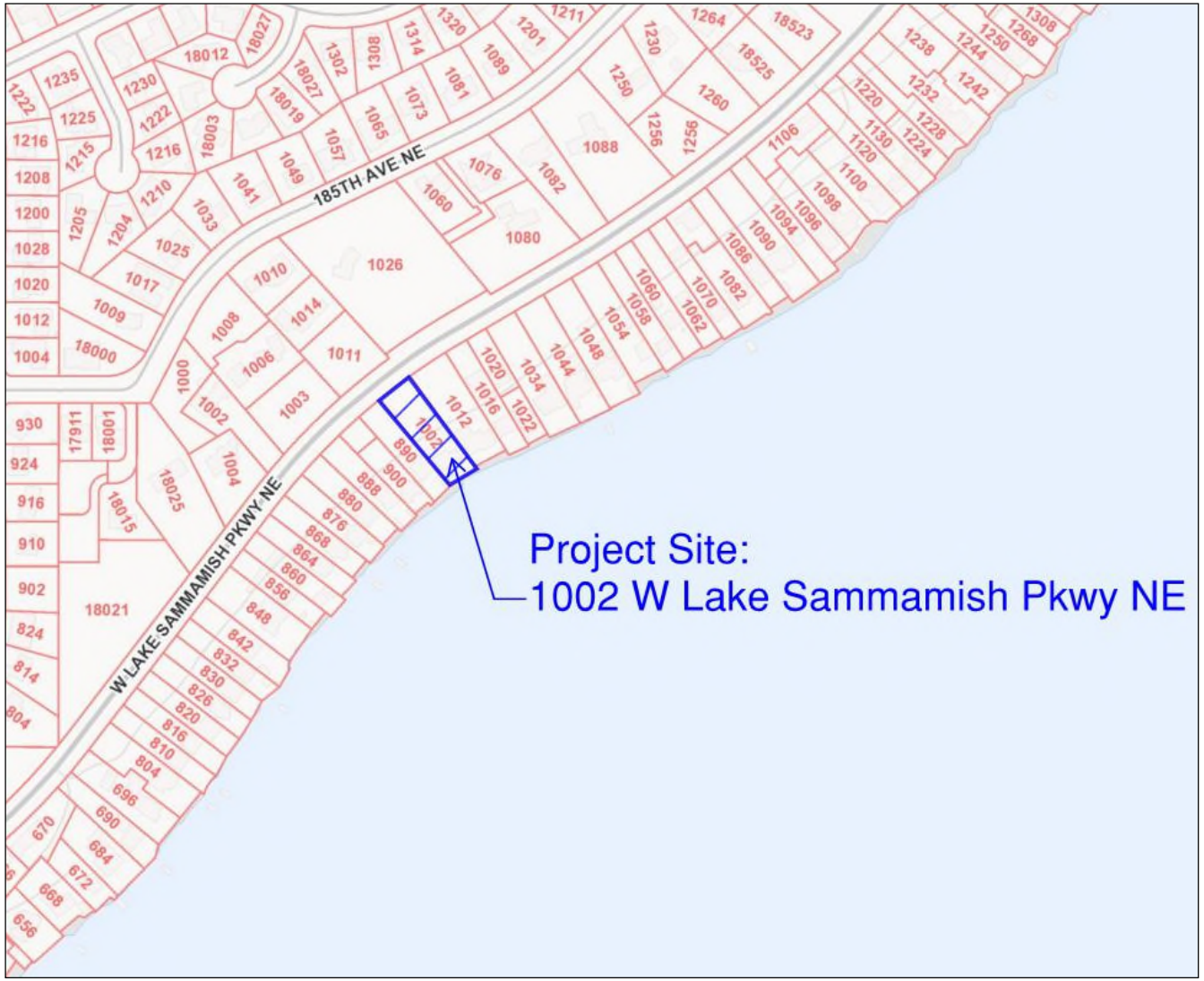
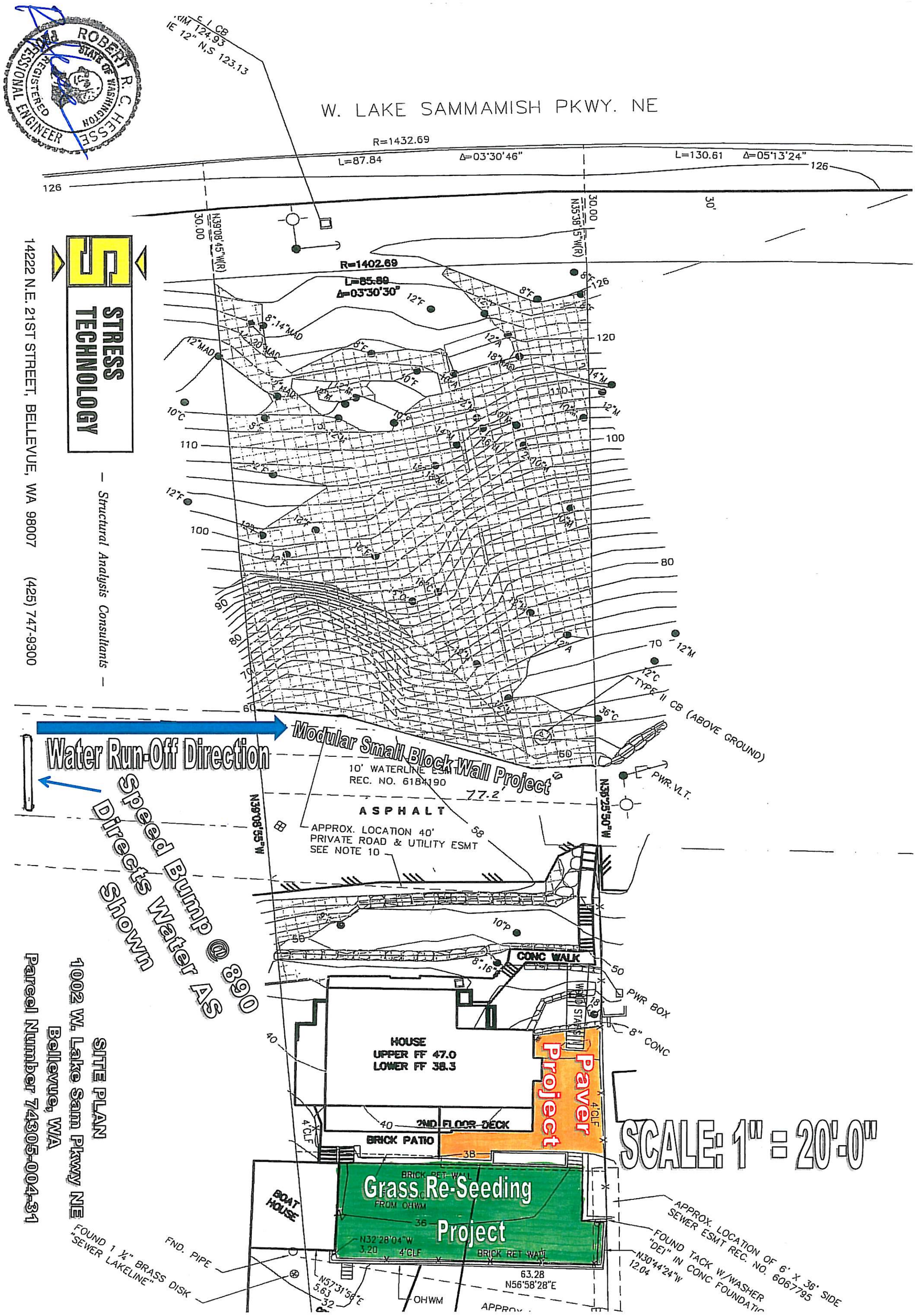
Anderegg Block Wall
File Number: 13-130305-LO




