIBLE FOR CONTACTING "MISS UTILITY" 48 HOURS PRIOR TO CONSTRUCTION.

NOTES:

1. THE SUBJECT PROPERTY IS LOCATED AS TAX ASSESSMENT NO. 3238 0020. THE SITE ADDRESS IS 1224 BRENTWOOD ROAD, NORTH EAST, WASHINGTON, D. C.
2. THE HORIZONTAL DATUM IS BASED ON PLAN FROM THE OFFICE OF THE SURVEYOR, DISTRICT OF COLUMBIA.
3. ON SITE BENCH MARKS: NONE
4. THE VERTICAL DATUM IS BASED ON DC SEWER MANHOLE.
5. NO TITLE REPORT FURNISHED.

LEGEND

- GAS METER
- * FIRE HYDRANT
- ▲ SIGN
- + SPOT ELEVATION
- LIGHT POLE
- WATER VALVE
- WATER MANHOLE
- SEWER LINE
- SEWER MANHOLE
- MANHOLE
- ELECTRIC MANHOLE
- TRAVERSE POINT
- WATER LINE
- TELEPHONE LINE
- GAS LINE
- ELECTRIC LINE
- IRON RAIL FENCE

ALLIANCE TECHNICAL SOLUTIONS
 ARCHITECTS AND ENGINEERS

4550 STRUTFIELD IN APT 2103
 ALEXANDRIA, VA 22311
 301-244-8628

Project:
BRENTWOOD CONDOS
 1224 BRENTWOOD RD NE
 WASHINGTON, DC 20011
 LOT 0020 SQUARE 3938

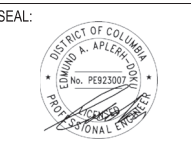
Owner:
1224 BRENTWOOD RD NE LLC
 Contact: Hugo Camacho
 571-243-8777

Architect:
Rich Markus Architects
 703-867-0454

Structural Engineer:
Soil and Structure Consulting
 703-391-8911

MEP Engineer:
KK Engineering
 443-393-1070

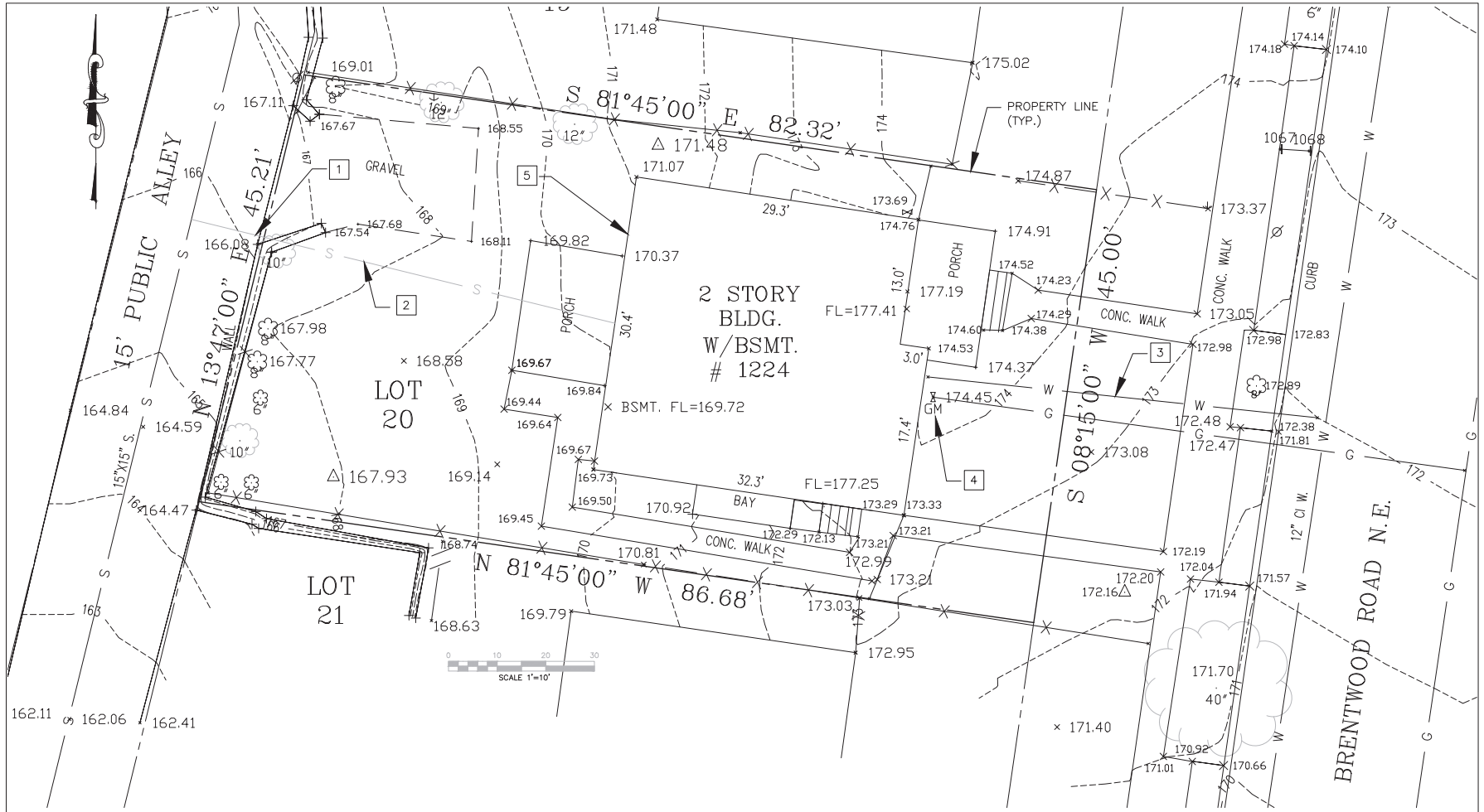
Civil Engineer:
Alliance Technical Solutions
 301-244-8628



ISSUED: **09/07/2022**

REVISIONS:

EXISTING CONDITIONS PLAN
CIV002



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NOTES

- 1 ASSUMED LOCATION OF EXISTING 4-INCH SANITARY SERVICES TO BE REMAIN AND BE REUSED. PROTECT DURING CONSTRUCTION.
- 2 LOCATION OF NEW SANITARY CLEAN-OUT AND SEWER.
- 3 REPLACE EXISTING WATER METER PER DC WATER STD. W-80.01
- 4 GAS METER AND VALVE TO REMAIN AND BE RE-USED. PROTECT DURING CONSTRUCTION.
- 5 SELECTIVE DEMOLITION OF EXISTING 2-STORY SINGLE FAMILY DWELLING.

