

All areas are square feet. All volumes are cubic yards.

Building pad region only
All other regions
All regions combined

Areas and volumes for each sectional region of the takeoff.
Depth includes paving, rock or topsoil thickness deducted to get to the stripped or subgrade surface.
All volumes are calculated from the slope area.
Volume = Area * Depth/27

1 Cubic Yard = 27 Cubic Feet
Square Yard = 9 Square Feet
Square yards = Sq Ft Area/9

Volume Report
Subgrade vs Stripped

Stripped Surface = Existing grade – Stripping depth
Subgrade Surface = Finish grade – All sectional depths

	Total	Cut	Area Fill	OnGrade	Volume Cut	Volume Fill	Comp/Ratio Cut	Comp/Ratio Fill	Compact Cut	Compact Fill	Export -Import	Change Per 0.1 ft
Building Pad	14,991	0	14,991	0	0	1,036	1.00	1.00	0	1,036	-1,036	56
Grading	53,315	20,568	27,568	5,179	1,085	1,248	1.00	1.00	1,085	1,248	-163	197
Regions Total	68,306	20,568	42,559	5,179	1,085	2,284			1,085	2,284	-1,199	253

Change in volume for every 0.10 ft the site is adjusted vertically. Helpful for value engineering earthwork.

Stripping Qtys	Plane Area	Slope Area	Depth	Volume
Site Strip	68,306	68,313	0.500	1,265
Sectional Qtys				
Building Pad	14,991	14,991	1.000	555
Concrete Pavement	711	732	0.670	18
HD Pavement	3,151	3,155	0.940	110
HD Pavement	17,620	17,629	0.940	614
HD Sub:	20,771	20,784	0.940	724
LD Pavement	3,938	3,942	0.770	112
LD Pavement	1,224	1,229	0.770	35
LD Pavement	3,282	3,285	0.770	94
LD Pavement	1,508	1,509	0.770	43
LD Sub:	9,952	9,965	0.770	284
Respread	446	447	0.500	8
Respread	310	310	0.500	6
Respread	223	223	0.500	4
Respread	338	338	0.500	6
Respread	141	142	0.500	3
Respread	145	146	0.500	3
Respread	17,900	18,010	0.500	334
Respread Sub:	19,503	19,616	0.500	364
Walk	2,378	2,380	0.670	59
Sectional Total	68,306	68,468		2,004

Total volume for topsoil stripped from the site.
Stripped volume = Existing grade area*Stripping depth/27

Total topsoil re-spread volume for green spaces.
Re-spread volume = Green space area*Depth/27

Total export or import required to bring the site to subgrade (difference between stripped and subgrade surfaces). Import is always shown as negative.

Earthwork cut/fill shrink and swell are set to zero. You may need to adjust #'s to account for material swell or shrink.

All sectional regions combined (rarely a useful #)



How to Read an Agtek Cut and Fill Volume Report (Step-by-Step Guide)

If you've ever opened an **Agtek cut and fill volume report** for the first time, you know the feeling: rows of numbers, unfamiliar column headers, and totals that don't obviously connect to each other. But once you understand the structure, this report becomes one of the most powerful tools in earthwork takeoff and estimating — it tells you exactly how much dirt needs to move, where it's coming from, and where it's going.

This guide breaks down every section of a typical Agtek volume report — the **Volume Report (Subgrade vs. Stripped)**, **Stripping Quantities**, and **Sectional Quantities** tables — so you can read a takeoff with confidence and catch costly errors before they hit your bid.

Quick Reference: The Two Golden Rules

Before diving into the tables, memorize these two universal rules that apply to every Agtek volume report:

- **All areas are measured in square feet.**
- **All volumes are measured in cubic yards.**

And two conversion factors you'll use constantly when double-checking numbers by hand:

- **1 cubic yard = 27 cubic feet**
- **1 square yard = 9 square feet** (so square yards = square foot area ÷ 9)

The Core Formula: How Every Volume Is Calculated

Every single volume figure in the report — whether it's stripping, subgrade cut/fill, or re-spread — comes from one formula:

$$\text{Volume} = \text{Area} \times \text{Depth} \div 27$$

The "Area" used in this formula is always the **slope area** (the true, sloped surface area of the ground), not the flat "plane area" you'd get by simply looking at the site from

above. This distinction matters because sloped terrain always has more actual surface area than its flat, plan-view footprint — and Agtek uses the more accurate slope area for every volume calculation.

Section 1: Volume Report — Subgrade vs. Stripped

This is the summary table at the top of the report, and it's where most estimators go first. It compares two critical surfaces:

- **Stripped Surface** = Existing Grade – Stripping Depth
- **Subgrade Surface** = Finish Grade – All Sectional Depths (paving, rock, topsoil, etc.)

In other words, this table tells you how much dirt has to move to get from "ground as it sits today, minus topsoil" to "ground ready for the first course of pavement or a slab."

Reading the Rows

The rows in this table represent different **regions** of your site, and it's important to know which numbers apply to which region:

- **Building Pad row** – Volumes here apply *only* to the building pad region.
- **Grading row** – Volumes here apply to *all other regions* outside the building pad (parking lots, drive aisles, green space, etc.).
- **Regions Total row** – This is *all regions combined*, and it's the number most estimators rely on for overall site cut/fill balance.

