

Aerial View
11/06/19
1"=60'

Dehgan Residence
5 Riverview Place
Hastings on Hudson, NY

SJ seanjancski
LANDSCAPE ARCHITECTS
32 Elm Place - Suite 1N
Rye, New York 10580
(914) 967-1904 Phone
SJLandscapeArchitects.com

VILLAGE OF HASTINGS-ON-HUDSON
Application for the Planning Board Review/Action
for Site Plan, Subdivision
Steep Slopes and/or View Preservation



Case number: Date of application: 11/24/2019

Planning Board action requested for: Site Plan (§295-104) Subdivision (Article XIII)
(Check all that apply) Steep Slopes (§295-147) View Preservation (§295-82)

Property owner: POURIA DEHGHAN

Property address: 5 RIVERVIEW PLACE

Name all streets on which the property is located:

SBL: 4.30-20-30 Zoning District: 2R

Applicant: JACKIE HELMS

Standing of applicant if not owner: LANDSCAPE ARCHITECT

Address: 32 ELM PLACE SUITE 1N RYE, NY

Daytime phone number: 914-967-1904 Fax number:

E-mail address: JACKIE@STLANDSCAPEARCHITECTS.COM

Total Area of subject Land/property: 29,156 SF

Is the subject Property in View Preservation District? yes No

Does Property currently contain or will contain Steep Slopes? yes No

Is the subject property within 500 ft. of any other jurisdiction? yes No

Will the project affect (remove or injure) any designated trees? yes No

Please provide brief description of proposed work:

PATIO, DECK, RETAINING WALLS, GARDEN WALK
AND VEGETABLE GARDEN.

VILLAGE OF HASTINGS-ON-HUDSON
Application for the Planning Board Review/Action
for Site Plan, Subdivision
Steep Slopes and/or View Preservation



STATE OF NEW YORK
COUNTY OF WESTCHESTER ss.:

The undersigned applicant states that he/she has read all applicable code sections of the Village of Hastings-on-Hudson and is herewith submitting this application complete with all such documentation and information as is necessary and required under the code and is hereby requesting the aforementioned action/approval/s by the Planning board of the Village of Hastings-on-Hudson.

Sworn to before me this 26 day
of November, 2019

Jackie Helms
Signature of the Applicant

Jan Ahe
Notary Public

JULIANA ALZATE
NOTARY PUBLIC-STATE OF NEW YORK
No. 01JU6391574
Qualified in Westchester County
My Commission Expires 05-13-2023

STATE OF NEW YORK
COUNTY OF WESTCHESTER

Name : POURIA DEHGAN, being duly sworn, deposes and says that he/she resides at 5 RIVERVIEW PLACE in the Village of Hastings-on-Hudson in the County of Westchester, in the State of New York, that he/she is the owner of all that certain lot, parcel of land, in fee, lying and being in the Village of Hastings-on-Hudson aforesaid and known and designated as Sheet 4.30 Block 20 and Lot 30 of the tax map, and that he/she hereby authorized to make the annexed application in his/her behalf and that the statement of fact contained in said application are true.

Sworn to before me this 26 day
of November, 2019

P. Dehgan
Signature of the Owner

Jan Ahe
Notary Public

JULIANA ALZATE
NOTARY PUBLIC-STATE OF NEW YORK
No. 01JU6391574
Qualified in Westchester County
My Commission Expires 05-13-2023

Submit a flash drive and a total of three (3) sets (residential) or thirteen (13) sets, 11 copies and 2 original (commercial), of this application, with all necessary documents, plans, surveys, photographs, applicable checklists and any other data that you deem critical to make your case before the Planning Board.

VILLAGE OF HASTINGS-ON-HUDSON
Steep Slopes Application Checklist



Code Section	Code Section Provisions	Indicate how the provisions are addressed*
§ 249-7(1)	A detailed site plan of the property showing, at a scale of not less than 10 feet equals one inch, the applicant's entire property, the adjacent properties, and existing streets and showing the following information: (a) The location of all existing and proposed structures and paved surfaces on the applicant's property and any existing septic systems and wells on such property; (b) The location of the proposed area of disturbance on the applicant's property and its relation to neighboring properties' structures, roads, watercourses and wetlands; (c) The location on the applicant's property of all existing watercourses, wetlands, marshes, wooded areas, rock outcrops, single trees with a diameter of eight inches or more measured three feet above the base of the trunk, and all other significant existing land features; and (d) The existing grades on the applicant's property with contour lines at two-foot intervals and proposed grades within the area of the proposed construction or alteration.	AS PER: STLA PLAN ① S 1-0 "SITE DEVELOPMENT" ② AERIAL VIEW... PLAN" 11/06/19
§ 249-7(2)	A landscaping plan for the applicant's property, indicating proposed paved areas, storm drainage facilities, retaining walls and ground cover, as well as the location of trees and ornamental shrubs.	AS PER STLA PLAN S 1-1 "PLANTING PLAN"
§ 249-7(3)	Architectural plans, elevations, sections of the structures and related improvements.	N/A
§ 249-7(4)	A statement prepared by a licensed architect, registered landscape architect or engineer describing: (a) The methods to be used in overcoming foundation and other structural problems created by slope conditions, in preserving the natural watershed and in preventing soil erosion; (b) The methods to be used to eliminate or mitigate water runoff on all adjacent properties and any other property that will be naturally affected by increased water runoff; and (c) The methods used to minimize the impact of changes in topography on adjacent and nearby properties through landscaping, retaining walls and terracing of gardens	AS PER LETTER REPORT BY: ALP ENGINEERING 10/11/2019
§ 249-7(5)	A plan submitted under the seal of a licensed professional engineer showing and certifying the following: (a) All existing and proposed natural and artificial drainage courses and other features for the control of drainage, erosion and water. (b) The calculated volume of water runoff from the slope(s) and from the lot in question, as unimproved. (c) The calculated volume of water runoff from the slope(s) and from the lot in question, as improved. (d) The existence, location and capacity of all natural and artificial drainage courses and facilities within 500 feet of the lot which are or will be used to carry or contain the water runoff from the slope(s) and the lot.	AS PER LETTER REPORT BY: ALP ENGINEERING 10/11/2019
§ 249-7(6)	A statement made under the seal of a licensed professional engineer certifying that: (a) The proposed activity will disturb the steep slope area to the minimum extent possible; and (b) The proposed mitigation measure will prevent, to the maximum extent practical, the adverse effect of any disturbance of the steep slope area on the environment and any neighboring properties.	AS PER LETTER REPORT BY: ALP ENGINEERING 10/11/2019
§ 249-7(7)	Proof that all adjacent property owners have been notified of the steep slope application and of the Planning Board meeting at which it will be considered. Notice shall be provided in accordance with § 295-143C, except that only adjacent property owners need be notified.	VILLAGE OF HASTINGS
§ 249-7(8)	The Planning Board may, at its discretion, waive any of the requirements of Subsection A except Subsection A(7). <u>Indicate if any waivers are being requested</u>

*Indicate by notes such as, "see Note/Detail on Dwg #____", "See PE certification/note in the attached letter", or "NA", etc. where "NA" stands for "Not applicable".

Jackie Helms
Signature

11/24/2019 JACKIE HELMS LANDSCAPE ARCHITECT

Date

Name

Title



ALP Engineering
& Landscape Architecture, PLLC

October 11, 2019

Charles Minozzi, Jr.
Building Inspector
Village of Hastings-on-Hudson
7 Maple Avenue
Hastings-on-Hudson, NY 10706

**Re: Dehgan Residence
5 Riverview Place**

Dear Mr. Minozzi:

This revised letter report addresses the steep slope permit approval requirements with regard to stormwater management and runoff in accordance with Section 249-7 of the Code of the Village. The section of the Code is noted below and the response describes the plan details and calculations to address the requirements of the permit.

249-7. A. (4) A statement prepared by a licensed architect, registered landscape architect or engineer describing:

(b) The methods to be used to eliminate or mitigate water runoff on all adjacent properties and any other property that will be naturally affected by increased water runoff; and

Response: All of the runoff from the property is conveyed in a westward direction toward the property of the New York Central Railroad (i.e., the Hudson River Metro North tracks) which lies immediately to the west of the lot (see **Figure 1**, Site Location Map). A small portion of the property nearest to Riverview Place drains toward the catch basins within the cul-de-sac at the end of the street. This runoff is also conveyed toward the Hudson River Metro North tracks.

Calculations have been performed (see **Tables 1 and 2**) on the existing condition and future condition impervious surfaces and runoff from the property during the 100-year storm recurrence interval event, with a precipitation depth of 9.00 inches. The calculations show that the new construction will result in a small increase in the amount of impervious

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Charles Minozzi, Jr.
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surfaces. The increase is as a result of the construction of new masonry (bluestone or flagstone) surfaces, a wood deck for the existing pool (which will have crushed stone below the wood deck and therefore is not included as a new impervious surface, since precipitation that falls onto the deck will run off between the deck boards and percolate into the ground), and new planter bed walls.

The runoff from the rear yard of the property currently is conveyed to the west down the embankment toward the Metro North tracks. **Table 2** shows that the redevelopment of the property will result in an increase in the volume of runoff of 583.3 cubic feet.

To mitigate this increase in runoff, it is proposed to install six (6) Cultec 330XLHD chambers to collect runoff conveyed westward across the property and toward the slope. The four chambers will have a total storage volume of 689.4 cubic feet (see Cultec Stormwater Design Calculator sheets), or about 16.8% more than the existing runoff from the property, without taking into account any infiltration into the site soils. The proposed subsurface chambers will therefore infiltrate runoff into the site soils, reducing the volume of runoff to a value which will be below the existing volume of runoff for all storms up to the 100-year storm event.

249-7 (5) A plan submitted under the seal of a licensed professional engineer showing and certifying the following:

(a) All existing and proposed natural and artificial drainage courses and other features for the control of drainage, erosion and water.

There are three existing drain inlets located in the cul-de-sac of Riverview Place adjacent to the subject property. The three drain inlets collect runoff from the street pavement and convey the runoff toward the Metro North track bed. There are no natural or artificial drainage courses on the subject property.

As is noted above, four Cultec 330XLHD chambers are proposed to be installed on the property to control runoff from the property. Three drain inlet catch basins will be installed to collect runoff that sheet flows toward the proposed Unilock wall to be installed. The catch basins will direct the collected runoff into the chambers via subsurface storm drainage pipes.

(b) The calculated volume of water runoff from the slope(s) and from the lot in question, as unimproved.



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At the present time, the property is developed with a single family house, inground swimming pool, freestanding garage building and various walkways and decks. The impervious surfaces on the 29,132 square foot property are calculated to be 5,031 square feet.

The runoff curve number for the property was determined in accordance with the methodology of TR-55, "Urban Hydrology for Small Watersheds". In the existing condition, a runoff curve number of 49 was calculated for the property (see attached calculations). The depth of precipitation from storm events from information obtained from the Northeast Regional Climate Center is 8.90" for the 100-year storm. For these calculations, the 100-year storm precipitation depth is rounded to 9.00 inches.