LEGEND

- GAS METER
- ★ FIRE HYDRANT
- ✚ SIGN
- + SPOT ELEVATION
- ⊕ LIGHT POLE
- ⊗ WATER VALVE
- ⊗ WATER MANHOLE
- ⊗ SEWER LINE
- ⊗ SEWER MANHOLE
- ⊗ MANHOLE
- ⊗ ELECTRIC MANHOLE
- ⊗ TRAVERSE POINT
- WATER LINE
- TELEPHONE LINE
- GAS LINE
- ELECTRIC LINE
- IRON RAIL FENCE

ALLIANCE TECHNICAL SOLUTIONS
 ARCHITECTS AND ENGINEERS

4550 STRUTFIELD IN APT 2103
 ALEXANDRIA, VA 22311
 301-244-8628

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 LOT 0020 SQUARE 3938

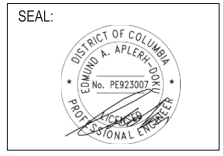
Owner:
1224 BRENTWOOD RD NE LLC
 Contact: Hugo Camacho
 571-243-8777

Architect:
Rich Markus Architects
 703-867-0454

Structural Engineer:
Soil and Structure Consulting
 703-391-8911

MEP Engineer:
KK Engineering
 443-393-1070

Civil Engineer:
Alliance Technical Solutions
 301-244-8628



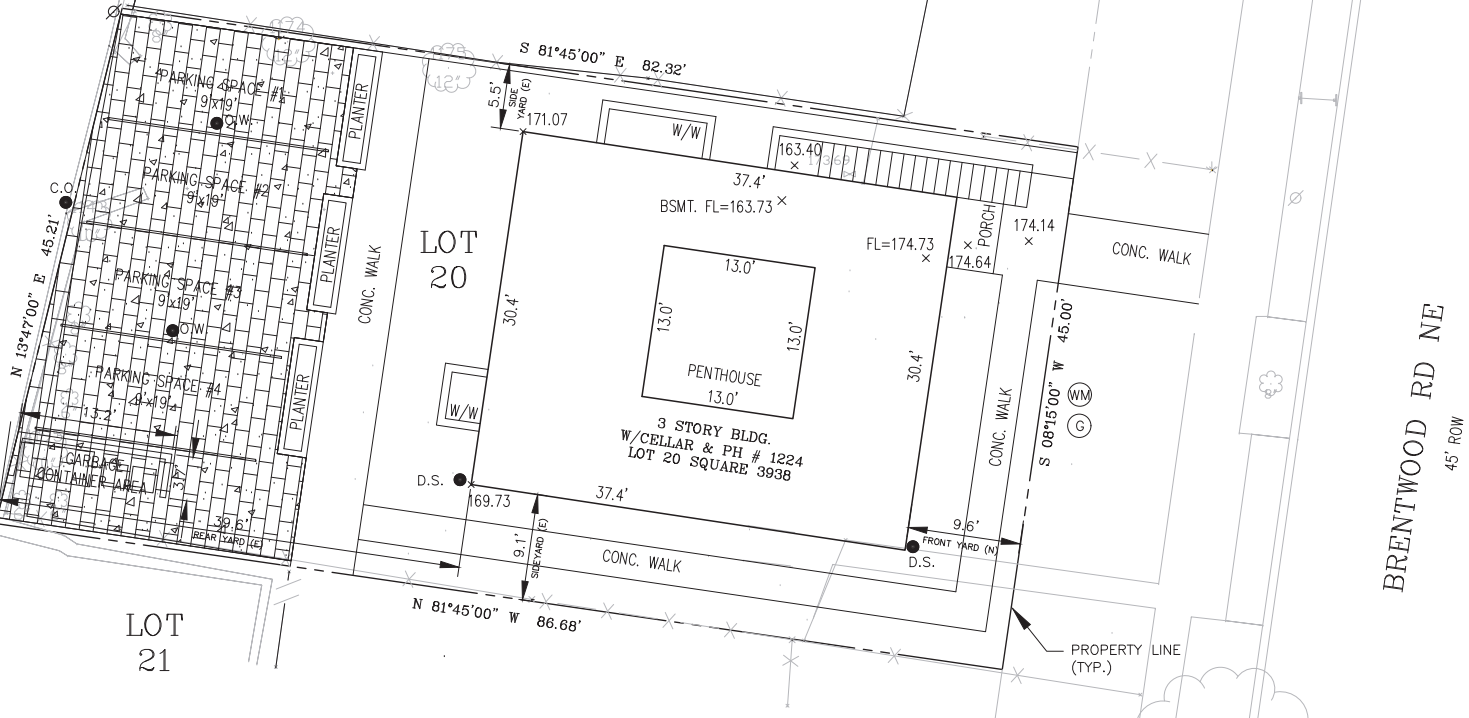
ISSUED: **09/07/2022**

REVISIONS:

SITE DEMOLITION PLAN

CIV003

PUBLIC ALLEY
15' ROW



LEGEND

- GAS METER
- FIRE HYDRANT
- ⊕ SIGN
- ⊕ SPOT ELEVATION
- ⊕ LIGHT POLE
- ⊕ WATER VALVE
- ⊕ WATER MANHOLE
- S — SEWER LINE
- S — SEWER MANHOLE
- MANHOLE
- ELECTRIC MANHOLE
- TR — TRAVERSE POINT
- W — WATER LINE
- TEL — TELEPHONE LINE
- G — GAS LINE
- E — ELECTRIC LINE
- I — IRON RAIL FENCE

PLAN LEGEND

- POROUS PAVEMENT
- O.W. OBSERVATION WELL
- D.S. DOWN SPOUT
- C.O. CLEAN OUT PER DC WATER STD. S-80.01
- ⊕ WM WATER METER PER DC WATER STD. W-80.01
- ⊕ G GAS VALVE PER GAS UTILITY PROVIDER STANDARD

