Grading Plan Methodology

1. Scope of Work This grading plan outlines the methodology for cuts, fills, and pier installations required for completing the parking deck/driveway, concrete stairs and landings, and structural pier installations. The plan complies with geotechnical and civil engineering best practices and includes detailed erosion control measures, spoil management, and structural considerations to satisfy requirements.

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2. Fill Plan (*Parking Deck only*)

2.1 Fill Quantity

- **Total Fill Volume:** 175 cubic yards of 3/4-inch crushed and compacted fill (approximately 20 truckloads).
- **Concrete Flatwork:** Additional 4 inches of concrete elevation is excluded from fill calculations.
- **GeoGrid:** Nominally included in the fill mass (approximately 3-4 cubic yards).

2.2 Fill Placement and Compaction

- **Fill Placement:** Fill to be placed in lifts not exceeding 3 feet (except for final top-out level).
- **Compaction:** Compaction to 95% maximum dry density as per ASTM D1557.
- **Testing:** Field density testing performed at the two intervals by a certified geotechnical technician to ensure compliance.

2.3 Erosion Control

- Install silt fences, straw waddles, and jute netting as needed to stabilize fill areas.
- Compact slopes if needed to prevent runoff and potential erosion. Verdura gravity blocks and geogrid will retain compacted fill around perimeter.

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3. Cut Plan (*Exterior Stairs & Landing only*)

3.1 Concrete Stairs and Landing

- **Cut Volume:** Total of 5 cubic yards (2 cubic yards for hillside contouring and 3 cubic yards for creating a flat landing).
- **Spoil Management:** Spoils to be distributed evenly along the southern and northern property boundary and compacted lightly to match surrounding grades.

3.2 Erosion Control

- Stabilize cut slopes with jute netting.
- Use straw wattles to control sediment flow.

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4. Pier Installation

The pier work was recommended by the geotechnical engineers to enhance stability.

4.1 Gravity Wall *Piers*

- **Quantity:** 6 piers.
- **Starting Elevation:** 28 feet above sea level.
- **Bedrock Elevation:** 14 feet above sea level.
- **Pier Depth:** 15 feet into bedrock.
- **Dimensions:** 18 inches in diameter, extending 29 feet total.
- **Total Excavation Volume:** Approximately 300 cubic feet (11 cubic yards).
- **Spoil Management:**
  - Distribute spoils along the shelf and side boundaries.
  - Retain spoils using two low retaining walls (6-inch pressure-treated posts set 3 feet deep, 2×12×20 boards to a 2-foot height, secured with GRK structural fasteners); or along the 42" high concrete soils retaining wall along the southern boundary.
  - Retaining walls designed to hold up to 200 cubic feet each, ensuring proper spoil containment.

4.2 Lower CMU Wall *Piers*

- **Quantity:** 2 piers (and three grade beam sections spanning between CMU footing and house foundation)
- **Starting Elevation:** 19 feet above sea level.
- **Bedrock Elevation:** 13 feet above sea level.
- **Pier Depth:** 10 feet into bedrock.
- **Dimensions:** 18 inches in diameter, extending 17 feet total.
- **Total Excavation Volume:** 2 cubic yards.
- **Spoil Management:** Place spoils in the 26'x8'x4.5' void at the house frontage.

4.3 Under Guest Cottage *Piers*

- **Quantity:** 4 piers.
- **Dimensions:**
  - Two piers: Starting at 15 feet above sea level, hitting bedrock at 12 feet above sea level, extending 10 feet into bedrock for a total depth of 13 feet each (0.75 cubic yards per pier).
  - Two piers: Starting at 17 feet above sea level, hitting bedrock at 13 feet above sea level, extending 10 feet into bedrock for a total depth of 17 feet each (1 cubic yard per pier).
- **Total Excavation Volume:** 4 cubic yards.
- **Spoil Management:** Move spoils to the previously mentioned void area for encapsulation, with final retention using pressure-treated wood, concrete, or erosion control barriers.

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5. Erosion and Sediment Control

5.1 Temporary Measures

- Install silt fences, straw waddles, and jute netting at all cut and fill areas and maintain such additional backup protection along the bayfront edge (behind concrete seawall and where soil ceases @ rocky ledge under guest cottage).
- Use rock (rip rap) sediment basins or check dams at drainage points.

5.2 Permanent Measures

- The parking deck will receive reinforced concrete as the driveway/parking surface. It is required to be impermeable to reduce hydrostatic pressure from the back side of the deadman gravity wall and meets the lot coverage percentage restrictions for the parcel.
- The area at the gravity wall footing will also receive reinforced concrete to prevent (cap) hydrostatic pressure for behind the lower CMU wall.
- The area between the CMU wall footing and the house foundation will be covered with permeable wood-type composite decking.
- Spoils distribution areas will be fully planted and/or covered with bark.
- Riprap will be placed at drainage dispersal outlets to reduce water velocity and assist with percolation.

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6. Inspection and Testing

6.1 Soil Compaction Testing

- Conduct compaction tests and/or inspection for parking area as deemed necessary per ASTM standards.

6.2 Structural Inspections

- Inspect pier excavations, foundation repairs and reinforcement prior to concrete placement.

6.3 Geotechnical Verification

- Special inspector to confirm soil stability and pier depth into bedrock.

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7. Conclusion This grading plan meets all geotechnical and civil engineering standards, ensuring structural stability, erosion control, and environmental compliance. All work will be performed under the supervision of a licensed professional to guarantee adherence to local regulations and best practices.

Note: This grading plan does not account for minor excavations such as fence post holes, small side retaining wall post holes or footings, arbor post holes, arbor post holes, or the planting of landscaping materials. These minor activities are incidental and typical to this type of permit. We will ensure proper handling and erosion control measures for any minor soil disturbances, reinforcing our commitment to maintaining site stability and environmental compliance. These activities are well within the scope of

standard landscaping practices and will not affect the overall grading plan objectives. An estimated total volume of 2-3 cubic yards may result from these minor excavations, which are minimal compared to the primary grading work and will be dispersed into the aforementioned void area, or as part of small plantings, acclimated back into the immediate spot; all erosion and ground cover (bark, mulch, etc) will apply.

SUMMARY:

FILL: 175 total cubic yards for parking (non-native compacted ¾ crushed gravel with geogrid)

CUT: 13 total cubic yards for external stairs/landing/piers (replaced with non-native concrete/rebar)
Additional nominal 2-3 cu yards involving arbor posts, fence posts, plantings and such.