ROBERT R. C. HESSE
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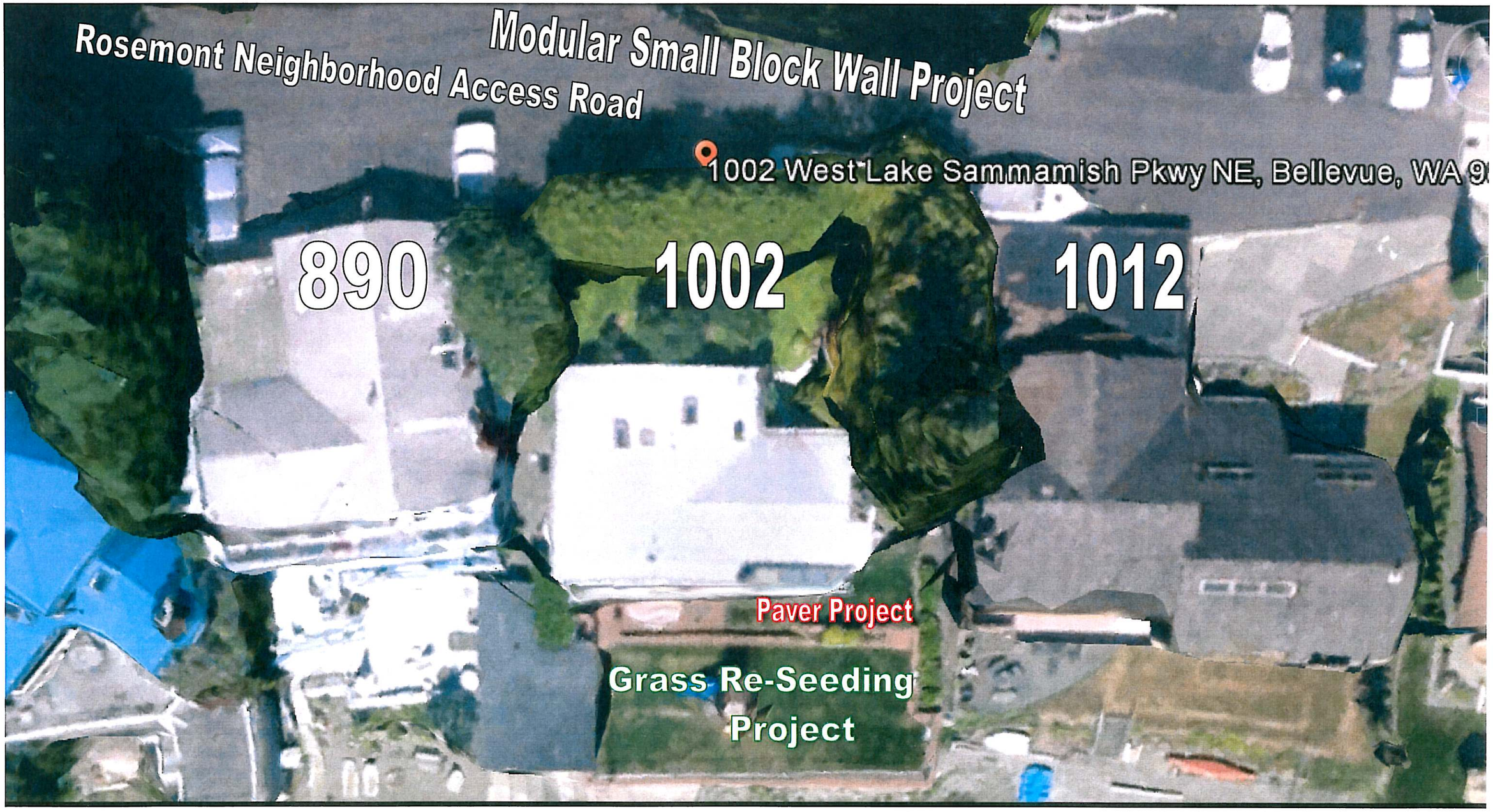
REGISTERED PROFESSIONAL ENGINEER
W. LAKE SAMMAMISH PKWY. NE
R=1432.69
L=87.84
Δ=03°30'46"
L=130.61
Δ=05°13'24"
R=1402.69
L=85.89
Δ=03°30'30"
STRESS TECHNOLOGY
— Structural Analysis Consultants —
14222 N.E. 21ST STREET, BELLEVUE, WA 98007 (425) 747-9300
Water Run-Off Direction
Modular Small Block Wall Project
Speed Bump @ 890
Directs Water AS
Shown
10' WATERLINE ESMT
REC. NO. 6184190
ASPHALT
APPROX. LOCATION 40'
PRIVATE ROAD & UTILITY ESMT
SEE NOTE 10
TYPE II CB (ABOVE GROUND)
PWR. VLT.
CONC WALK
PWR BOX
8" CONC
HOUSE
UPPER FF 47.0
LOWER FF 38.3
2ND FLOOR DECK
BRICK PATIO
Paver Project
SCALE: 1" = 20'-0"
Grass Re-Seeding Project
BOAT HOUSE
FND. PIPE
FOUND 1 ½" BRASS DISK "SEWER LAKELINE"
OHWM
APPROX. LOCATION OF 6' X 36' SIDE SEWER ESMT REC. NO. 6067795
FOUND TACK W/WASHER "DEI" IN CONC FOUNDATIO
SITE PLAN
1002 W. Lake Sam Pkwy NE
Bellevue, WA
Parcel Number 74305-004-31