ALLIANCE TECHNICAL SOLUTIONS
ARCHITECTS AND ENGINEERS

4550 STRUTFIELD LN APT 2103
ALEXANDRIA, VA 22311
301-244-8628

Project:
BRENTWOOD CONDOS
1224 BRENTWOOD RD NE
WASHINGTON, DC 20011
LOT 0020 SQUARE 3938

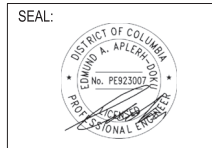
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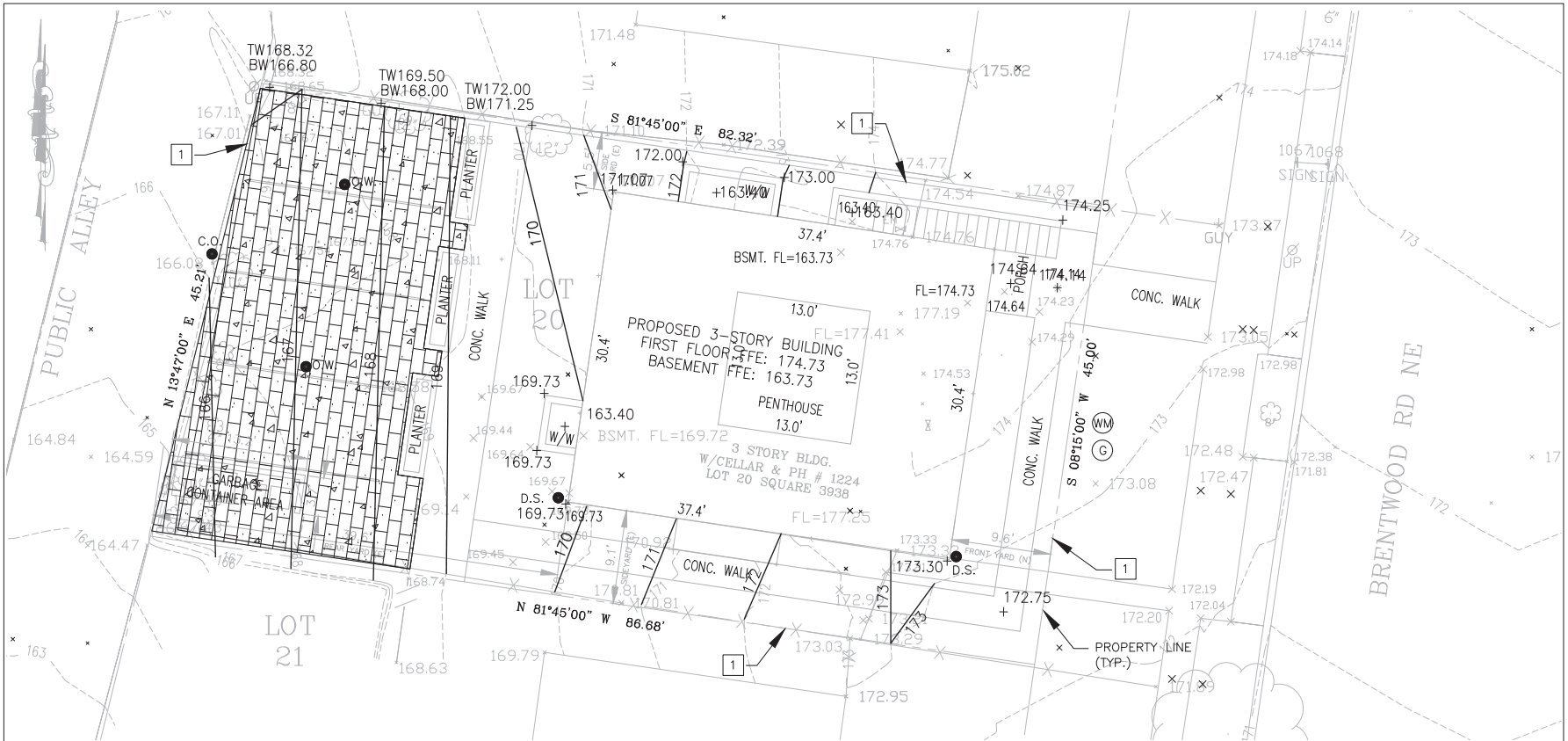
Civil Engineer:
Alliance Technical Solutions
301-244-8628



ISSUED: **09/07/2022**

REVISIONS:

SITE PLAN
CIV004



NOTES

- 1 MEET EXISTING GRADE

LEGEND

- GAS METER
- * FIRE HYDRANT
- ⊕ SIGN
- + SPOT ELEVATION
- ⊕ LIGHT POLE
- ⊕ WATER VALVE
- ⊕ WATER MANHOLE
- s — SEWER LINE
- ⊕ SEWER MANHOLE
- ⊕ MANHOLE
- ⊕ ELECTRIC MANHOLE
- ⊕ TRAVERSE POINT
- W — WATER LINE
- TEL — TELEPHONE LINE
- G — GAS LINE
- E — ELECTRIC LINE
- I — IRON RAIL FENCE

PLAN LEGEND

- x 177.19 EXISTING SPOT ELEVATION
- 172--- EXISTING CONTOUR
- + 174.14 PROPOSED SPOT ELEVATION
- 170— PROPOSED CONTOUR
- POROUS PAVEMENT
- O.W. OBSERVATION WELL
- D.S. DOWN SPOUT
- C.O. CLEAN OUT PER DC WATER STD. S-80.01
- ⊕ WM WATER METER PER DC WATER STD. W-80.01
- ⊕ G GAS VALVE PER GAS UTILITY PROVIDER STANDARD

ALLIANCE TECHNICAL SOLUTIONS
ARCHITECTS AND ENGINEERS

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ALEXANDRIA, VA 22311
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MEP Engineer:
KK Engineering
443-393-1070

Civil Engineer:
Alliance Technical Solutions
301-244-8628

SEAL:



ISSUED: **09/07/2022**

REVISIONS:

GRADING PLAN

CIV005

GENERAL NOTES

1. THE LOCATIONAL INFORMATION ON THESE DRAWINGS WAS OBTAINED FROM THE ARCHITECT'S FILE OF GENERAL PLANNING DATA FOR THE PROJECT, AND NO PROPERTY OR TOPOGRAPHICAL SURVEY WAS PREPARED FOR THIS PROJECT.
2. SEE ARCHITECTURAL DRAWINGS FOR THE FINAL DESIGN OF THE PROPOSED BUILDING AND FOR CLARIFICATION ON ANY BUILDING CONSTRUCTION ISSUES.
3. SEE CIVIL AND MEP DRAWINGS FOR ALL UTILITIES, SITE GRADING/DRAINAGE, AND STORMWATER MANAGEMENT AND PERMITTING ISSUES.
4. SEE CIVIL AND MEP DRAWINGS FOR ANY HYDROELECTRICAL ISSUES ASSOCIATED WITH THE PROJECT.
5. ALL EXISTING AND PROPOSED LOCATIONAL SURVEY DATA, LAYOUT DIMENSIONS, AND SPOT GRADES ARE TO BE FIELD VERIFIED, AND CONTRACTOR IS TO NOTIFY THE OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT OF ANY DISCREPANCY OR CONFLICTS PRIOR TO CONSTRUCTION OR INSTALLATION.
6. THE LAYOUT OF ALL SITE/GAR ELEMENTS ARE TO BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ANY ACTUAL INSTALLATION OR CONSTRUCTION.
7. ALL LANDSCAPE ELEMENTS ARE TO HAVE A MINIMUM OF 1.5% POSITIVE SLOPE AWAY FROM ANY BUILDING SURFACE.
8. ANY AND ALL PERMITS THAT MAY BE REQUIRED FOR THIS PROJECT ARE TO BE OBTAINED BY THE CONTRACTOR AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.

GAR SUMMARY		
ITEM	QUANTITY	TOTAL
A2		
Area 1	656 SF	
Area 2	210 SF	
Total	866 SF	
B2		
Area 1	99 shrubs	
Area 2	42 shrubs	
Total	141 shrubs	
C2		
Area 1	73 SF	
Total	73 SF	
D2		
Area 1	980 SF	
Total	980 SF	

GREEN AREA RATIO Worksheet*					
ITEM	QUANTITY	Quantity of GAR Features per Submitted Sheet			TOTAL*
		Sheet 1 (0)	Sheet 2 (0)	Sheet 3 (0)	
A1	square foot				0
A2	square foot	866			866
B1	square foot				0
B2	Total for B2	141			141
B3	# of trees				0
B4	# of trees				0
B5	square foot				0
B6	square foot				0
B7	square foot				0
B8	square foot				0
B9	square foot				0
C1	square foot				0
C2	square foot	73			73
D1	square foot				0
D2	square foot				0
E1	square foot				0
E2	square foot				0
F1	square foot	1206	73		1279
F2	square foot				0
F3	square foot				0

*See Green Area Ratio ScoreSheet for category definitions
*Enter totals on the Green Area Ratio ScoreSheet