Based on a curve number of 49, the depth of runoff during the 100-year storm event is calculated to be 2.17" (see HydroCAD calculations). The volume of runoff discharged from the property at present during the 100-year storm event is therefore (29,132 s.f. x 2.17") 0.121 acre-feet, or 5,268 cubic feet.

(c) The calculated volume of water runoff from the slope(s) and from the lot in question, as improved.

With the proposed site modifications, the calculations of the runoff have been updated. A runoff curve number of 51 was calculated for the property as improved.

Based on a curve number of 51, the depth of runoff from 9.00 inches of precipitation is calculated to be 2.29". The volume of runoff from the site during the 100-year storm event is calculated to be (29,132 s.f. x 2.29") 0.128 acre-feet, or 5,559 cubic feet, or an increase of 291.3 cubic feet.

Four (4) Cultec 330XLHD chambers will be installed in the rear yard of the property. Based on stone invert elevation of 90.96 feet and an invert out elevation of 93.25 feet (see drawing C-101), the total height of water in the Cultec system would be (93.25' – 90.96') 2.29 feet, or 27.5 inches above the stone invert elevation. Review of the Cultec Stage-Storage chart show that the total cumulative storage volume at 27.5" of water height in the installed Cultec system would be about 295 cubic feet *without regard to any soil infiltration*. According to the mapping of the USDA Soil Conservation Service, the soils on the property consist of Knickerbocker fine sandy loam in the upper portion of the property, and Riverhead loam in the western, sloped portion of the property. Both of these soils are in Hydrologic Soils Group A, which have a very high infiltration rate.



As a result, without taking into account infiltration, the volume of runoff discharged from the property in the future condition from the 100-year storm would be (5,559 c.f. – 295 c.f.) 5,264 cubic feet, or about 4 cubic feet *less* than in the current condition. We would also anticipate that the proposed Cultec chambers will infiltrate a significant amount of the runoff conveyed to them (due to the high infiltration rate soils into which they will be installed) and that the actual volume of runoff discharged from the property would be less than the 5,264 cubic feet calculated above.

(d) The existence, location and capacity of all natural and artificial drainage courses and facilities within 500 feet of the lot which are or will be used to carry or contain the water runoff from the slope(s) and the lot.

As is noted above, there are three curb inlet catch basins located at the westerly end of Riverview Place. These catch basins, due to their location, also would convey flow in storm drainage pipes down the slope toward the Metro North tracks. It was not feasible due to fencing and other safety barriers to review any drainage facilities adjacent to the Metro North railroad tracks, nor is it safe to walk along adjacent to the railroad tracks to investigate the location of the discharge of these pipes. It is assumed that their likely location is immediately adjacent to the tracks.

(6) A statement made under the seal of a licensed professional engineer certifying that:

(a) The proposed activity will disturb the steep slope area to the minimum extent possible; and

The proposed disturbance is to be located at the crest of the slope and will extend for only a short distance down the slope. The remainder of the slope on the property down to the lands of the New York Central Railroad will not be disturbed.

Retaining walls will be constructed to ensure that runoff from the rear yard does not continue to discharge down the slope unmanaged. In addition, the landscape architect's plan proposes to install boulders to retain soil and in the area between the retaining wall and the northern property line. Erosion control plantings will also be installed to stabilize the disturbed ground. In summary, the proposed activity will disturb the minimum extent of steep slopes, and the disturbed slope will be protected by walls, boulder terracing, and erosion control plantings.



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- (b) *The proposed mitigation measure will prevent, to the maximum extent practical, the adverse effect of any disturbance of the steep slope area on the environment and any neighboring properties.*

As is noted above, measures are proposed to prevent, to the maximum extent practical, adverse impacts to the steep slope area. Retaining walls will serve to block the unmanaged runoff from the rear yard down the slope. Runoff will be collected in catch basins and conveyed to a subsurface infiltration facility which has been sized to collect and infiltrate into the site's soils the increase in the volume of runoff from the 100-year storm event. As a result, for all storm events up to the 100-year storm, the volume of runoff being discharged down the slope will be less than at present. This will have a beneficial impact on the slope, since the unmanaged runoff will no longer be discharged onto the steep slope.

Should you have any questions regarding this analysis, please call me on my direct line at (475) 215-5343.

Sincerely,

ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC

Alan L. Pilch, P.E., R.L.A.
Principal

cc: Pouria Dehgan
Jackie Helms



ATTACHMENTS
Site Location Map
Tables
Cultec Stormwater Design Calculator
HydroCAD Printouts

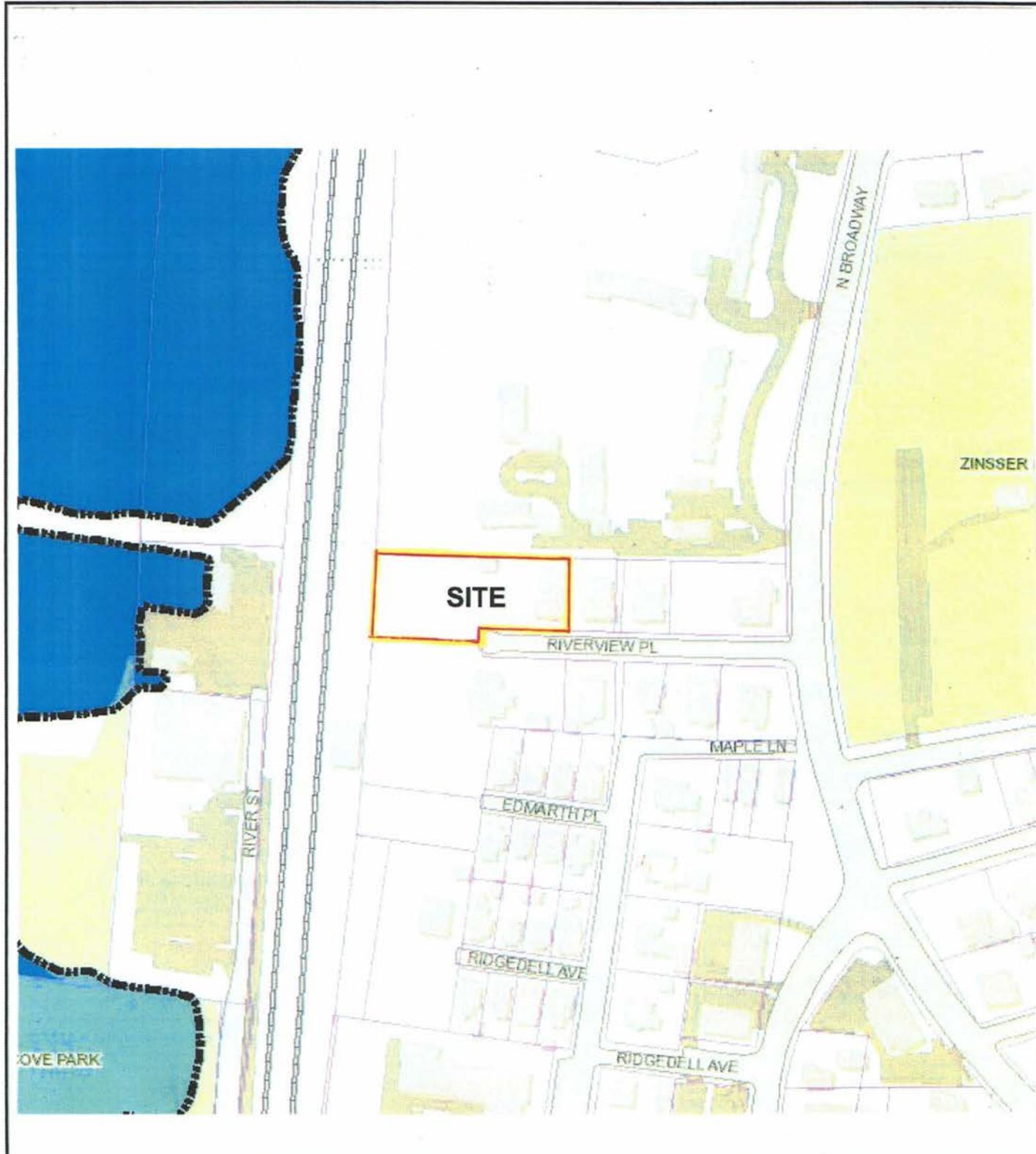


Figure 1
SITE LOCATION MAP
Scale: Not to Scale

Table 1
5 Riverview Place
Existing and Future Condition Impervious Surfaces

FUTURE CONDITION IMPERVIOUS SURFACES

	AREA (in sq feet)
<u>UPPER AREA OF LOT</u>	
House	1,577
Roof Over Porch	420
Deck Over Masonry	187
Deck Over Masonry	102
Steps	41
Walk	254
Steps	49
Landing	49
Flagstone Pavers	24
Steps	33
Walk	120
Pool	792
Steps at Pool	54
Pad	8
Wall	29
Garage	515
Crushed Stone at Garage	23
Walk	14
Flagstone Area	255
Flagstone Patio	402
Walk	19
Gravel Surface Area	321
Wall	172
Wall	139
Steps	60
Driveway	157
Driveway Curb	26
Driveway Cobble Apron	85
Driveway Curb	8
Shed	18
TOTAL	5,953

	AREA (in sq feet)
<u>STEEP SLOPE AREA OF LOT</u>	
Steps	0
Concrete Rip Rap	0
TOTAL	0

NOTE:

50% credit is taken for surfaces that will be installed over pervious ground (i.e. crushed stone) or will be crushed stone/gravel in the future.