Three Projects: Modular Small Block Wall Project
Paver Project
Grass Re-Seeding Project

SUBJECT PARCEL NEIGHBORS

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Subject Modular Small Block Wall

Block: Roman Pisa, Cascade Blend 6"x8"x12"

Cap: 12" Coping Unit, Charcoal 3" x $23^5/_8$" x 12"

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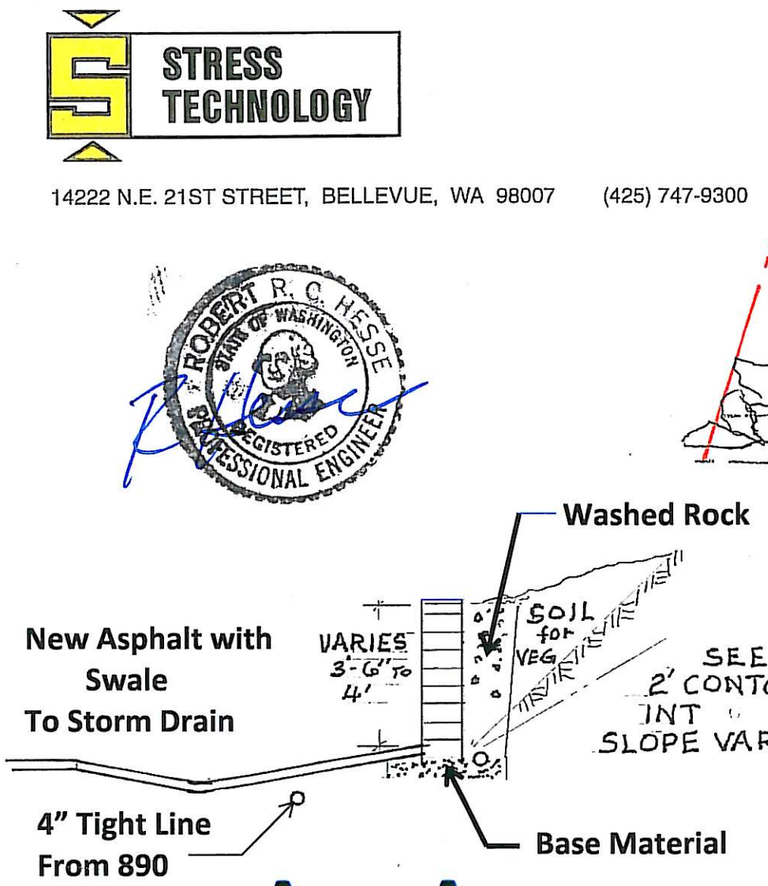