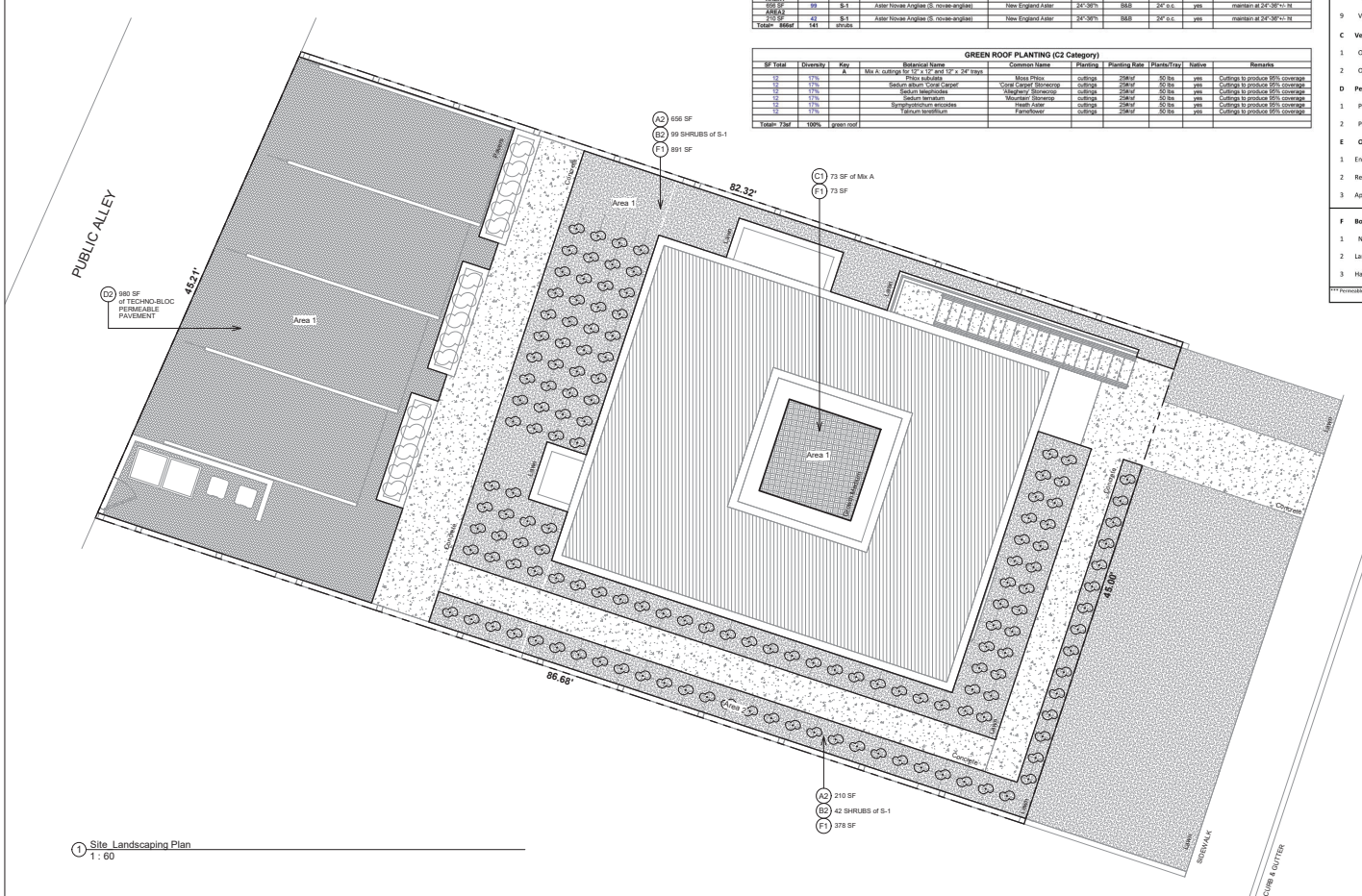
SITE PLANTING (B2 Category)										
SP Total	Quantity	Key	Botanical Name	Common Name	Size	Type	Spacing	Notes	Remarks	Area
99	99	S-1	Aster novae-angliae (S. novae-angliae)	New England Aster	24" DBH	Tree	24" x 24"	yes	minimum @ 24" DBH x 14'	
42	42	S-1	Aster novae-angliae (S. novae-angliae)	New England Aster	24" DBH	Tree	24" x 24"	yes	minimum @ 24" DBH x 14'	
Total: 141	141									

GREEN ROOF PLANTING (C2 Category)										
SP Total	Quantity	Key	Botanical Name	Common Name	Size	Type	Spacing	Notes	Remarks	Area
12	12	A	Mix of cuttings for 12" x 12" and 12" x 24" trays	Moss Plants	12x12	Plant	50 sq ft	yes	Cuttings to produce 95% coverage	
12	12	A	Mix of cuttings for 12" x 12" and 12" x 24" trays	Moss Plants	12x12	Plant	50 sq ft	yes	Cuttings to produce 95% coverage	
12	12	A	Mix of cuttings for 12" x 12" and 12" x 24" trays	Moss Plants	12x12	Plant	50 sq ft	yes	Cuttings to produce 95% coverage	
12	12	A	Mix of cuttings for 12" x 12" and 12" x 24" trays	Moss Plants	12x12	Plant	50 sq ft	yes	Cuttings to produce 95% coverage	
12	12	A	Mix of cuttings for 12" x 12" and 12" x 24" trays	Moss Plants	12x12	Plant	50 sq ft	yes	Cuttings to produce 95% coverage	
12	12	A	Mix of cuttings for 12" x 12" and 12" x 24" trays	Moss Plants	12x12	Plant	50 sq ft	yes	Cuttings to produce 95% coverage	
Total: 72	72									

Green Area Ratio ScoreSheet					
Address	Area	Score	Weight	Score	Score
1224 BRENTWOOD RD NE	866	0.6	1.0	519.6	0.416
Other	0	0.6	1.0	0	0.416
Total	866	0.6	1.0	519.6	0.416

Landscape Elements		
Item	Description	Score
A	Landscape area (select one of the following for each area)	
1	Landscape areas with a soil depth < 24"	0.00
2	Landscape areas with a soil depth ≥ 24"	0.60
B	Bioretention facilities	0.00
C	Plantings (credit for plants in landscape area from Section A)	
1	Groundcovers, or other plants < 2' height	0.30
2	New trees with less than 40-foot canopy spread - calculated at 9-sf per plant	0.30
3	New trees with 40-foot or greater canopy spread - calculated at 250 sq ft per tree	0.70
4	Preservation of existing tree 6" to 12" DBH - calculated at 250 sq ft per tree	0.70
5	Preservation of existing tree 12" to 18" DBH - calculated at 600 sq ft per tree	0.90
6	Preservation of existing tree 18" to 24" DBH - calculated at 1300 sq ft per tree	0.90
7	Preservation of existing tree 24" DBH or greater - calculated at 2000 sq ft per tree	0.90
8	Vegetated wall, plantings on a vertical surface	0.60
C	Vegetated or "green" roofs	
1	Over at least 2" and less than 8" of growth medium	0.60
2	Over at least 8" of growth medium	0.70
D	Permeable Paving***	
1	Permeable paving over 6" to 24" of soil or gravel	0.50
2	Permeable paving over at least 24" of soil or gravel	0.60
E	Other	
1	Enhanced tree growth systems***	0.40
2	Renewable energy generation	0.50
3	Approved water features	0.20
F	Bonuses	
1	Native plant species	1.942
2	Landscape in food cultivation	0.10
3	Harvested stormwater irrigation	0.10
Total		519.6

***Permeable paving and structural soil together may not qualify for points that are listed in the Green Area Ratio system.
Total square footage of all permeable paving and enhanced tree growth.