Table 2
5 Riverview Place
Runoff Depth Calculation - Existing and Future Condition

SITE AREA = 29,132 SF

100 YEAR STORM EVENT

EXISTING CONDITION

Enter the values for the following:

CN, curve no. =	49
P, Precip. =	9.00 inches

The depth of the runoff in inches is the following:

Q, runoff =	2.17 inches of runoff
	0.1808 feet of runoff

Q, runoff =	5,268 cubic feet
	0.1209 acre-feet

FUTURE CONDITION

Enter the values for the following:

CN, curve no. =	51
P, Precip. =	9.00 inches

The depth of the runoff in inches is the following:

Q, runoff =	2.29 inches of runoff
	0.1908 feet of runoff

Q, runoff =	5,559 cubic feet
	0.1276 acre-feet

Change in Runoff =	0.12 inches
Volume increase =	291.3 cubic feet

Storage in Cultec Chambers =	295.0 cubic feet
Net Future Condition Runoff =	5,264 cubic feet
Change in Runoff =	-4 cubic feet



EX CONDITION



FUTURE CONDITION



Routing Diagram for 5 Riverview Place SW_10-11-2019
Prepared by ALP Engineering & Land. Arch. PLLC, Printed 10/14/2019
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5 Riverview Place SW_10-11-2019

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.085	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.115	98	Unconnected impervious, HSG A (1S)
0.137	98	Unconnected pavement, HSG A (2S)
1.338	50	TOTAL AREA

5 Riverview Place SW_10-11-2019

Prepared by ALP Engineering & Land. Arch. PLLC

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Printed 10/14/2019

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.085	0.000	0.000	0.000	0.000	1.085	>75% Grass cover, Good	1S, 2S
0.115	0.000	0.000	0.000	0.000	0.115	Unconnected impervious	1S
0.137	0.000	0.000	0.000	0.000	0.137	Unconnected pavement	2S
1.338	0.000	0.000	0.000	0.000	1.338	TOTAL AREA	

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX CONDITION

Runoff Area=29,132 sf 17.27% Impervious Runoff Depth=2.17"
Tc=6.0 min UI Adjusted CN=44 Runoff=1.49 cfs 0.121 af

Subcatchment 2S: FUTURE CONDITION

Runoff Area=29,132 sf 20.43% Impervious Runoff Depth=2.29"
Tc=6.0 min UI Adjusted CN=45 Runoff=1.59 cfs 0.128 af

**Total Runoff Area = 1.338 ac Runoff Volume = 0.249 af Average Runoff Depth = 2.23"
81.15% Pervious = 1.085 ac 18.85% Impervious = 0.252 ac**

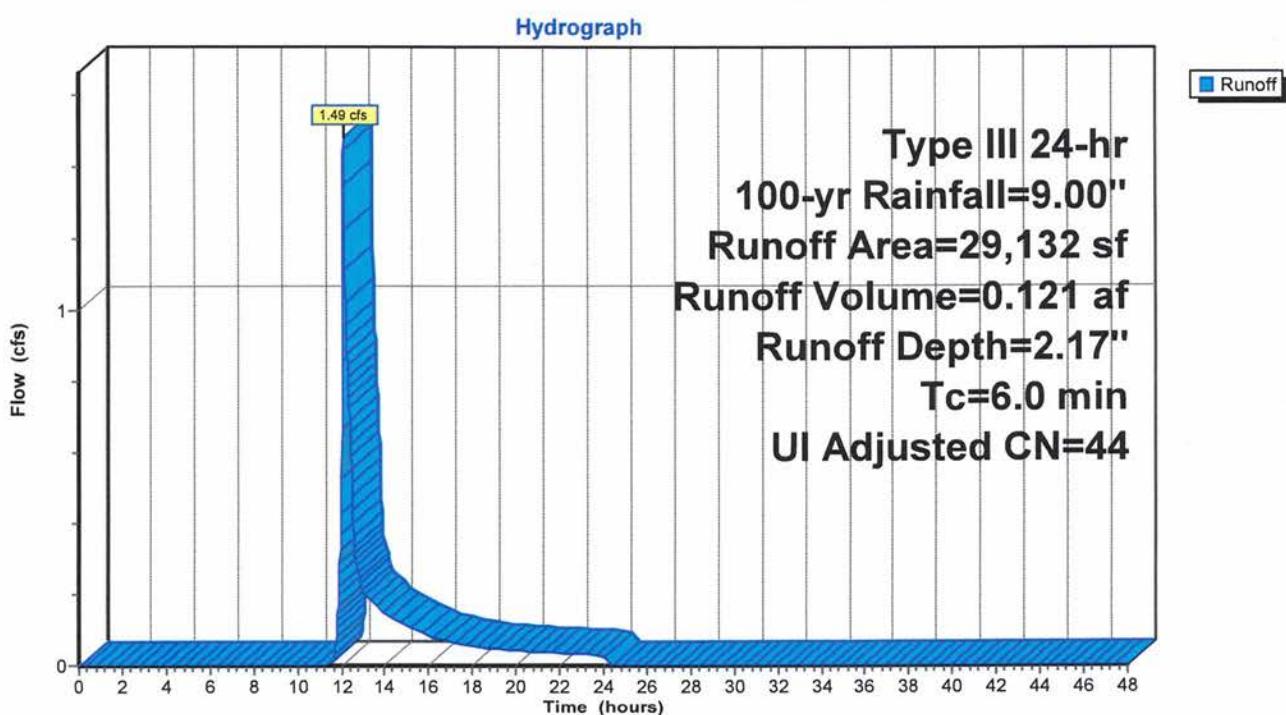
Summary for Subcatchment 1S: EX CONDITION

Runoff = 1.49 cfs @ 12.10 hrs, Volume= 0.121 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
 Type III 24-hr 100-yr Rainfall=9.00"

Area (sf)	CN	Adj	Description
* 5,031	98		Unconnected impervious, HSG A
24,101	39		>75% Grass cover, Good, HSG A
29,132	49	44	Weighted Average, UI Adjusted
24,101			82.73% Pervious Area
5,031			17.27% Impervious Area
5,031			100.00% Unconnected
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)
Capacity (cfs)			Description
6.0			Direct Entry,

Subcatchment 1S: EX CONDITION



Summary for Subcatchment 2S: FUTURE CONDITION

Runoff = 1.59 cfs @ 12.10 hrs, Volume= 0.128 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
 Type III 24-hr 100-yr Rainfall=9.00"

Area (sf)	CN	Adj	Description
5,953	98		Unconnected pavement, HSG A
23,179	39		>75% Grass cover, Good, HSG A
29,132	51	45	Weighted Average, UI Adjusted
23,179			79.57% Pervious Area
5,953			20.43% Impervious Area
5,953			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: FUTURE CONDITION

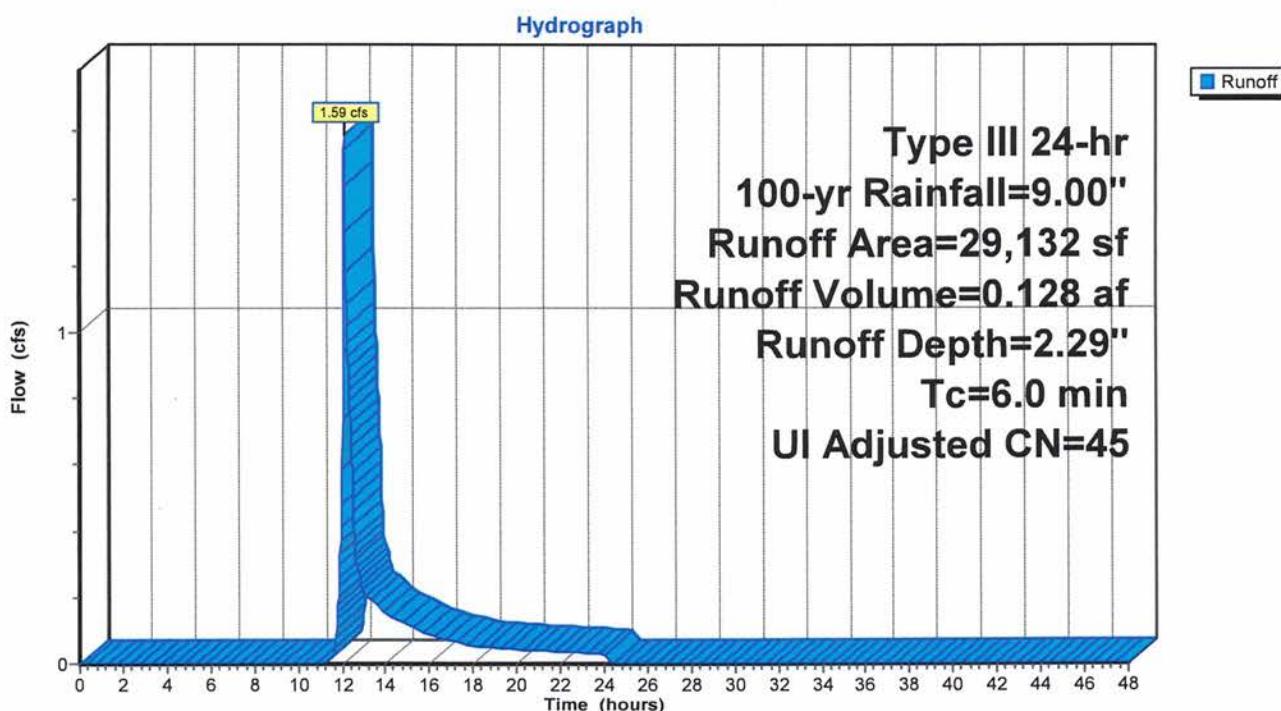


Table 1
5 Riverview Place
Existing and Future Condition Impervious Surfaces

EXISTING CONDITION IMPERVIOUS SURFACES

	AREA (in sq feet)
<u>UPPER AREA OF LOT</u>	
House	1,577
Walk	574
Steps/Patio	82
Steps	49
Porch with Roof Over	423
Deck over Masonry	188
Deck over Masonry	102
Pool	795
Wall	29
Wall	5
Garage	515
Compacted Stone Dust Area	165
Steps/Walk	60
Base	7
Gravel Driveway Parking area	163
Curb	12
TOTAL	4,746

	AREA (in sq feet)
<u>STEEP SLOPE AREA OF LOT</u>	
Steps	13
Concrete Rip Rap	272
TOTAL	285



CULTEC Stormwater Design Calculator

Please Fill in the Shaded Cells

Project Information:

Project Name
Address
City
State/Province
ZIP/Postal Code
Country

Dehgan Property
5 Riverview Place
Hastings-on-Hudson
New York

Calculations Performed By:

Date:
October 14, 2019
Project Number:

Name
Company Name
Address
City
State/Province
ZIP/Postal Code
Country
Phone
Email

Alan Pillich, PE
ALP Engineering & Land. Arch. PLLC
P.O. Box 843
Ridgefield
CT
06877
(475) 215-5343
alan@eaec-inc.com

Input Project Requirements

Unit of Measure
Select Model

Imperial
Recharger 330XLHD

Stone Porosity
Number of HVLV Internal Manifolds
Stone Depth **Above** Chamber
Stone Depth **Below** Chamber
Stone Between Chamber Rows
 Include Separator Row
Workable Bed Depth
Max. Bed Width
Storage Volume Required
Stone Base Elevation

40%
2 Internal Manifolds
12 inches
6 inches
6 inches
<input type="checkbox"/>
10.00 feet
10.00 feet
360.00 cu. feet
90.96 feet

Additional Information:

Other models are available if products above do not meet your requirements. Contact CULTEC for further design assistance.
Call CULTEC at 203-775-4416 for pricing information.

Hyperlinks to product specific webpages:

Please visit our website for more information such as CAD details, spec information, brochures, installation instructions, and other design tools on certain models.