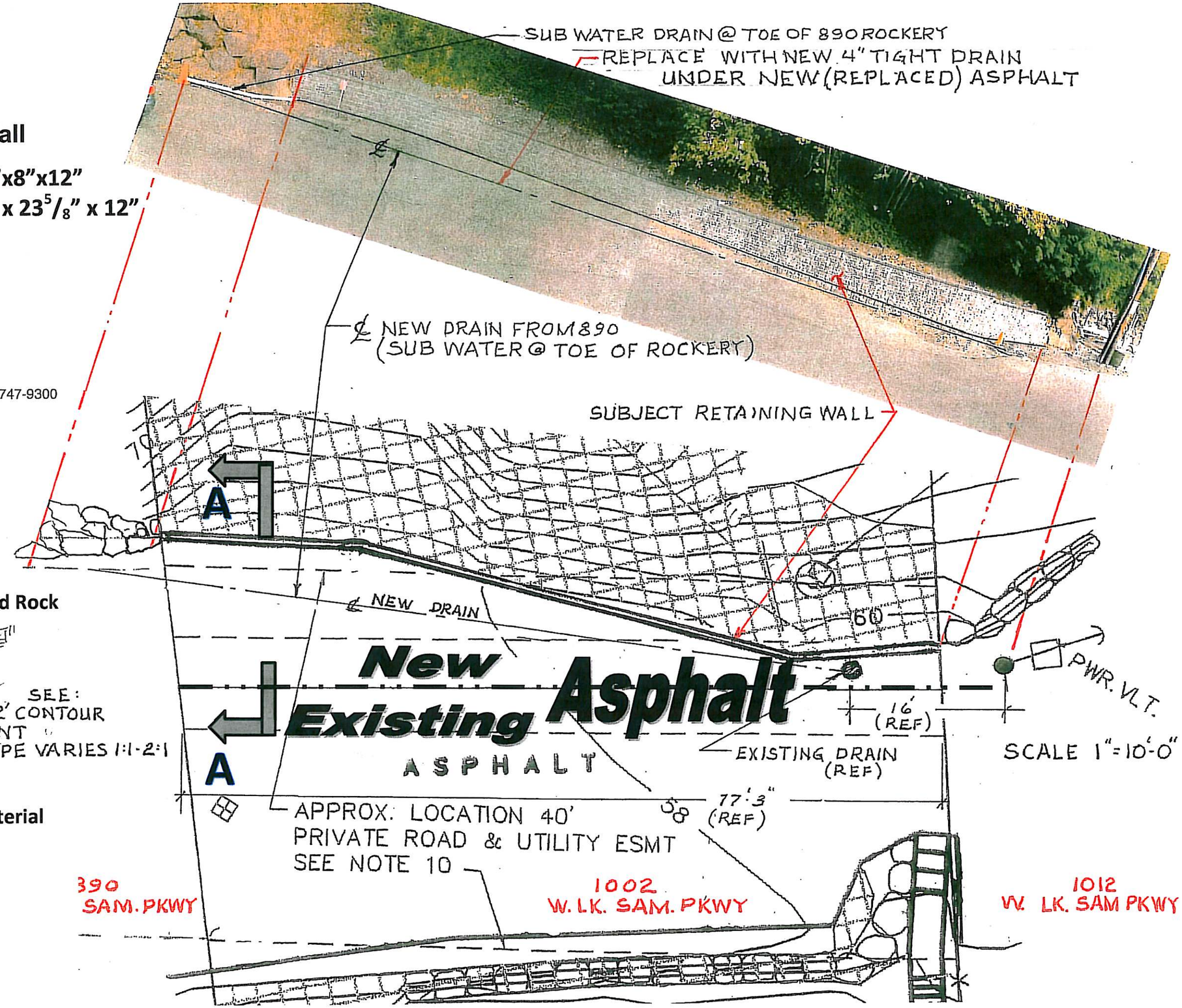

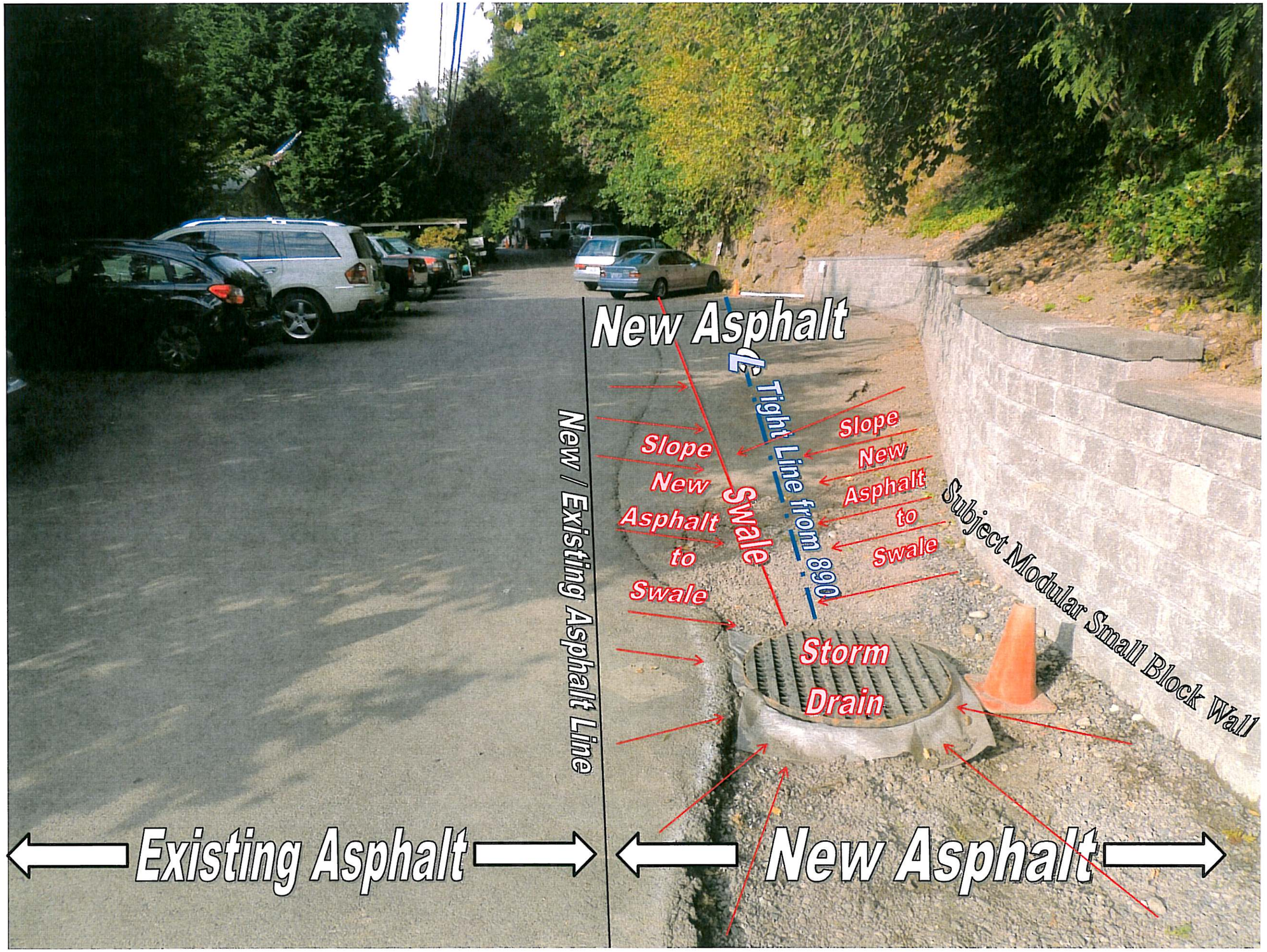

New Asphalt Details

1002 W. Lake Sam Pkwy NE

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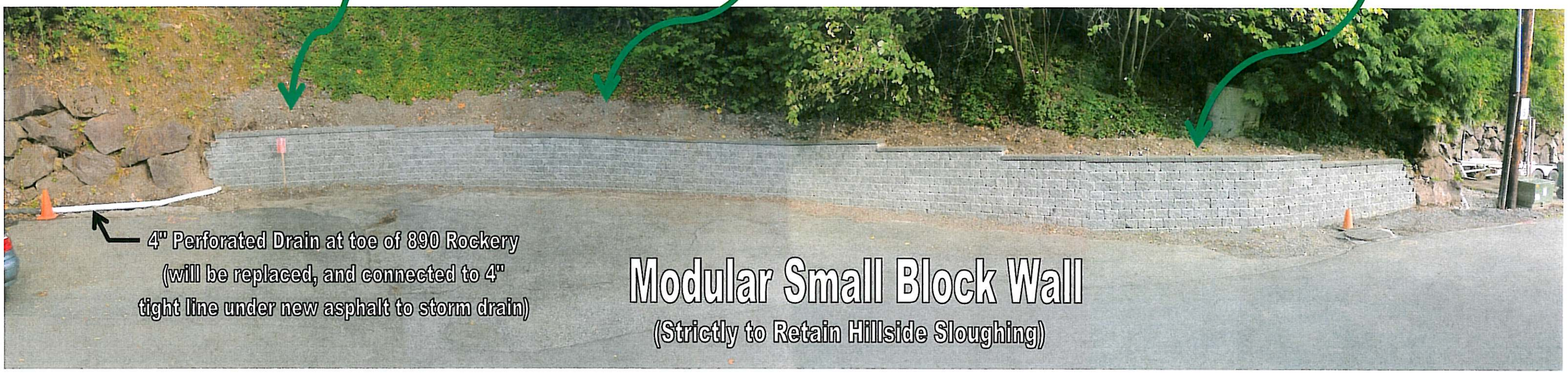
Suggested Mitigation/Restoration above Wall

- *Polystichum munitum* Sword Fern (or Other Suitable/Recommended Groundcover above Wall



NOTE: Refer to the Site Plan 2' Contour Intervals
The natural/Existing Hillside Angle of repose varies from a slope of 1 : 1 (Steepest); to 1 : 2 (Less Steep).
The toe of the slope/structure setback is not on the critical slope; therefore, the subject wall does not receive significant lateral load from material.
The intent of the Subject Wall is to prevent soil erosion and sloughing during wet, rainy weather.

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1002 W. Lk. Sam. Pkwy
Modular Small Block Wall

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— Structural Analysis Consultants —
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NARRATIVE DESCRIPTION

This narrative addresses King County Parcel Number 74305-004-31, 1002 West Lake Sam. Pkwy. NE. The permit application associated with this narrative responds to City of Bellevue Stop Work Order Issued August 18th, 2013, by Aaron Roden.

The address on the Stop Work (890 West Lake Sam. Pkwy. NE) was intended to address specific notice that an approximate 3'6"-high modular small block wall was constructed without a building permit in a Critical Area.