Site Landscaping Plan
1:60

ALLIANCE TECHNICAL SOLUTIONS ARCHITECTS AND ENGINEERS

4550 STRUFFIELD IN APT 2103
ALEXANDRIA, VA 22311
301-244-8628

BRENTWOOD CONDOS
1224 BRENTWOOD RD NE
WASHINGTON, DC 20011
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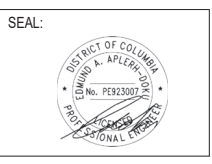
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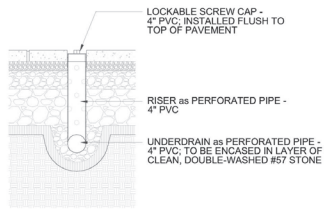
Civil Engineer:
Alliance Technical Solutions
301-244-8628



ISSUED: 03/10/2022

REVISIONS:

GAR SITE PLAN & LANDSCAPE LAYOUT L001

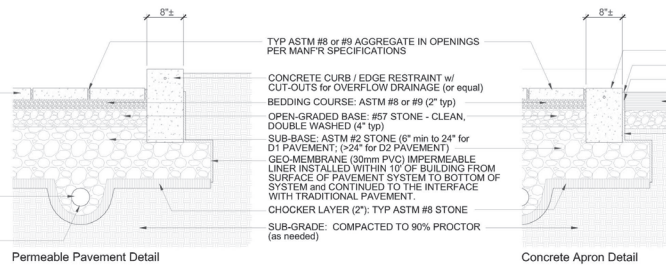


2 Clean-Out & Observation Well Detail
Scale: 1/2" = 1'-0" +/-

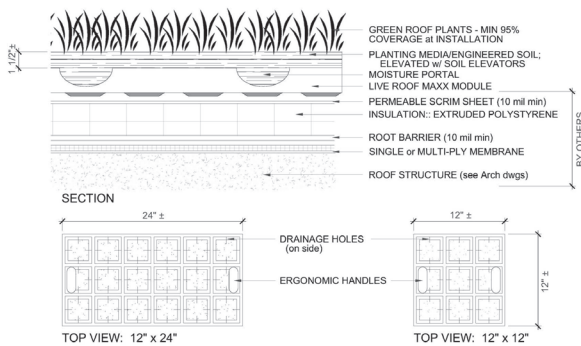
CONCRETE PERMEABLE PAVERS
Type: TECHNO-BLOC
Size: 7 7/8" x 11 3/4" x 3" min;
Color: Gray
Other: Smooth Textured
Install: per Manufacturer's Specs for specified loads and with 0% slope/pitch on surface

PAVEMENT UNDERDRAIN
Type: Perforated PVC
Size: 4" to 6" dia w/ 3/8" perf at 6" o.c.
Color: white
Other: Non-perforated pipe to connect to storm drain system beyond
Install: Per layout in drawings with min 1" orifice flow reduction to provide 36 to 48 hour drawdown (see plan for location)

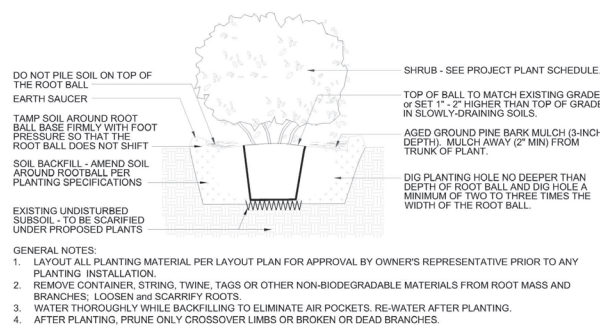
UNDERDRAIN TO BE ENCASED IN LAYER OF CLEAN, DOUBLE-WASHED #57 STONE



1 Typical Pavement Details
Scale: 1" = 1'-0" +/-

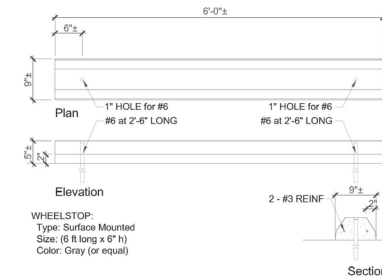


5 Typical Green Roof Detail
Scale: n.l.s. 1 1/2" = 1'-0" +/-



4 Typical Shrub Planting Detail
Scale: n.l.s.

- GENERAL NOTES:
- LAYOUT ALL PLANTING MATERIAL PER LAYOUT PLAN FOR APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO ANY PLANTING INSTALLATION.
 - REMOVE CONTAINER, STRING, TWINE, TAGS OR OTHER NON-BIODEGRADABLE MATERIALS FROM ROOT MASS AND BRANCHES; LOOSEN and SCARRIFY ROOTS.
 - WATER THOROUGHLY WHILE BACKFILLING TO ELIMINATE AIR POCKETS. RE-WATER AFTER PLANTING.
 - AFTER PLANTING, PRUNE ONLY CROSSOVER LIMBS OR BROKEN OR DEAD BRANCHES.



3 Wheel Stop Detail
Scale: 1/2" = 1'-0" +/-

ALLIANCE TECHNICAL SOLUTIONS ARCHITECTS AND ENGINEERS

4550 STRUFFLED IN APT 2103
ALEXANDRIA, VA 22311
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Civil Engineer:
Alliance Technical Solutions
301-244-8628

SEAL:



ISSUED: 03/10/2022

REVISIONS:

LANDSCAPE & GAR DETAILS
L002

GENERAL NOTES AND SPECIFICATIONS FOR LANDSCAPE SOILS

IMPORTED SOILS AND SOIL TESTING

- A. Imported Soil - Imported soil shall meet acceptable soil test levels as identified below and as identified in the Landscape Specification Guidelines. 6th edition, published by the Landscape Contractors Association. Imported soils shall be loams of textural classification and shall be suitable for plant growth. Imported soil shall not contain toxic substances harmful to plant growth and the total volume of stones, green plant parts, fibrous root parts, wood or woody roots, or man-made inert material in the soil shall not exceed 5%. Imported soil shall not contain sharp glass or metal objects, and shall be free of Bermuda grass, Quack Grass, Johnson Grass, Mugwort, Nutsedge, Poison Ivy, Canada Thistle, or other invasive weeds. In extreme dry or sandy subsoil conditions, follow recommendations of a soil specialist. Imported soil shall not be harvested, transported, and/or graded when soil moisture exceeds field capacity or when the material is frozen. In all cases, imported soil stockpiles shall be protected from erosion, saturation or weed growth by using plastic sheeting or tarps.
- B. Soil Testing - Soil tests shall be made of existing soils, imported soils, and the proposed planting mixes to determine soil texture, pH values, total calcium, magnesium, phosphorus, potassium, soluble salts and percent organic material. Each soil sample to be submitted for testing shall be extracted from a composite sample representing a minimum five (5) core samples for each soil area. Soil tests shall be conducted by a state agricultural soil testing laboratory or by an approved commercial soil testing laboratory. All costs associated with soil tests shall be borne by the landscape contractor. Each soil test shall examine the following chemical and physical attributes and any soil test that falls within the indicated range shall be considered as minimum quality acceptable. Soil that falls outside of any of the indicated ranges may be amended, re-tested, and re-submitted for approval by the Landscape Architect or Owner's Representative. Once a soil is considered provisionally acceptable, its pH level shall be examined for suitability by the proposed plants for the project.