[Contractor Field Drain C-4HD](#)
[Contractor 100HD](#)
[Recharger 150XLHD](#)
[Recharger 180HD](#)

[HVLV SFCx2 Feed Connector](#)
[HVLV FC-24 Feed Connector](#)
[HVLV FC-48 Feed Connector](#)

[Recharger 280HD](#)
[Recharger 330XLHD](#)
[Recharger 360HD](#)
[Recharger 902HD](#)

For design assistance, drawings and pricing
send these calculations to:
mailto:tech@cultec.com

Website:
www.cultec.com



CULTEC Stormwater Design Calculator

Date:	October 14, 2019
Project Information:	
Degen Property 5 Riverview Place Hastings-on-Hudson New York	

Calculations Performed By:	
Alan Pillich, PE ALP Engineering & Land. Arch. PLLC P.O. Box 843 Ridgefield CT 06877	
(475) 215-5343 alan@eaec-inc.com	

RECHARGER 330XLHD



Recharger 330XLHD Chamber Specifications

Height	30.5	inches
Width	52.0	inches
Length	8.50	feet
Installed Length	7.00	feet
Bare Chamber Volume	52.21	cu. feet
Installed Chamber Volume	86.03	cu. feet

Breakdown of Storage Provided by Recharger 330XLHD Stormwater System

Within Chambers	220.04	cu. feet
Within Feed Connectors	-	cu. feet
Within Stone	234.51	cu. feet
Total Storage Provided	454.5	cu. feet

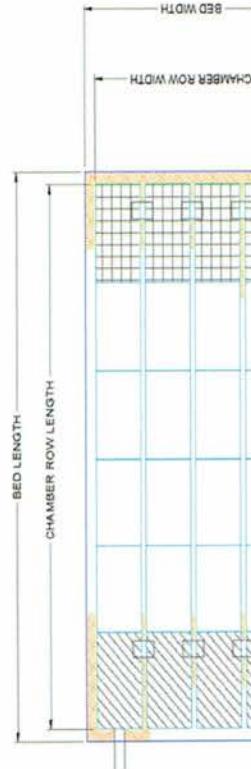
Total Storage Required 360.00 cu. feet

Materials List

Recharger 330XLHD

Total Number of Chambers Required	4	pieces
Starter Chambers	1	pieces
Intermediate Chambers	2	pieces
End Chambers	1	pieces
HVL FC-24 Feed Connectors	0	pieces
CULTEC No. 410 Non-Woven Geotextile	98	sq. yards
CULTEC No. 4800 Woven Geotextile	13	feet
Stone	22	cu. yards

Bed Detail

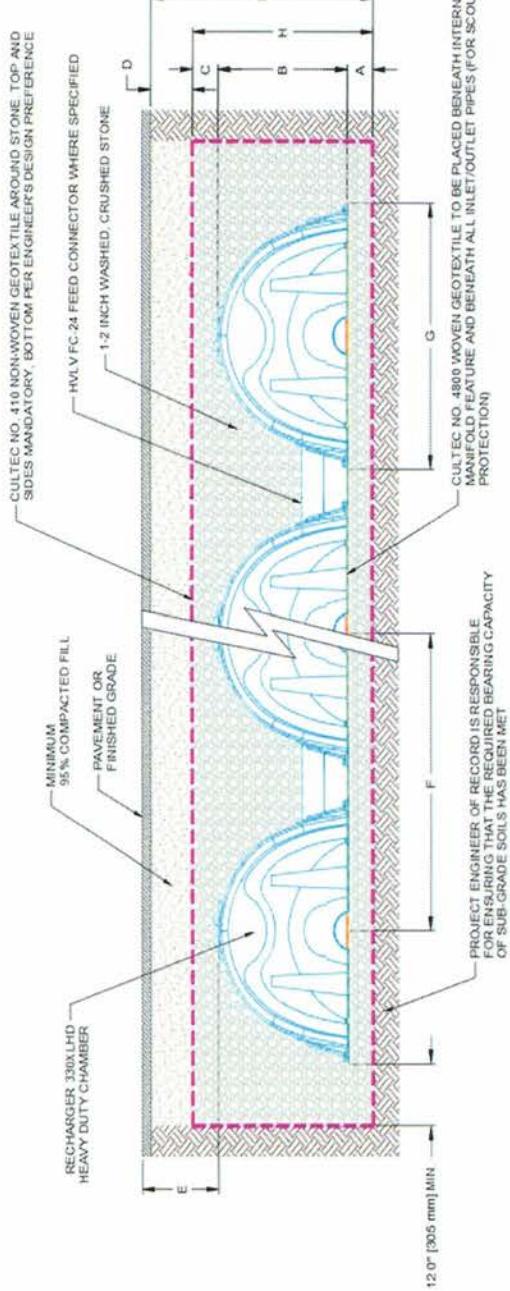


Number of Rows Wide	1	pieces
Number of Chambers Long	4	pieces
Chamber Row Width	4.33	feet
Chamber Row Length	29.50	feet
Bed Width	6.33	feet
Bed Length	31.50	feet

Bed Area Required	199.50	sq. feet
Length of Separator Row	N/A	



Bed detail for reference only. Not project specific. Not to scale.



Conceptual graphic only. Not job specific.

Cross Section Table Reference

A	Depth of Stone Base	6.0	inches
B	Chamber Height	30.5	inches
C	Depth of Stone Above Units	12.0	inches
D	Depth of 95% Compacted Fill	10.0	inches
E	Max. Depth Allowed Above the Chamber	12.00	feet
F	Chamber Width	52.0	inches
G	Center to Center Spacing	4.83	feet
H	Effective Depth	4.04	feet
I	Bed Depth	4.88	feet



CULTEC Stage-Storage Calculations

Date:	October 14, 2019
Project Information:	
DeBerg Property	
5 Riverview Place	
Hastings-on-Hudson	
New York	

Project Number:
0

Chamber Model -	
Number of Rows-	1
Total Number of Chambers -	4
HV/LV Feed Connectors -	0
Stone Void -	40 %
Stone Base -	6 inches
Stone Above Units -	12 inches
Area -	199.50 ft ²
Base of Stone Elevation -	90.96

Recharger 330XLHD	
units	
units	
units	
%	
inches	
inches	
ft ²	
90.96	

Recharger 330XLHD Incremental Storage Volumes

Height of System in	Chamber Volume ft ³	HV/LV Feed Connector Volume ft ³	Stone Volume m ³	Cumulative Storage Volume m ³	Total Cumulative Storage Volume m ³	Elevation ft.	Elevation m
48.5	1232	0.0	0.0	6.7	0.2	6.650	92.119
47.5	1207	0.0	0.0	6.7	0.2	6.650	92.117
46.5	1181	0.0	0.0	6.7	0.2	6.650	92.114
45.5	1156	0.0	0.0	6.7	0.2	6.650	92.112
44.5	1130	0.0	0.0	6.7	0.2	6.650	92.099
43.5	1105	0.0	0.0	6.7	0.2	6.650	92.090
42.5	1080	0.0	0.0	6.7	0.2	6.650	92.080
41.5	1054	0.0	0.0	6.7	0.2	6.650	92.070
40.5	1029	0.0	0.0	6.7	0.2	6.650	91.990
39.5	1003	0.0	0.0	6.7	0.2	6.650	91.950
38.5	978	0.0	0.0	6.7	0.2	6.650	91.944
37.5	953	0.0	0.0	6.7	0.2	6.650	91.911
36.5	927	0.0	0.0	3.3	0.1	3.327	91.899
36.0	914	0.6	0.0	6.4	0.2	6.986	91.877
35.0	889	1.5	0.0	0.0	0.2	7.553	91.855
34.0	864	2.5	0.1	0.0	0.2	8.137	91.822
33.0	838	3.7	0.1	0.0	0.2	8.845	91.800
32.0	813	4.4	0.1	0.0	0.1	9.305	91.777
31.0	787	5.1	0.1	0.0	0.1	9.712	91.754
30.0	762	5.6	0.2	0.0	0.1	10.031	91.722
29.0	737	6.1	0.2	0.0	0.1	10.314	91.700
28.0	711	6.5	0.2	0.0	0.1	10.562	91.677
27.0	686	6.9	0.2	0.0	0.1	10.774	91.655
26.0	660	7.2	0.2	0.0	0.1	10.969	91.630
25.0	635	7.5	0.2	0.0	0.1	11.146	91.600
24.0	610	7.8	0.2	0.0	0.1	11.323	91.577

Recharger 330XLHD Incremental Storage Volumes

Height of System in	Chamber Volume m ³	HvLV Feed Connector Volume ft ³	Stone Volume			Cumulative Storage Volume m ³	Total Cumulative Storage Volume ft ³	Elevation ft	Elevation m			
			ft ³	m ³	ft ³							
23.0	584	8.0	0.2	0.0	3.5	0.1	11.447	0.3	245.77	6.96	92.880	91.54
22.0	559	8.3	0.2	0.0	3.3	0.1	11.659	0.3	234.32	6.64	92.790	91.52
21.0	533	8.7	0.2	0.0	3.2	0.1	11.854	0.3	222.66	6.31	92.710	91.49
20.0	508	8.7	0.2	0.0	3.2	0.1	11.889	0.3	210.81	5.97	92.630	91.47
19.0	483	8.8	0.2	0.0	3.1	0.1	11.942	0.3	198.92	5.63	92.540	91.44
18.0	457	8.9	0.3	0.0	3.1	0.1	11.978	0.3	186.98	5.29	92.460	91.42
17.0	432	8.9	0.3	0.0	3.1	0.1	12.013	0.3	175.00	4.96	92.380	91.39
16.0	406	9.0	0.3	0.0	3.1	0.1	12.031	0.3	162.99	4.62	92.290	91.37
15.0	381	9.0	0.3	0.0	3.0	0.1	12.066	0.3	150.96	4.27	92.210	91.34
14.0	356	9.2	0.3	0.0	3.0	0.1	12.190	0.3	138.89	3.93	92.130	91.32
13.0	330	9.5	0.3	0.0	2.9	0.1	12.332	0.3	126.70	3.59	92.040	91.29
12.0	305	9.5	0.3	0.0	2.9	0.1	12.349	0.3	114.37	3.24	91.960	91.26
11.0	279	9.5	0.3	0.0	2.8	0.1	12.367	0.4	102.02	2.89	91.880	91.24
10.0	254	9.6	0.3	0.0	2.8	0.1	12.385	0.4	89.65	2.54	91.790	91.21
9.0	229	9.6	0.3	0.0	2.8	0.1	12.403	0.4	77.27	2.19	91.710	91.19
8.0	203	9.6	0.3	0.0	2.8	0.1	12.438	0.4	64.86	1.84	91.630	91.16
7.0	178	9.8	0.3	0.0	2.7	0.1	12.526	0.4	52.43	1.48	91.540	91.14
6.0	152	0.0	0.0	0.0	6.7	0.2	6.650	0.2	39.90	1.13	91.460	91.11
5.0	127	0.0	0.0	0.0	6.7	0.2	6.650	0.2	33.25	0.94	91.380	91.09
4.0	102	0.0	0.0	0.0	6.7	0.2	6.650	0.2	26.60	0.75	91.290	91.06
3.0	76	0.0	0.0	0.0	6.7	0.2	6.650	0.2	19.95	0.56	91.210	91.04
2.0	51	0.0	0.0	0.0	6.7	0.2	6.650	0.2	13.30	0.38	91.130	91.01
1.0	25	0.0	0.0	0.0	6.7	0.2	6.650	0.2	6.65	0.19	91.040	90.99
0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	90.960	90.96

Bottom of Chamber Elevation
Bottom of Stone Elevation

N/F THE NEW YORK CENTRAL RAILROAD
(HUDSON RIVER DIVISION)