This permit submittal requests approval for the subject modular small block wall project, along with approval for two additional unrelated projects on the subject parcel. The three projects will be referred-to individually in this submittal as:

1. Subject Modular Small Block Wall Project;
2. Paver Project (Actually, the extension of existing pavers); and,
3. Grass Re-Seeding Project (Actually, revitalization of existing lawn).

BOUNDARY & TOPOGRAPHIC SURVEY

A property feasibility study, conducted by Stuart Silk Architects in January, 2003, provides a topographic survey complete with 2' contour intervals for the parcel. The Site Plan has been taken from this feasibility study, and has provided information germane to Critical Area considerations. The wall, as designed, and constructed, incorporates a minimum impact to the Critical Area. In fact, the projects in this submittal barely border on the need for a permit. This submittal meets each of the decision criteria and performance standards contained in *Land Use Code* Section 20.30P and Section 20.25H. Consequently, this submittal does not necessitate a Critical Areas Report process as stipulated in *Land Use Code* Section 20.25H.230.

REGARDING THE SUBJECT MODULAR SMALL BLOCK WALL

The subject wall addresses retention of hill-side material that routinely sloughs-off, and muddies-up the Rosemont Neighborhood Access Road. The wall contractor was engaged by home owners Dan and Kendall, with a suggestion that a wall, as proposed, and as constructed along the edge of the existing asphalt, adjacent the toe of the hillside slope, did not require a permit (See: "Modular Small Block Wall Details").

In spite of the fact that the hillside is considered a Critical Area, the toe of the slope/wall setback is not on the Critical Slope. Filter fabric between washed rock and hillside fill behind the block wall prevents intrusion of fill material invading the washed rock. A perforated 4" pipe at the base of the washed rock carries sub water and hillside run-off to the existing storm drain adjacent the North end of the wall. Consequently, the wall does not receive significant lateral hydrostatic-type loading from hillside material.

Several maintenance-type issues will be addressed associated with this portion of the permit submittal:

- Replacement of existing asphalt along the subject wall will enhance several issues, as discussed in the following bullets:

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- A perforated 4" drain at the toe of the 890 address rockery was up-rooted during construction of the subject wall. The perforated portion of that drain will be replaced, and a 4" tight pipe placed under new asphalt will deliver water from the 890 drain to the storm drain adjacent the North end of the subject wall.
- A note on the site plan indicates water run-off direction during rainy weather from a speed bump in the Rosemont Neighborhood Access Road associated with address 890. A swale will be constructed in the new asphalt to collect this run-off from address 890, and direct the water to the storm drain adjacent the North end of the subject wall (see "New Asphalt Details").
- The New Asphalt will also slope to the swale from the base of the subject wall to direct water from the base of the subject wall to the storm drain.
- In addition, water from address 1012 at the North end of the subject wall will be directed to the storm drain.

These maintenance-type issues will address long-standing concerns.

REGARDING THE PAVER PROJECT
This portion of the permit submittal simply extends existing pavers to the North, and then West to stairs between the residence and the North property line, as presented on the Site Plan, as well as the "Subject Parcel Neighbors" sheet from Google Earth.

REGARDING GRASS RE-SEEDING PROJECT
The established lawn, as presented on the Site Plan, has existed since initial construction of the residence, at elevation 36, is well-above ordinary high lake water level. This project is simply intended to revitalize and beautify the lawn.

REGARDING MITIGATION, RESTORATION, and ENHANCEMENT
This submittal includes a suggestion for planting and restoring the fill material above the wall.
In addition, the bullet items listed above present several inclusions in this submittal that address long-standing issues that will significantly enhance the Rosemont Neighborhood Access Roadway.

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GEOTECHNICAL STUDY
September 24th, 2013
MODULAR SMALL BLOCK WALL
1002 West Lake Sammamish Parkway NE
Bellevue, WA 98808

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SUMMARY

The permit submittal associated with this Geotechnical Study addresses the need and geotechnical rationale for approval of the subject modular small block wall located along the Westside slope of the Rosemont neighborhood access road associated with 1002 West Lake Sammamish Parkway NE.

The slope associated with the subject wall is considered Critical Area for permit purposes, with a hillside slope that varies between 26° and 45° from horizontal (between a slope of 1 : 2 and 1 : 1); from the elevation of West Lake Sammamish Parkway (126' above sea level) to the elevation of the Rosemont neighborhood access road (58' above sea level), a change in elevation of 68' in an average horizontal distance of 115', an average slope from horizontal of approximately 30.5° (a slope of 1 : 1.69). Although the hillside slope is densely covered with vegetation, at times, rainy weather does generate enough soil erosion that material does slough-off onto the Rosemont neighborhood access road, which creates a muddy mess and a maintenance issue.