Attribute/Nutrient Suggested Range (ppm)

Calcium 400 to 4,000	Iron 5 to 20	Magnesium 60 to 450	Manganese 5 to 20
Potassium 91 to 250	Phosphorus 30 to 50	Copper .3 to 1	pH level 6.0 to 7.5

SOIL SOURCE

- A. The topsoil and subgrade may be from a naturally occurring soil or soil that has been mixed to achieve the requirements of the plant selections.

DEBRIS CONTENT

- A. Particles and stone greater than 1 inch in the longest dimension should not be allowed. This includes fragments of brick, concrete, wood, glass, metal, stone, and plastic. The total volume less than 1 inch long should not be more than 5% of the soil volume. Stones ranging from 0.5 to 1 inch (1.25 to 2.5 cm) should not exceed 5% of the soil volume, and gravel 1/4 to 1/2 inches (0.6 to 1.25 cm) should not exceed 5% of the soil volume.

CONTAMINANTS PROHIBITED

- A. The soil shall have no herbicides, heavy metals, biological toxins, or hydrocarbons that will impact plant growth.

TEXTURE

- A. Topsoil texture can be variable and include: loam, silt loam, sandy clay loam, sandy loam, clay loam, the percent composition must fall within this range: sand (< 70 %), silt (< 70%), and clay (<30%). Particle size is determined according to USDA classification: sand (< 0.002mm), silt (0.002mm-0.05 mm), sand (0.05 mm-2 mm), soil texture triangle (source: usda.nrc)

ORGANIC MATTER

- A. Organic matter should be a minimum of 4% in lawn soils and 5% in planting beds. Percentage organic matter is measured by weight. Incorporate compost to raise organic content soils.

SOIL PH

- A. Soil pH determines the availability of nutrients in the soil. The exact pH range is dependent on the plant species to be planted and should be tested and adjusted based on species prior to installation. The ideal pH for most landscape plants falls in the range of 6.0-7.0, however other plants prefer a pH outside this range. A pH of 6.5-7.2 is beneficial to microbial activity that converts nitrogen, phosphorus, and sulfur into forms most available to plants.

NUTRIENT RECOMMENDATIONS

- A. A qualified soil scientist shall provide recommendations for macronutrients and micronutrients.

SUBGRADE PREPARATION

- A. Using a backhoe or similar device, scarify and loosen the subgrade; remove from the area all debris or stones that are one inch or greater.

PERCOLATION

- A. After preparing the subgrade, conduct a percolation test. Water should readily drain from the soil. Percolation rates of 1-2 inches per hour are preferred if irrigation will be installed; a drainage system should be installed if the native subsoil has a drainage rate less than 1 inch per hour. (refer to geotechnical report)

HANDLING, STORAGE, AND SPREADING TOPSOIL

- A. Material shall not be handled or hauled when it is wet, as after a heavy rainfall or if frozen. Soil shall be handled only when the moisture content is less than that field capacity; the landscape expert or a professional soil scientist shall be consulted to determine if the soil is too wet to loam. Stockpiles shall be covered during wet weather; spread topsoil in no greater than 12 inch lifts, using the lightest possible equipment; compact the topsoil to the proper soil density so that it is suitable for root growth and plant stability.

SOIL DENSITY AND COMPACTION

- A. Soil density must be high enough to avoid settlement and low enough to encourage root growth. Using a rod penetrometer, soil and subsoil shall be less than 260 pounds per square inch (psi) throughout the depth of
 - B. credited soil. compaction completely inhibits root growth at 300 psi; a rod cone penetrometer should be used to measure compaction when soil moisture is at field capacity; after the soil is wetted but drained, the penetrometer shall be inserted at a rate of 72 inches per minute (1.2 inches/second), according to in-situ soil testing specifications. (refer to geotechnical report)

SOIL IMPROVEMENT SPECIFICATION (AMENDMENTS)

TOPSOIL CHARACTERISTICS	TEST METHOD	REQUIRED STANDARDS
TEXTURE CLASS		LOAM, SILT LOAM, SANDY CLAY LOAM, SANDY LOAM, CLAY LOAM
% SAND (2.0-0.075 MM)	HYDROMETER - 10%	NEED DIVERSITY (MEDIUM) - ACTIVE IRRIGATION SYSTEM
% SILT (0.075-0.002 MM)	HYDROMETER - 10%	NEED DIVERSITY (MEDIUM) - ACTIVE IRRIGATION SYSTEM
% CLAY (< 0.002 MM)	HYDROMETER - 10%	NEED DIVERSITY (MEDIUM) - ACTIVE IRRIGATION SYSTEM
ORGANIC MATTER BY WEIGHT (% MACRONUTRIENTS & MICRONUTRIENTS)	LOSS OF IGNITION	LOAM, SILT LOAM, SANDY CLAY LOAM, SANDY LOAM, CLAY LOAM

COMPOST

- A. Compost shall be derived from plant material and provided by a member of the u.s. composting seal of testing assurance (sta) program. see www.compostingcouncil.org for a list of local providers. alternative specifications and/or certifications, such as those administered by the Maryland department of agriculture or other agencies, may be substituted, as authorized by ddoe. In all cases, compost material must meet
 - B. The compost shall be the result of the biological degradation and transformation of plant derived materials under conditions that promote anaerobic decomposition. The material shall be well composted, free of viable weed seeds, and stable with regard to oxygen consumption and carbon dioxide generation. The compost shall have a moisture content that has no visible free water or dust produced when handling the material. It shall meet the following criteria, as reported by the u.s. composting council seal of testing assurance compost technical data sheet provided by the vendor:
 - 100% of the material must pass through a 1/2 inch screen
 - the pH of the material shall be between 5 and 8
 - manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less than 1.0% by weight
 - the organic matter content shall be between 35% and 65%
 - soluble salt content shall be less than 6.0 mhos/cm
 - maturity must be greater than 80%
 - stability shall be 7 or less
 - carbon/nitrogen ratio shall be less than 25:1
 - trace metal test result = "pass"
 - the compost must have a dry bulk density ranging from 40 to 50 lb/ft3

COMPOST APPLICATION RATE

- A. To achieve a minimum 5% organic matter content, apply compost at the rate specified below.
- B. Add 1.75 inches of compost per 8 inches of existing topsoil and incorporate by rototilling or mixing prior to re-spreading stockpiled topsoil. Sparingly the subgrade down to a 4 inch depth. using 35% to 60% organic matter in compost, this will provide a topsoil organic matter rate of 5%. The amended topsoil and subsoil together provide 12 inches of amended topsoil for deeper soils, such as planting beds, mix compost and topsoil at the same rate. The DDOE stormwater management guidebook, appendix j, describes compost application rates for impervious cover disconnections and grass swales (Note: Urban stormwater management guidebook edition).

ADDITIONAL AMENDMENTS

- A. Limestone - dolomitic limestone containing no less than 50% total carbonates and 25% total magnesium with a neutralizing value of at least 100%.
- B. Acidulant - Commercial grade sulfur, ferrous sulfate, and aluminum sulfate for horticultural use.
- C. fertilizer granular or pelleted slow release fertilizer consisting of 50% water insoluble nitrogen, phosphorus, and potassium in a composition recommended by the soil testing laboratory.