UPPER AREA OF LOT	
House	1,577
Walk	574
Steps/Patio	82
Steps	49
Porch with Roof Over	423
Deck over Masonry	188
Deck over Masonry	102
Pool	272
Wall	795
Wall	29
Garage	515
Compacted Stone Dust Area	165
Steps/Walk	60
Base	7
Gravel Driveway Parking area	163
Curb	12
TOTAL	4,746

STEEP SLOPE AREA OF LOT	
AREA	(in sq feet)
Steps	13
Concrete Rip Rap	272
TOTAL	285

Scale: 1" = 20 feet

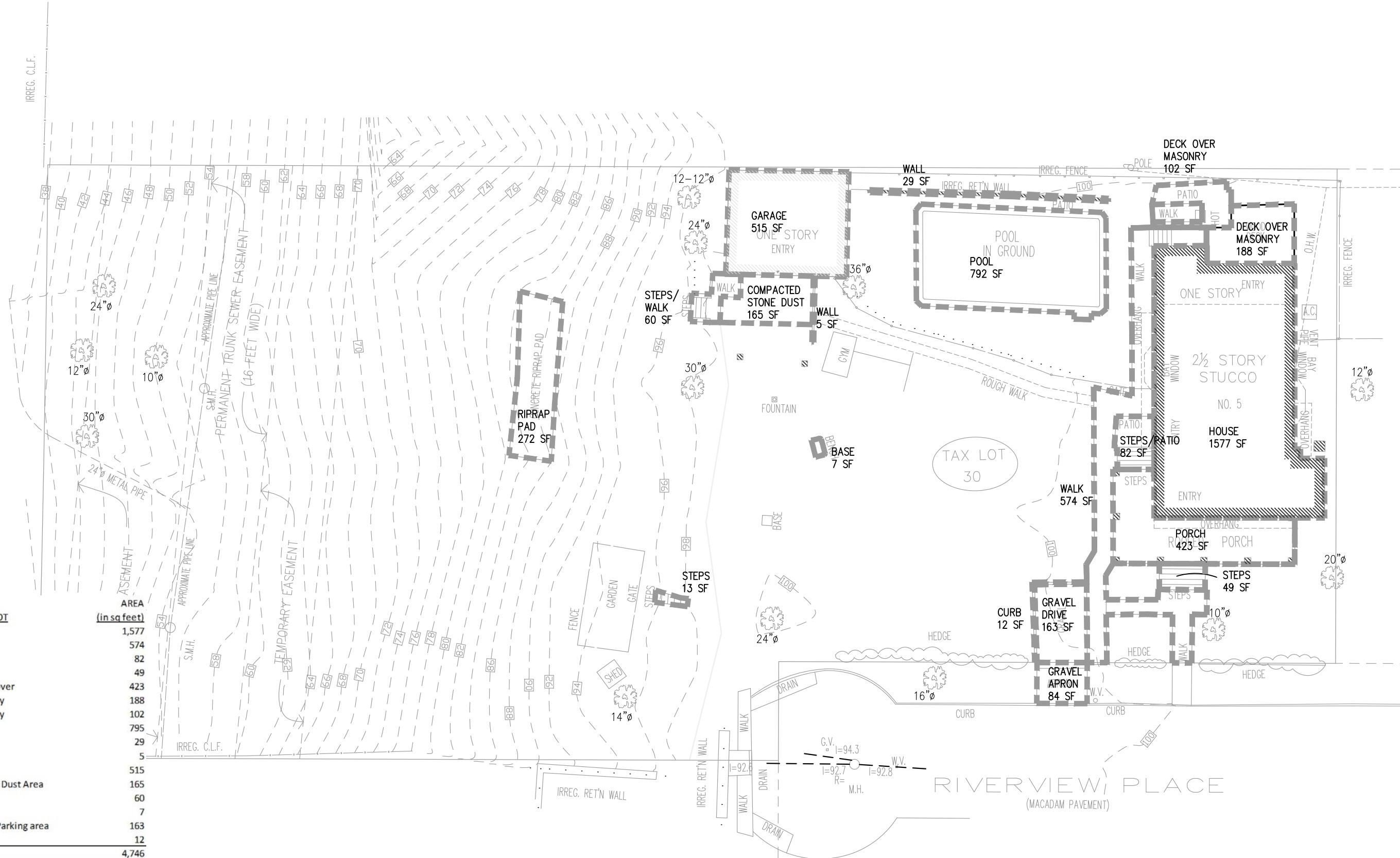
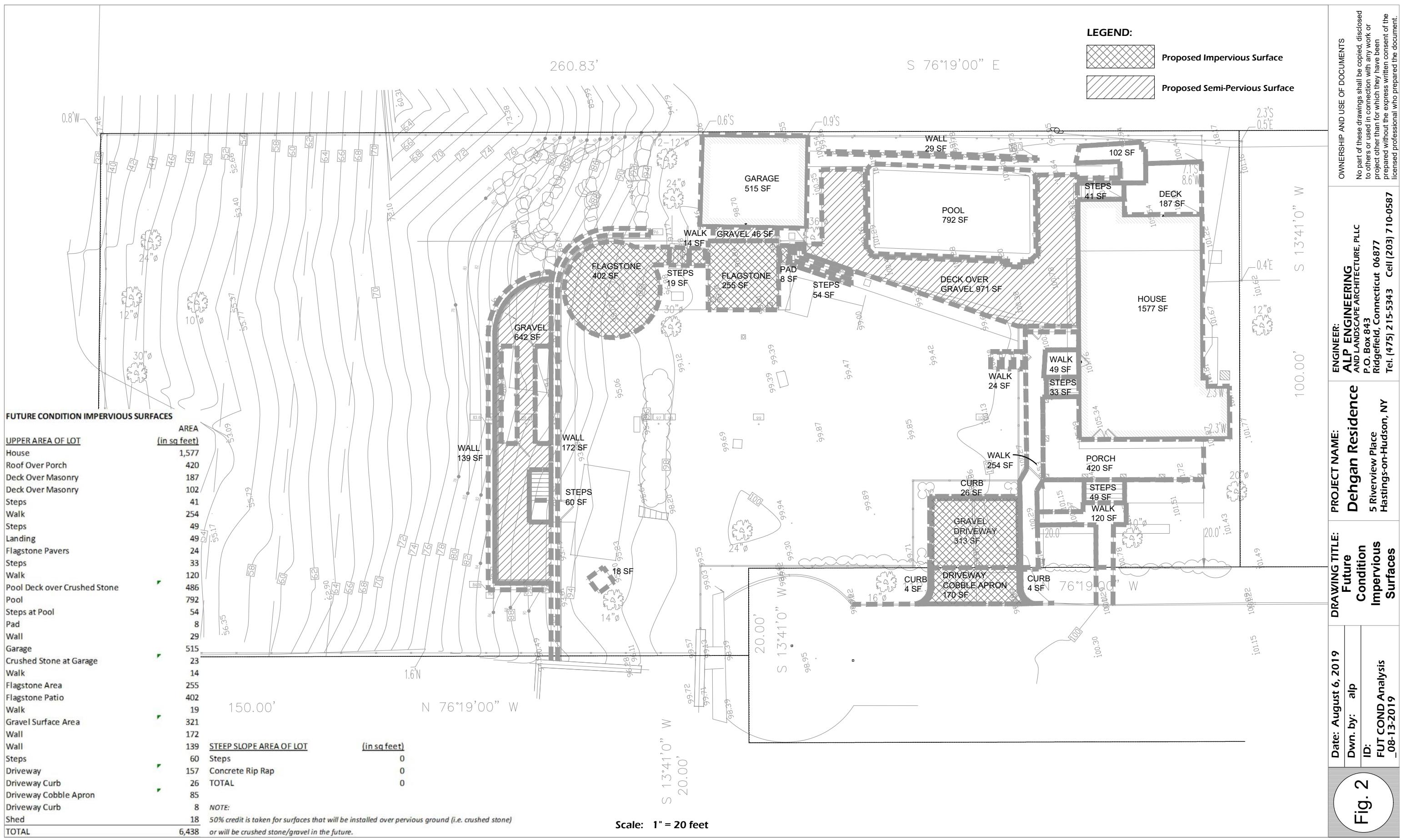


Fig. 1

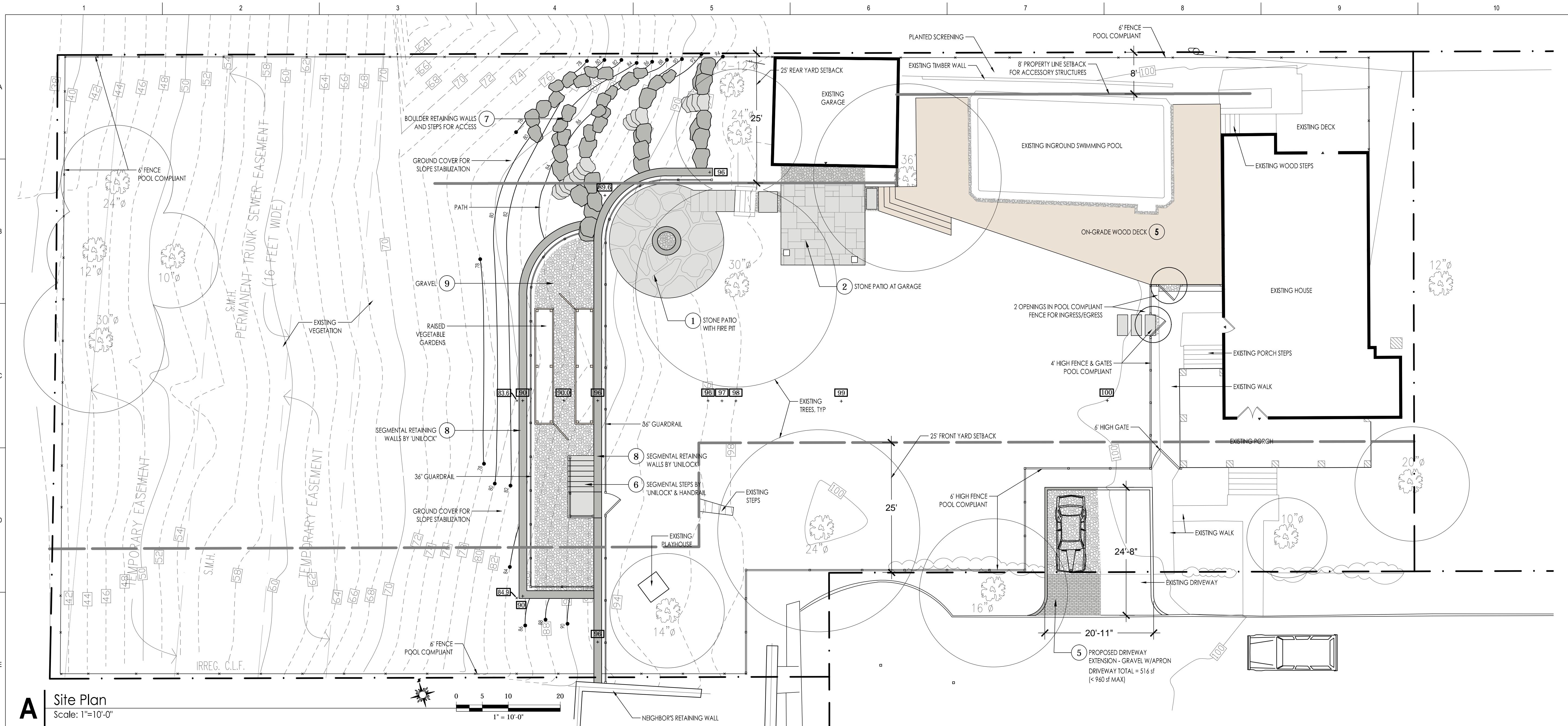
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Date: August 6, 2019	PROJECT NAME: Dehgan Residence	ENGINEER: ALP ENGINEERING
Dwn. by: alp	Existing Condition	AND LANDSCAPE ARCHITECTURE, PLLC
ID: XCOND Analysis_07-2019	Impervious Surfaces	P.O. Box 843 Ridgefield, Connecticut 06877 Tel. (475) 215-5343 Cell (203) 710-0587