In spite of the fact that the hillside is considered a Critical Area, the toe of the slope/wall setback is not on the Critical Slope; and as constructed, with washed rock protected by filter fabric behind the subject modular small block wall, with a 4" perforated pipe at the base of the washed rock and wall, all sub-water and hillside run-off drains to an existing adjacent storm drain that has historically collected neighborhood access road storm water.

The hillside is associated with an established, well-developed neighborhood, and has historically been reasonably stable. However, the subject modular small block wall definitely addresses the typical customary soil erosion along the neighborhood access roadway, and barely borders on the need for permit.

The subject wall does adequately address geotechnical issues, and no geotechnical issue should preclude permit approval.

INTRODUCTION

The subject project is a modular small block wall along the toe of the hillside slope above the Rosemont neighborhood access road which serves address 1002 West Lake Sammamish Parkway NE. To accommodate hillside soil erosion and prevent material sloughing, the wall height varies between $3^1/_2$' and 4'.
The Rosemont neighborhood is well-established Lake Sammamish waterfront, with waterfront parcels between West Lake Sammamish Parkway and the shoreline typically accessed by Rosemont neighborhood roadways from West Lake Sam Pkwy NE which follow-along the toe of the hillside slope above the neighborhood access road.

Rockeries and modular block walls in the Rosemont neighborhood routinely address the same issues as the subject project.

SITE CONDITIONS

The project site conditions are associated with the hillside slope at 1002 West Lake Sammamish Parkway NE in the Rosemont Lake Sammamish waterfront neighborhood. The subject modular small block wall project is at the toe of a hillside slope which varies between 26° and 45° from horizontal (between a slope of 1 : 2 and 1 : 1); from the elevation of West Lake Sammamish Parkway (126' above sea level) to the elevation of the Rosemont neighborhood access road (58' above sea level), a change in elevation of 68' in an average horizontal distance of

115', an average slope from horizontal of approximately 30.5° (a slope of 1 : 1.69). Although the hillside slope is densely covered with vegetation, at times, rainy weather does generate enough soil erosion that material does slough-off onto the Rosemont neighborhood access road, which creates a muddy mess and a maintenance issue.

Hillside subsurface soil conditions support reasonably dense vegetation over the majority of the parcel address between the Rosemont neighborhood access roadway and West Lake Sam Pkwy NE.

No significant groundwater is associated with the subject parcel. Since the subject hillside has been undisturbed with no construction since the Rosemont neighborhood parcels have been developed, soil contamination is not an issue.

DISCUSSION AND CONCLUSIONS

The subject modular small block wall will significantly assist control of soil erosion along the base of the parcel hillside. The hillside slope is fundamentally stable, and slope stability is not an issue. Geotechnical issues associated with the subject project simply include erosion control, and control of undisturbed hillside material sloughing-off onto the neighborhood access roadway during rainy weather.

Site work associated with minimal excavation at the toe of the hillside slope to provide appropriate base for the modular small block wall does not cause any geotechnical issue.

The subject modular small block wall project does not require any reinforced soil backfill, and appropriate vegetation planted in backfill soil above the wall will be maintained to enhance soil stability, and mitigate project hillside disturbance.

RECOMMENDATIONS

Since the toe of the slope structure is not on Critical Slope, no elaborate, unusual, or significant geotechnical engineering is necessary. Washed rock protected by filter fabric behind the subject modular small block wall, with a 4" perforated pipe at the base of the washed rock and wall, directs all sub-water and hillside run-off to an existing adjacent storm drain that has historically collected neighborhood access road storm water.

Due to the established undisturbed hillside slope which varies between 26° and 45° from horizontal (between a slope of 1 : 2 and 1 : 1); from the elevation of West Lake Sammamish Parkway (126' above sea level) to the elevation of the Rosemont neighborhood access road (58' above sea level), this change in elevation of 68' in an average horizontal distance of 115', presents an average slope from horizontal of approximately 30.5° (a slope of 1 : 1.69), and no geogrid or geotextile fabric is required for soil reinforcement above the subject wall project.

FIGURES AND ILLUSTRATIONS

Refer to the project files presented with this submittal, including:

- Site Plan;
- Subject Parcel Neighbors;
- Modular Small Block Wall Details;
- Asphalt Details; and,
- Project Wall Photo with Suggested Mitigation

These five one-sheet documents provide clarity regarding project details to assist geotechnical considerations.

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