GENERAL NOTES AND SPECIFICATIONS FOR LANDSCAPE PLANTING

MULCH

- Mulch shall be an approved shredded pine bark mulch used locally within the nursery trade for mulching trees. Material shall be of organic, mulching grade, uniform size, and free of foreign matter. Mulch shall be spread in designated areas in a three (3) inch layer. Mulch must not be placed within three (3) inches of the trunks of trees.

SLOW RELEASE WATERING BAGS

- Shall be twenty (20) gallon slow release by Tregreagor or equivalent manufacturer. The tree watering bag must meet or exceed the following specifications:
 - Made of polyethylene reinforced with nylon webbing and treated with U.V. inhibitors. All sides are watertight with 1/2" heat seals.
 - Bag is secured to the tree with heavy duty nylon zippers. Zip holes are corded through both ply of material to allow for adjustable drip lines. Tregreagor is manufactured by Spectrum Products, Inc., 1 866-673-3428, www.tregreagor.com

PLANTS

- A. Plants shall be true to species and variety specified and nursery-grown in accordance with good horticultural practices under climatic conditions similar to those in the locality of the project for at least two years. They shall be freshly dug. All plant names and descriptions shall be as defined in Hortus Third.
- All plants shall be grown and harvested in accordance with the American Standard for Nursery Stock. Unless approved by the Landscape Architect, plants shall have been grown at latitude not more than 200 miles north or south of the latitude of the project. Trees shall be grown from a recognized nursery using sound horticultural practices.
- B. Unless specifically noted, all plants shall be of specimen quality, exceptionally heavy, symmetrical, and superior in form, compactness, and symmetry. They shall be sound, healthy, vigorous, well-branched, and densely foliated when in leaf, free of disease and insects, eggs, or larvae; and shall have healthy, well-developed root systems. They shall be free from physical damage, including trunk wounds, or other conditions that would prevent vigorous growth. Trees with a natural excurrent growth form will have only one main branch leader.

- Trunks with a damaged or crooked leader, bark abrasions, sunscald, disfiguring knots, insect damage, or cuts of limbs over three-quarter (3/4) inch in diameter that are not completely closed will be rejected.
- Plants shall have good branch structure in accordance with the natural form for the species.
- Branched will be plentiful and uniformly spaced along the trunk and have firm, strong attachments with the trunk.
- Sprouts shall be cleanly removed. Pruning scars will be clean out leaving little or no protrusion from the trunk or branch.

- V-shaped branch unions with included bark will not be accepted.
- When present, foliage will be healthy and of normal size, shape, texture and color for the species.
- C. Plants shall conform to the measurements specified, except that plants larger than those specified may be used. Use of larger plants shall not increase the contract price. If larger plants are used, the root ball shall be increased in proportion to the size of the plant.

- Caliper measurements shall be taken on the trunk 6 (6) inches above the natural ground line for trees up to and including four (4) inch in caliper. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to branch tip. Plants shall be measured when branches are in their normal position.
- If a range of sizes is given, no plant shall be less than the minimum size, and no less than fifty percent of the plants shall be as large as the maximum size specified.

- Measurements specified are minimum sizes acceptable after pruning, where pruning is required. Plants that meet measurements but do not possess a standard relationship between height and spread, according to the American Standards for Nursery Stock, shall be rejected.

- D. Substitutions of plant materials will not be permitted unless authorized in writing by the Landscape Architect. If proof is submitted in writing that a plant specified is not obtainable, consideration will be given to the nearest available size or similar variety, with a corresponding adjustment of the contract price.
- E. Poor-quality trees of cracked, wet, or loose root balls, poorly developed trunk-to-crown ratios, or undersized root balls shall be rejected.

- F. Trees that settle out of plumb due to inadequate soil compaction either under or adjacent to the root ball shall be excavated and reset. In no case shall trees that have settled out of plumb be pulled upright using guy wires.
- G. Selection and Tagging

- Plants may be subject to inspection for conformity to specification requirements and approval by the client representative at their place of growth and upon delivery. Such approval shall not impair the right of inspection and rejection during progress of the work.

- All plants shall be selected and tagged by the Landscape Architect at their place of growth. For distant material, photographs may be submitted for pre-inspection review.
- All field-grown deciduous trees shall be marked to indicate the trees' north orientation in the nursery. Place a one (1) inch diameter spot of white paint onto the north side of the tree trunk within the bottom twelve (12) inches of the trunk.

- H. Container Plants
- Plants grown in containers shall be of appropriate size for the container as specified in the most recent edition of the American Standard for Nursery Stock and be free of circling roots on the exterior and interior of the root ball.
- No trees will have large roots growing out of the container.
- Container plants shall have been grown in the container long enough to have established roots throughout the growing medium. The rooting medium shall be weed-free.

- I. Balled and Burlapped (B&B) Plant Materials
- Trees designated B&B shall be properly dug with firm, natural balls of soil retaining as possible many fibrous roots as growing, in sizes and shapes as specified in the American Standard for Nursery Stock. Balls shall be firmly wrapped with nonsynthetic burlap and secured with nails and wire, nonsynthetic twine. The root collar shall be apparent at surface of ball. Trees with loose, broken, processed, or manufactured root balls will not be accepted, except with special written approval before planting.

- The rooting medium shall be weed-free.
- J. Transportation and Storage of Plant Material
- Branches shall be tied with rope or twine only, and in such a manner that no damage will occur to the bark or branches. Immediately after harvesting plants, protect from drying and damage until shipped and delivered to the planting site.

- Rootballs shall be checked regularly and watered sufficiently to maintain root viability.
- During transportation of plant material, the contractor shall exercise care to prevent injury and drying out of the trees. Should the roots be dried out, large branches broken, balls of earth broken or loosened, or areas of bark torn, the Landscape Architect may reject the injured tree(s) and order their replacement at no additional cost to the owner.
- All loads of plants shall be covered at all times with tarpaulin or canvas. Loads that are not protected will be rejected.

EXECUTION

- A. Installation of Shrubs & Trees
- All locations for trees to be planted by the client representative prior to excavation. The Contractor shall be responsible for contacting Miss Utility to verify the location of underground utilities prior to location flagging or excavation.

- As far as is practical, plant materials shall be planted on the day of delivery. In the event this is not possible, the Contractor shall protect that stock not planted from sun or drying winds and shall keep the plants well watered and stored in the shade. Plants shall not remain unwatered for longer than three days before delivery. Plants shall not be bound with wire or rope at any time so as to damage the bark or break branches. All plants shall be lifted and handled from the bottom of the ball only. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations.

- Seasonal Limitations - Planting and seeding shall be done whenever soil and weather conditions permit. This shall be determined by the client representative. The Contractor shall be responsible for providing all necessary equipment, materials, and labor to complete the project. Plant list quantities are provided as an aid to bidders only. The Contractor shall verify all quantities on the plan. Improper plant counts made by the Contractor shall be no cause for additional costs to the Owner.