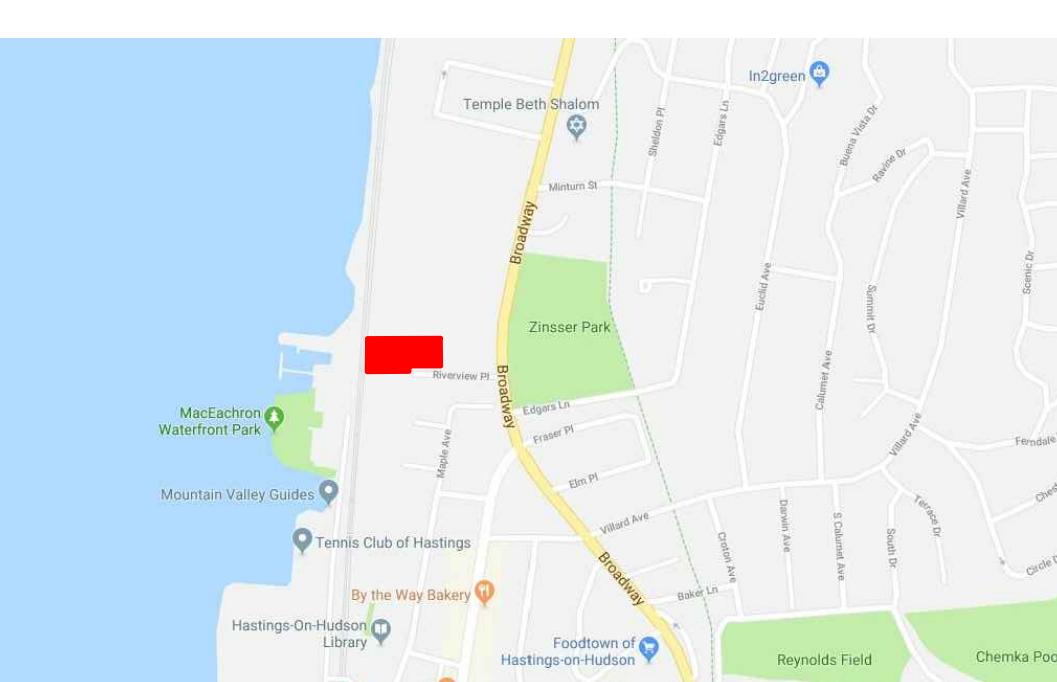
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Surveyor:

Base Information taken from survey
provided by client

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Sean Janczki ASLA LEED AP
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No.	Date	Revision Information
1	8/13/19	Comments in response to Charles Mozzo comment via email on 7/30/2019, and adjustment to pool deck layout
2	11/6/19	Revisions / submission

**B Vicinity Map**

Not to Scale

**C Aerial Map**

Not to Scale

EXISTING CONDITIONS PHOTO**BUILDING COVERAGE: District 2R**

ITEM	EXISTING	PROPOSED	ALLOWED
Property	29,156 sf	29,156 sf	
Coverage	2,093 sf	2,093 sf	8,747 sf
Percentage	7.2 %	7.2 %	30 %

DEVELOPMENT COVERAGE: District 2R

ITEM	EXISTING	PROPOSED	ALLOWED
Property	29,156 sf	29,156 sf	
Coverage	4,570 sf	7,830 sf *	11,662 sf
Percentage	15.7 %	27 %	40 %

* Proposed Development Coverage includes

TOTAL NEW CONSTRUCTION = 3,260 sf

- ① Stone patio with fire pit (380sf)
- ② Stone patio at garage (300sf)
- ③ On-grade wood deck (950sf)
- ④ Lawn Stepstones (30sf)
- ⑤ Gravel driveway extension (240sf)
- ⑥ Masonry steps at wall (60sf)
- ⑦ Boulder retaining walls (approx 250sf)
- ⑧ Segmental retaining walls (300sf)
- ⑨ Gravel at vegetable garden (750sf)

TOTAL EXISTING COVERAGE = 4,570 sf

TOTAL PROPOSED COVERAGE = NEW + EXISTING = *7,830 sf

LEGEND

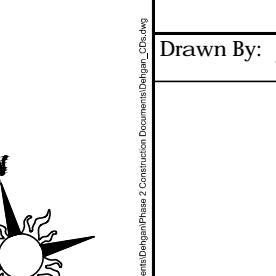
—	PROPERTY LINE
- - -	EXISTING CONTOURS (FROM SURVEY)
—	PROPOSED CONTOUR MEETS EXISTING
—	6' CHAIN LINK OR MESH FENCE
—	4' AND 6' METAL PICKET FENCE
—	SEGMENTAL RETAINING WALL BY 'UNILOCK'
—	STONE PAVEMENT
—	WOOD DECKING
—	LOOSE GRAVEL
—	GROUND COVER FOR SLOPE STABILIZATION

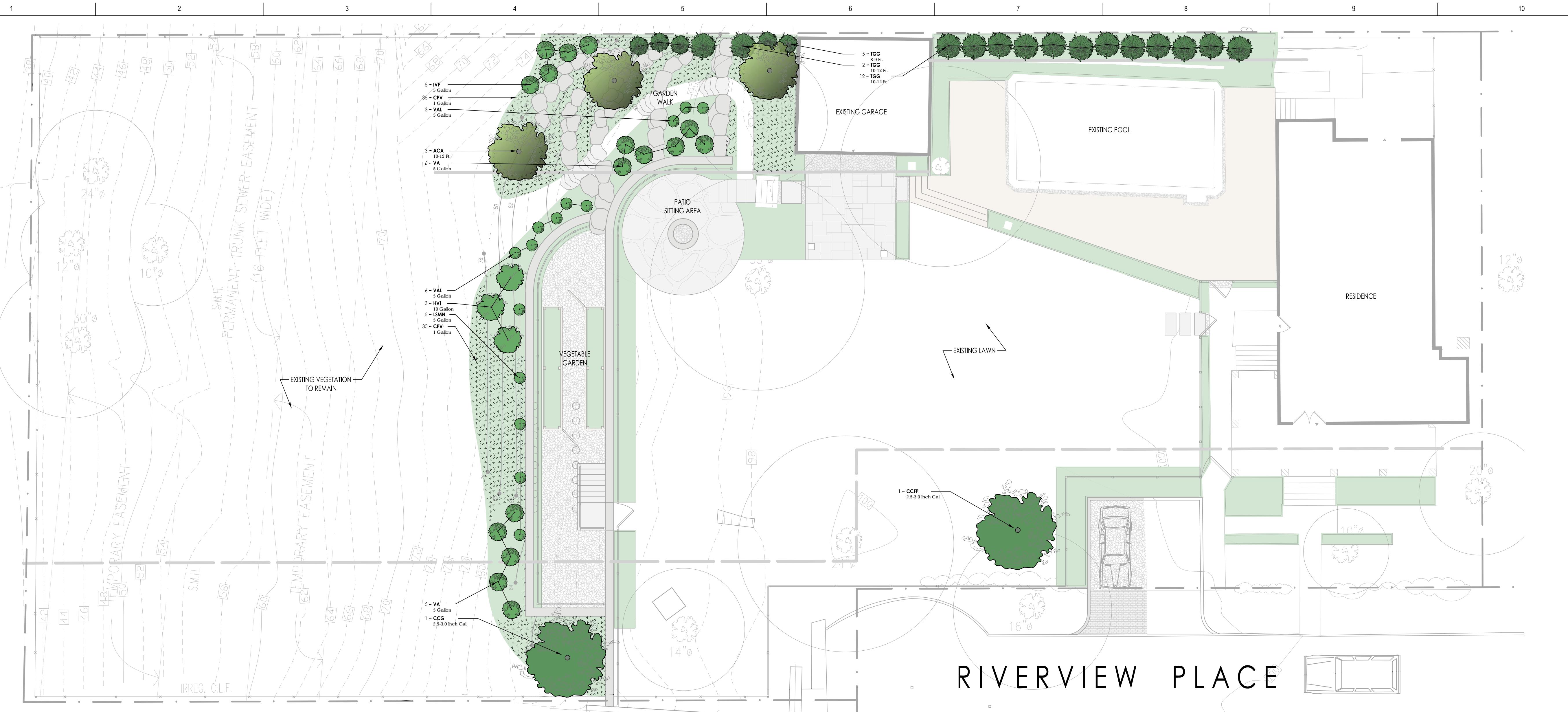
S1-0

Scale: As Noted Date: April 29, 2019

Site Development Plan

for
Dehgan Residence
5 Riverview Place
Hastings on Hudson, NY





PLANT LIST

3 ACA	Amelanchier canadensis	Shadbush	10-12 Ft.	Flowering Tree
1 CCP	Cercis canadensis 'Forest Pansy'	Redbud	2.5-3.0 Inch Cal.	Flowering Tree
1 CCGI	Crataegus crus-galli 'Imnis'	Thornless Cockspur Hawthorn	2.5-3.0 Inch Cal.	Flowering Tree
6 CPV	Carex pumila	Penns. Sedge	1 Gallon	Groundcover
3 IYF	Lonicera xylosteum	Fall Witch Hazel	10 Gallon	Flowering Shrub
5 INF	Ilex verticillata, female	Winterberry	5 Gallon	Flowering Shrub
5 LSMN	Lonicera sempervirens	Trumpet Honeysuckle	5 Gallon	Vine/Groundcover
14 TGG	Thuja standishii x plicata 'Green Giant'	Green Giant Arborvitae	10-12 Ft.	Evergreen
5 TGG	Thuja standishii x plicata 'Green Giant'	Green Giant Arborvitae	8-9 Ft.	Evergreen
11 VA	Viburnum cassinoides	Mapleleaf Viburnum	5 Gallon	Flowering Shrub
9 VAL	Vaccinium angustifolium	Lowbush Blueberry	5 Gallon	Flowering Shrub