Reading the Columns

- **Total / Cut / Area Fill / OnGrade** — the plan area (in square feet) broken out by cut, fill, and areas that are already on grade.
- **Volume Cut / Fill** — the raw cut and fill volumes (cubic yards) before any compaction adjustment.
- **Comp/Ratio Cut / Fill** — the compaction (or shrink/swell) ratio applied to convert bank-measure volume into compacted volume. In this example both ratios are set to **1.00**, meaning no swell or shrinkage has been factored in yet.

- **Compact Cut / Fill** — the cut and fill volumes *after* the compaction ratio is applied. If your ratios are 1.00, these numbers will match the raw Volume Cut/Fill columns.
- **Export/Import** — the net volume of material that must be hauled off-site (export) or brought in (import) to balance the site. **Import is always shown as a negative number.** This is the difference between the stripped surface and the subgrade surface, and it's one of the most important numbers in the entire report for pricing hauling and borrow costs.
- **Change Per 0.1 ft** — this tells you how much the cut/fill volume changes for every 0.10 feet you raise or lower the entire site vertically. It's an incredibly useful number for **value engineering**: if you're close to a balanced site, this figure tells you exactly how much adjusting the finish floor elevation (even slightly) could save in export or import costs.

Estimator's Tip: Because shrink/swell is often left at 1.00 in the raw takeoff, don't assume the "Compact Cut/Fill" numbers are bid-ready. Always confirm what soil shrink/swell factor applies to your project's specific soil type before finalizing quantities.

Section 2: Stripping Quantities

This section calculates the volume of topsoil (or unsuitable material) that needs to be stripped from the site before any grading begins.

The formula here is straightforward:

$$\text{Stripped Volume} = \text{Existing Grade Area} \times \text{Stripping Depth} \div 27$$

You'll see four columns:

- **Plane Area** — the flat, plan-view area of the site.
- **Slope Area** — the true sloped surface area (this is the number actually used in the volume calculation).
- **Depth** — the stripping depth (commonly 0.3–0.6 ft, depending on the topsoil layer).
- **Volume** — the resulting stripped volume in cubic yards.

This total represents the total topsoil volume stripped from the entire site — a number you'll need whether that topsoil is stockpiled on-site for re-spreading or hauled off entirely.

Section 3: Sectional Quantities

This is the most detailed part of the report, and it breaks the site down into individual **sectional regions** — each with its own plan area, slope area, depth, and volume. Every row represents a distinct area of construction with a distinct finished treatment: pavement, building pad, sidewalk, or landscaped green space.

Depth in this section is not the site grading depth — it's the thickness of paving, rock base, or topsoil that gets deducted to arrive at the stripped or subgrade surface.

Typical sectional rows include:

- **Building Pad** — the building footprint area and volume.
- **Concrete Pavement** — concrete flatwork areas (sidewalks, aprons, dumpster pads).
- **HD Pavement (Heavy-Duty Pavement)** — areas designed for heavier loads, such as truck lanes and loading areas, often summarized in an **HD Sub** subtotal row.
- **LD Pavement (Light-Duty Pavement)** — standard parking and drive areas, summarized in an **LD Sub** subtotal row.
- **Respread** — areas where stripped topsoil will be re-spread for landscaping or green space, summarized in a **Respread Sub** subtotal row. The formula here is:
Re-spread Volume = Green Space Area × Depth ÷ 27
- **Walk** — pedestrian walkway areas.
- **Sectional Total** — every sectional region combined into one grand total.

Important: The Sectional Total is rarely a meaningful number on its own, because it mixes cut volumes from very different surface types (pavement sections, building pad, topsoil re-spread) that shouldn't be added together for earthwork balancing purposes. Use the individual sectional subtotals — not the grand total — when pricing specific scopes of work.

Why This Report Matters for Your Bid

A well-read Agtek volume report lets you:

1. **Confirm site balance** — quickly see whether the project is cut-heavy, fill-heavy, or balanced, and by how much.

2. **Price hauling accurately** — the Export/Import figures tell you exactly how many truckloads of material need to leave or enter the site.
3. **Value-engineer the grading plan** — the "Change Per 0.1 ft" column shows the cost impact of adjusting the site's vertical design, which can be a fast way to reduce import/export costs.
4. **Isolate scope-specific volumes** — sectional subtotals (HD Sub, LD Sub, Respread Sub) let you break earthwork costs out by pavement section or scope, rather than relying on one lump total.

Common Mistakes to Avoid

- **Confusing Plane Area with Slope Area.** All volume calculations use slope area — using plane area for a manual check-calculation will give you a slightly wrong number on sloped sites.
- **Forgetting that Import shows as negative.** A negative Export/Import number doesn't mean "less material" — it means material has to be brought *in*.
- **Treating shrink/swell as already accounted for.** If Comp/Ratio values are set to 1.00, your compacted volumes are unadjusted — confirm the correct geotechnical shrink/swell factor before bidding.
- **Using the Sectional Total as a bid quantity.** As noted above, this figure combines unrelated scopes and is rarely useful for pricing.