- A. Excavation
 - 1. Tree pits are to be excavated to the depth and widths indicated on the drawings. If the planting area under any tree is initially dug too deep, the soil sides are to be brought up to the correct level should be thoroughly tamped.
 - 2. Make surface clear of stones, debris, rubbish, and trash before pit excavation. Dispose of such material away from the site.
 - 3. A filler may be used to loosen the soil to a distance of six feet or more from the tree trunk.
 - 4. For trees, excavate the hole to the depth of the root ball and to widths shown on the drawing. Slope the sides of the excavation at a 45 degree angle up and away from the bottom of the excavation.
 - 4.1. In areas of slowly draining soils, the root ball may be set up to three (3) inches or one eighth (1/8) of the depth of the root ball above the adjacent soil level.
 - 4.2. Save the existing soil to be used as backfill around the tree.
 - 4.3. Detrimental soil conditions: The client representative is to be notified, in writing, of detrimental soil conditions encountered, including poor drainage. When detrimental conditions are uncovered, planting shall be discontinued until instructions to resolve the conditions are received from the client representative.
- 5. Obstructions: If rock, underground construction work, utilities, tree roots, or other obstructions are encountered in the excavation of planting areas, alternate locations for any planting shall be determined by the client representative.
- C. Installation

- The contractor shall provide positive drainage for all berms and plant areas. Trees shall be set on flat-tamped or unexcavated pads and shall stand at approximately the same elevation as in the field or nursery. As planting soil is backfilled, it shall be placed in layers and tamped in place carefully so that no damage will occur to ball in any manner, or disturb the position of the ball.

- 1. Determine the elevation of the root flare and ensure that it is planted at grade. This may require that the tree be set higher than the grade in the nursery.
- 2. If the root flare is less than two (2) inches below the soil level of the root ball, plant at the appropriate level above the grade to set the flare even with the grade. If the flare is more than two (2) inches below the soil level of the root ball the tree shall be rejected. Cut and remove containers for containerized trees. Lift plants only from the bottom of the root balls or with belts or lifting harnesses of sufficient width not to damage the root balls.
- 3. Do not lift trees by their trunks or use the trunk as a lever in positioning or moving the tree in the planting area.
- 4. Cut ropes or strings from the top of trees smaller than three (3) inches caliper after plant has been set.
- 5. Remove burlap or cloth wrapping and any wire baskets as completely as possible from the tree root ball. Do not turn under and bury portions of burlap at top of ball. Completely remove any waterproof or water-repellent strings or wrappings from the root ball and trunk before backfilling.
- 6. The use of high nitrogen fertilizer in the planting hole is prohibited. Contractor is responsible for providing local agricultural extension with existing soil report for fertilization recommendations.
- 7. Place native soil in the area around the tree, tamping lightly to reduce settlement. Ensure that the backfill immediately around the base of the root ball is tamped with foot pressure sufficient to prevent the root ball from shifting or leaning.
- 8. Thoroughly water all plants immediately after planting. Apply water by hose directly to the root ball and the adjacent soil.
- 9. Remove all tags, labels, strings, etc. from all plants. Form watering saucers four (4) inches high immediately outside the area of the root ball of each tree as indicated on the drawings. Apply root hormone stimulant as per the manufacturer's instructions.
- 10. Outfit each tree with a twenty (20) gallon slow release watering bag.

D. Staking and Guying

- Staking of trees shall be done immediately after planting. Trees shall stand plumb after staking. Staking methods shall be approved by the client representative. Slakes shall be of sufficient tension to maintain the tree in an upright position that overcomes the particular circumstances that initiated the need for staking. Where ArborTie, or approved equivalent, is used, it shall be installed as per the manufacturer's instructions.

- 1. Slakes shall be removed by the contractor at the end of the first growing season. Any tree that is not stable at the end of this time shall be rejected.
- 2. Three stakes shall be used for each tree. Stakes shall not penetrate the ball of earth moved with the tree. Stakes shall penetrate existing soil below the tree pit.

- 3. If soil has the Contractor's responsibility to prevent plants from falling or being blown over and to straighten or replant all plants which are damaged due to a lack of staking. If unstaked, plants blown over by high winds shall not be a cause of additional expense to the owner, but shall be the financial responsibility of the Contractor.

E. Pruning

- 1. Plants shall not be heavily pruned at the time of planting. Healthy lower branches and interior small twigs should not be removed except as necessary to clear walks and roads. In no case should more than one-quarter of the branching structure be removed.
- 2. Pruning is required at planting time to correct defects in the tree structure, including removal of injured branches, double leaders, waterspouts, suckers, and interfering branches.
- 3. Each tree shall be pruned to preserve natural character of plant.
- 4. All injured tree and shrub roots shall be pruned to make clean cut ends before planting.
- 5. Main leaders of trees shall not be cut back.
- 6. If required, cut branches and roots with clean, sharp pruning instruments; do not break or chop. All cuts shall be clean, smooth, with bark intact with no rough edges or tears. No heavily pruned material will be accepted at any time. If the natural form is destroyed, the plant will be rejected.
- 7. Trees that have had roots pruned must be treated with a root stimulating hormone.
- 8. The trees or roots shall be pruned in accordance with generally accepted arboricultural practices.

CLEAN-UP

- The Contractor shall, periodically or as directed during the progress of the work, remove and properly dispose of debris, rubbish, trash, clippings, pruning, and defective or unacceptable materials. The Contractor shall continuously keep the project clear of hazardous obstructions.

- 1. Trash burning on the site will not be permitted.
- 2. Prior to substantial completion, all tools, surplus materials, equipment, trash, and debris shall be removed and the site left in a neat and clean condition.
- 3. Paved areas shall be kept clean of soil, fertilizer, mulch, trash and debris, and shall be maintained in a broom clean condition at all times.
- 4. Mud and soil tracked onto paved areas by equipment and workmen shall be removed promptly and completely.
- 5. Protection of Lawn Areas and Restoration of site: Contractor shall take special precautions to ensure that lawn areas are not damaged during construction. The Contractor shall fill and reseed any areas damaged during his operation.
- 6. Materials and equipment shall be stored where directed and shall be limited to the quantity required for the work.
- 7. Rejected materials shall be immediately removed from the property.

MAINTENANCE

LANDSCAPE MAINTENANCE PLAN

LANDSCAPE ELEMENTS	WATERING	MULCHING	PRUNING	WEEDING	REPLACEMENT
SHRUBS	INCREASE WATERING DURING DRY PERIODS. WATER TO SATURATE SOIL IN PLANTING BEDS TO THE FULL DEPTH OF THE ROOT BALL.	APPLY MULCH TO PLANTING BEDS TO THE FULL DEPTH OF THE ROOT BALL.	MAINTAIN TREE AND SHRUB PRUNING TO MAINTAIN HEALTHY AND ATTRACTIVE APPEARANCE.	MAINTAIN WEED-FREE PLANTING BEDS TO THE FULL DEPTH OF THE ROOT BALL.	REPLACE DEAD OR DISEASED BRANCHES WITH NEW SPECIES.
GROUND COVER/PERENNIALS	WATER ON REGULAR BASIS TO MOISTEN ENTIRE PLANTING BEDS TO THE FULL DEPTH OF THE ROOT BALL.	APPLY MULCH TO PLANTING BEDS TO THE FULL DEPTH OF THE ROOT BALL.	PERENNIALS: PRUNE AND MAINTAIN TO MAINTAIN HEALTHY AND ATTRACTIVE APPEARANCE.	MAINTAIN WEED-FREE PLANTING BEDS TO THE FULL DEPTH OF THE ROOT BALL.	REPLACE DEAD OR DISEASED PERENNIALS WITH NEW SPECIES.
GREEN ROOF	REFER TO MAINTENANCE PLAN				

ALLIANCE TECHNICAL SOLUTIONS ARCHITECTS AND ENGINEERS

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GENERAL LANDSCAPE NOTES
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