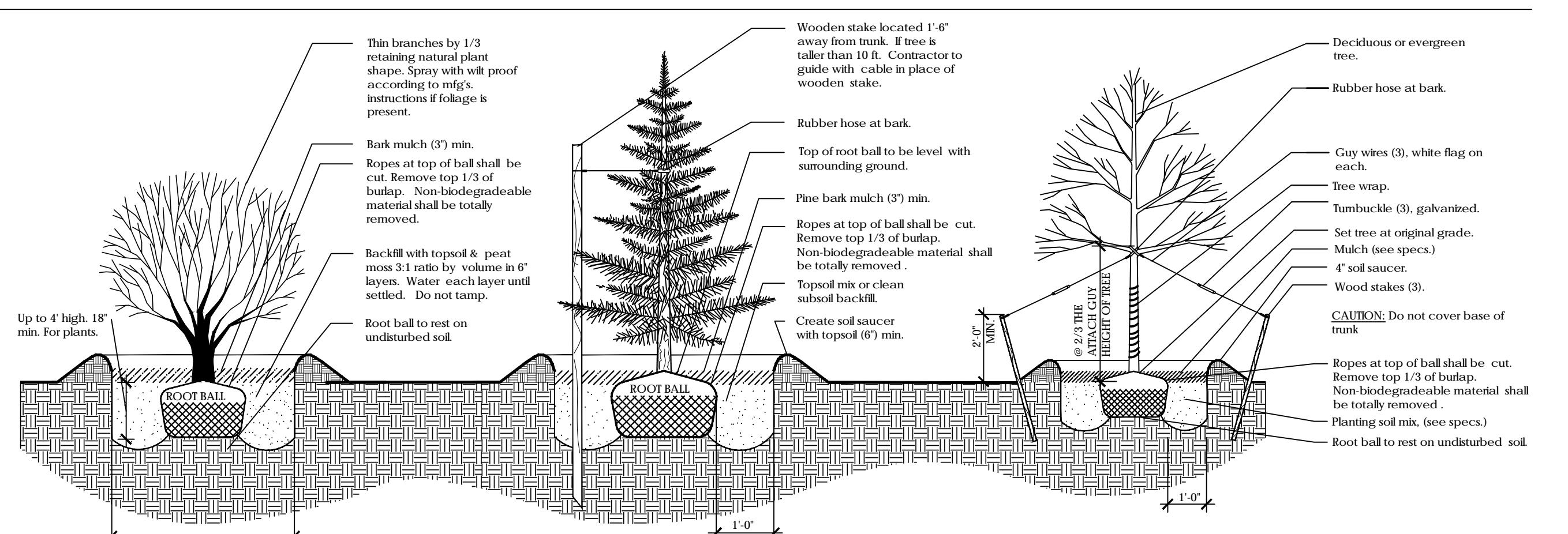
Evergreen Images Deciduous Tree Images



Groundcover / Vines



Planting Details



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Surveyor:

Base Information taken from survey
provided by client

Landscape Architect

sj seanjanczski
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sean@sjlandscapearchitects.com

No. Date Revision Information

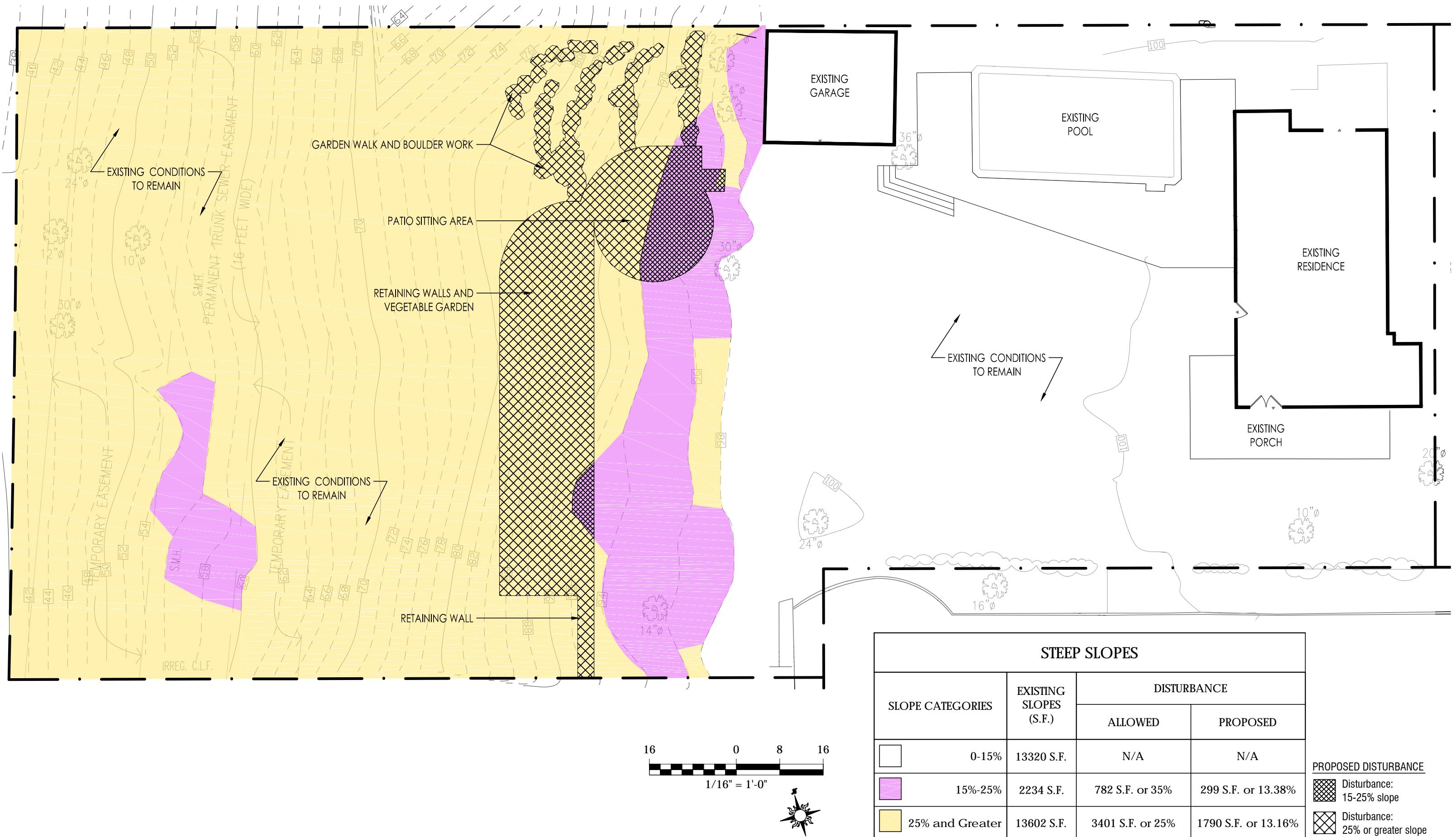
Planting Plan

for
Dehgan Residence
5 Riverview Place
Hastings on Hudson, NY

Drawn By: JH



Scale: 1/8" = 1'-0" Date: November 06, 2019



Steep Slope Study
11/06/19
1/16"=1'-0"

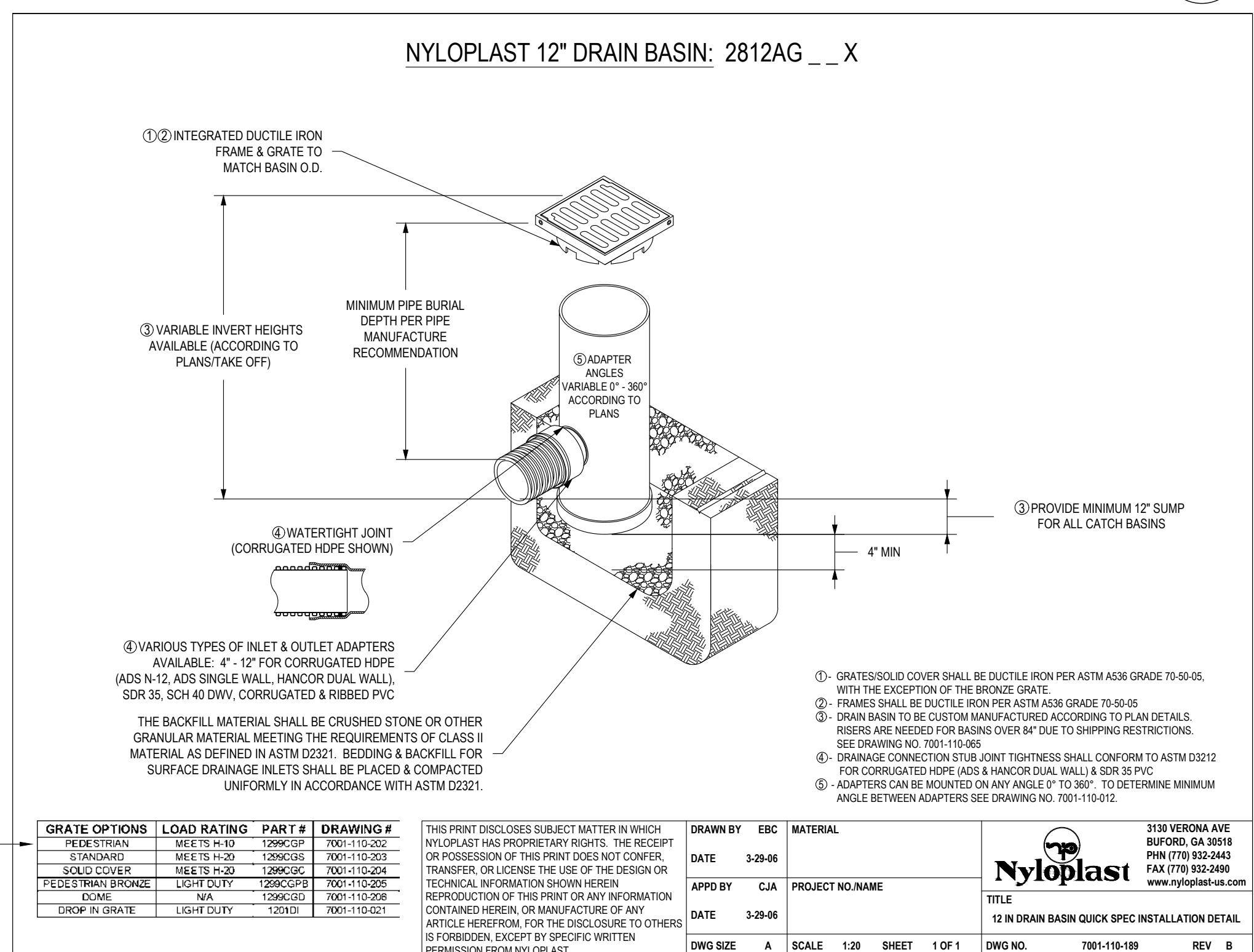
Dehgan Residence
5 Riverview Place
Hastings on Hudson, NY

SJ seanjancski
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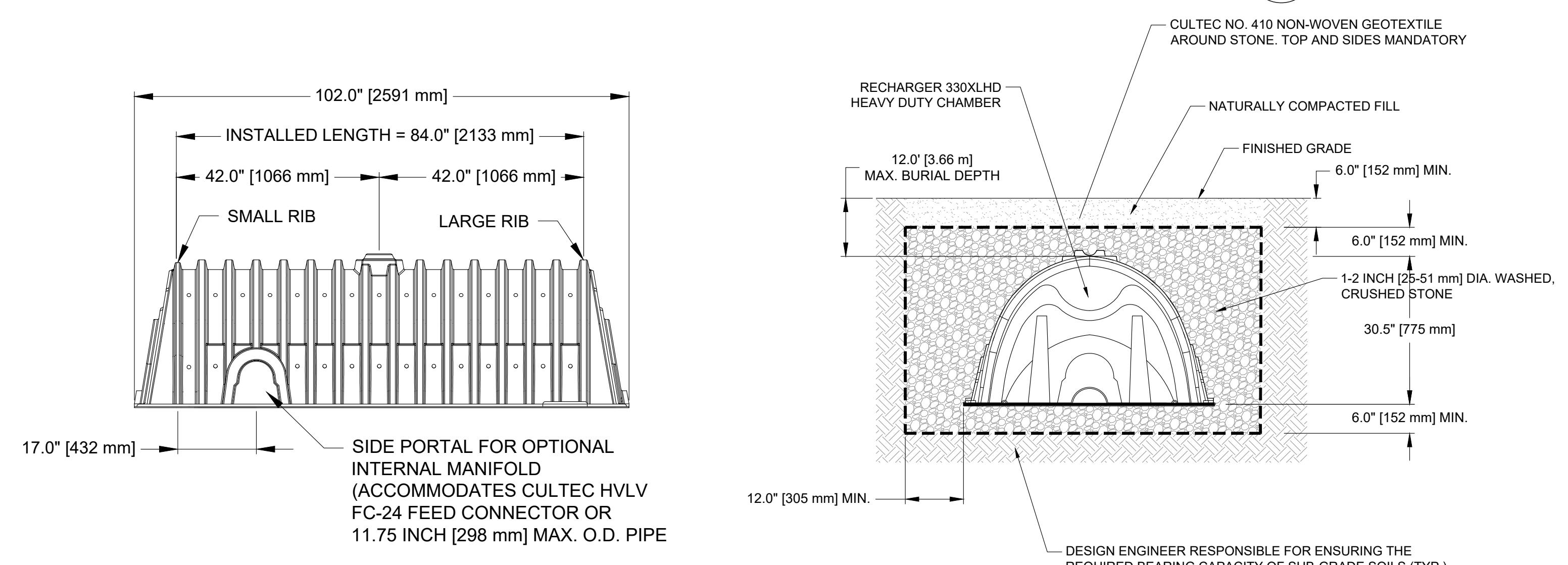
Catch Basin - Drain Inlet

1



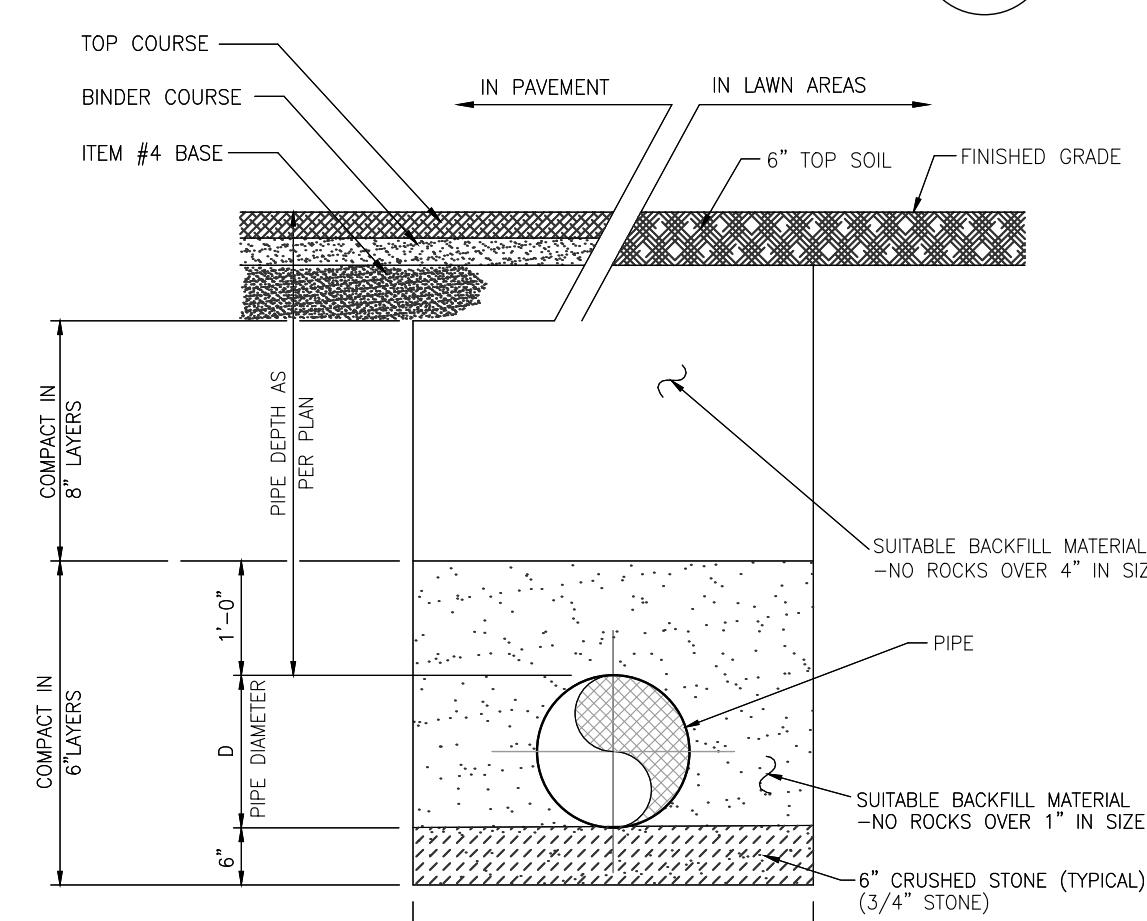
Cultec 330XLHD Installation Detail

2



Pipe Trench

3



CONSULTANTS:
LANDSCAPE ARCHITECT:
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45 Purchase Street
Rye, NY 10580
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Email: info@sjlandscapearchitects.com

ISSUED:
Updated plan layout for submission to Village 08/15/2019

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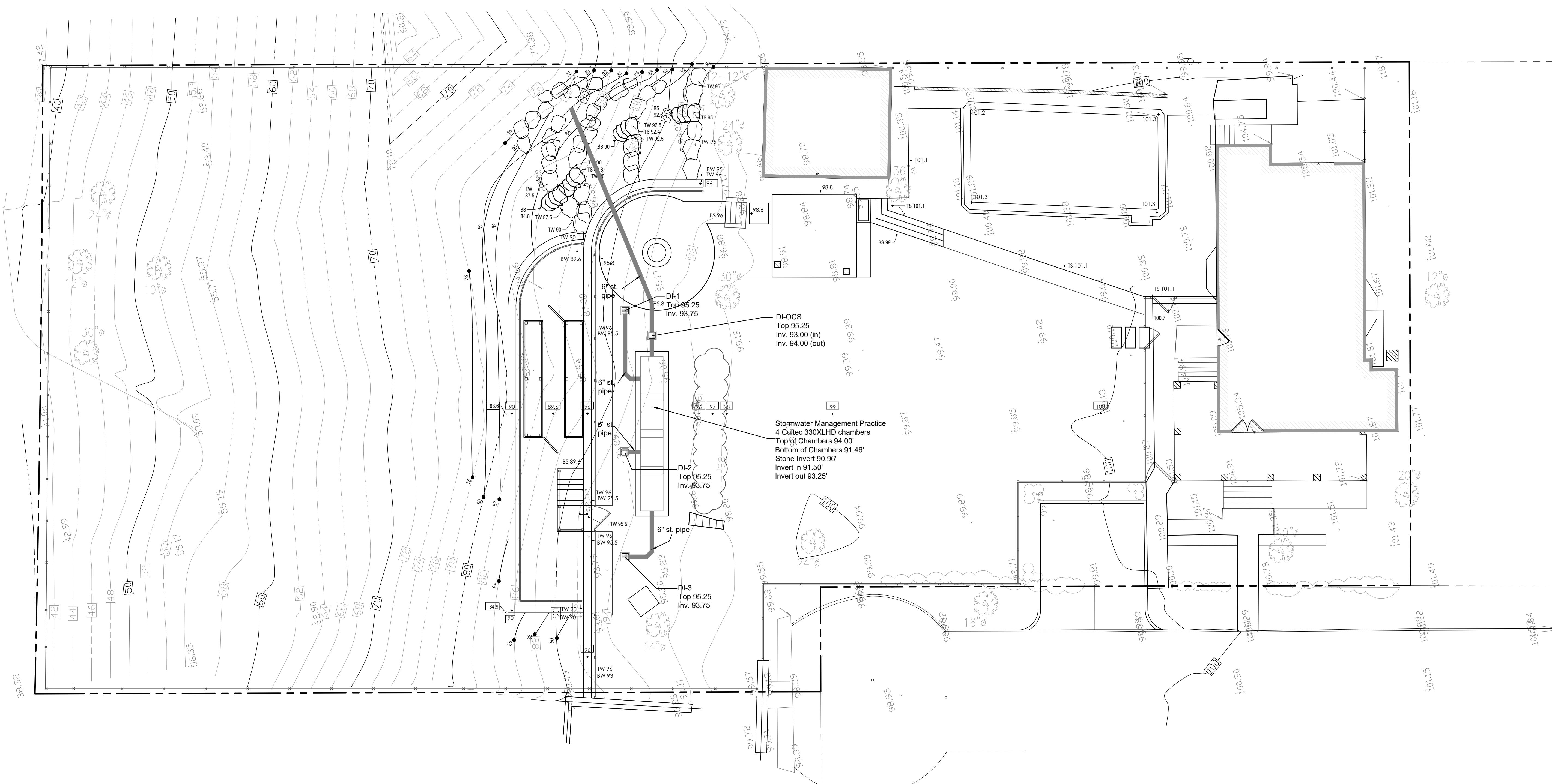


PROJECT NAME: **DEHGAN RESIDENCE**
5 Riverview Place
Hastings-on-Hudson, New York

ENGINEER & LANDSCAPE ARCHITECT:
ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC
162 Falls Road Bethany, Connecticut 06524
Direct Tel: (475) 215-5343 Cell (203) 710-0587

Drawing Title: **Construction Details Plan**
Date: July 19, 2019
Dwn. by: alp
ID: Dehgan_SWMP_08-13-2019.1

C-111



Date: July 19, 2019
Dwn. by: alp
ID: Dehgan_SWMP_08-13-2019.1

C-101