April 9, 2021

MEMORANDUM

INFORMAL DISCUSSION #2
MEETING OF 04-15-21

To: Conservation Commission/Inland Wetlands and Watercourses Agency

From: Tom Mocko, Environmental Planner

Re: Proposed **four-lot Equestrian Ridge Subdivision - 582 Main Street,** located on the easterly side of Main Street and the southerly side of Foote Road with a total acreage of 6.53 acres after conveyances - Lot 1 is proposed to be located in the Residence AA Zone & Groundwater Protection Zone 1 and accessed from Main Street; and Lots 2, 3, and 4 are proposed to be located in the Rural Residence Zone & Groundwater Protection Zone 2 and accessed from Foote Road - Mark Reynolds, Reynolds Engineering Services, LLC - **Newberry Homes Company, LLC, applicant**

LOCATION: Please refer to the site plans within your packet or uploaded onto the Town's website.

PROPOSAL: To create four new residential building lots that each will be served by its own, individual water well and subsurface septic system. Lot 1 will be accessed from Main Street and lots 2, 3 and 4 will be accessed by a common driveway off Foote Road. Stormwater retention areas and rain gardens are proposed to provide the required stormwater detention and water quality treatment. Conservation easements are included to protect environmentally sensitive areas.

REVIEW: The site consists of moderately sloping land on the uphill, eastern portion of the site and a more gently sloping area to the west closest to Main Street. Most of the site drains in a westerly and northwesterly direction. Deeper well-drained soils, underlain by coarse-grained stratified drift, exist on the more gently sloping west side (Lot 1). Thinner well-drained soils, but closer to bedrock/ledge, are found on the steeper slopes in the larger, eastern portion of the site (lots 2, 3 & 4).

Immediately following this memorandum are the minutes from the informal review by the Conservation Commission at their March 28, 2019 meeting. We are having another informal review due to the length of time that has occurred and for the sake of two new commission members; the applicant's consultant is also currently working with the Engineering Department to resolve their remaining concerns with the submitted drainage report and plans; nothing major, just dotting the "i"s and crossing the "t"s. Most of the review comments identified within the minutes have since been addressed. The word "spring" still needs to be added to the plans next

to the "seep" area within Lot 2 where groundwater seasonally is discharged at the land surface. The "operation and maintenance plan" for the rain gardens (and retention basin?) that appears on plan sheet 7 (upper left) could be expanded further to provide more specific guidance to the homeowners responsible for such semi-annual maintenance; previously, the commission requested that each applicable lot's recorded deed contain language pertaining to each applicable landowner's maintenance responsibility (to be later addressed in a forthcoming condition of approval).

When reviewing the plans, please notice the following:

a. The second and third sheets more clearly identify the various easements (conservation, drainage and access) being proposed;
b. An effective emergency spillway for the proposed retention basin on Lot 2 is now provided;
c. The overflow route from the existing seep area or spring is encumbered with a conservation easement;
d. The construction sequences appearing on sheets 5 and 6 are better with regard to minimizing/controlling soil erosion and sedimentation problems: and
e. The other erosion and sediment control notes and details were appropriately revised.

The applicant has worked out an agreement with the residents/landowners at #594 Main Street to accept the drainage being discharged onto their property.

Also, following this memorandum are excerpts from the submitted drainage report. The Town's Engineering Department is still working with the project engineer to clarify and document the specific design represented within the plans and drainage report.

Once the Engineering Department resolves their remaining concerns, and a Health Department Sanitarian reviews and approves the proposed septic system data and designs, then this proposal will return to the Conservation Commission for a formal recommendation to the Town Plan & Zoning Commission. A wetlands permit for this proposal is not required.

TM:gfm

Selected Excerpts from:

GLASTONBURY CONSERVATION COMMISSION
(INLAND WETLANDS & WATERCOURSES AGENCY)
***Corrected* REGULAR MEETING MINUTES OF THURSDAY, MARCH 28, 2019**

The Glastonbury Conservation Commission (Inland Wetlands & Watercourses Agency), along with Mr. Tom Mocko, Town Environmental Planner, in attendance held a Special Meeting in Town Council Chambers, second floor of Town Hall located at 2155 Main Street, Glastonbury, Connecticut.

ROLL CALL
Commission Members – Present
Mrs. Judy Harper, Chairperson
Ms. Kim McClain, Secretary
Mr. Frank Kaputa
Mr. Mark Temple

Commission Members - Excused
Dennis McInerney, Vice-Chairman
Mr. Brian Davis

2. **Proposed four-lot Equestrian Ridge Subdivision (formerly Foote Hills Subdivision) - 582 Main Street, located on the easterly side of Main Street and the southerly side of Foote Road with a total acreage of 6.53± acres after conveyances - Lot 1 is proposed to be located in the Residence AA Zone & Groundwater Protection Zone 1 and Lots 2, 3, and 4 are proposed to be located in the Rural Residence Zone & Groundwater Protection Zone 2 - Mark Reynolds, Reynolds Engineering Services, LLC - Newberry Homes Company, LLC, applicant**

Mr. Mark Reynolds, professional engineer, presented the plans for his applicant's proposed subdivision on 582 Main Street, just south of Foote Road. It is a sloping site that drops really flat along Main Street. In addition to the 6.5 acres, there is a tentative agreement to swap some land with a neighbor. The purpose is to gain access for a common driveway and to provide a buffer to the neighbor for a proposed lot location. The entire site is wooded, with no wetlands on the site. An intermittent watercourse runs to the east of the property up to Foote Road.

Mr. Reynolds explained that his presentation will focus mostly on drainage, since stormwater management is the largest element for the site. He explained that there is a ridge and all of the runoff on the site is represented by 3 sub-areas: a portion of the site drains to Foote Road, another portion also drains eventually to Foote Road, and a third section drains to a culvert on Main Street. Mr. Mocko asked if these are the existing or proposed drainage patterns. Mr. Reynolds said these are the existing drainage patterns and noted that he tried to match the drainage patterns out there with the proposed development, seeing an opportunity to improve the situation by shifting some of the drainage over to the culvert.

Mr. Mocko asked where the emergency spillway would go when the pipe becomes impaired. Mr. Reynolds said that everything is designed for a 100-year storm event but there is currently no designed spillway. He agreed with Mr. Mocko that in an emergency, this slope is really steep. Mr. Mocko expressed concern at the lack of an emergency spillway. Mr. Reynolds stated that a structural modification would make more sense because putting something on the slope would make it very unreliable.

Mr. Reynolds continued with other elements of the stormwater design, namely incorporating individual lot retention areas for the roof runoff. He also discussed the test ~~bits~~ ***pits*** for septic, noting that they have located places for a septic system that are the best soils on the site and that meet both the state and town health codes. Mr. Reynolds also explained the water service on the site. Currently, ~~wells~~ ***test pits*** are laid out all over the site. On the survey plan, there is also a potential strip for an easement for water, should the MDC want to serve them, though that will be unlikely. The plan incorporates both of those options at this time.

In regard to erosion and sediment controls, Mr. Reynolds noted that he has incorporated standard lot development erosion controls, as well as a ~~silk~~ ***silt*** fence along the retention basin. He stated that a couple of swales are incorporated to help shift the runoff from one area to another. Mr. Reynolds concluded by stating that he is open to working with Mr. Mocko on the detailing of the retention area to work out an emergency ~~situation~~ ***spillway*** that is maintenance-free.

Mr. Kaputa noted that he was at the site earlier today and saw that there was water flowing out of it. He asked for details on the monitoring of the groundwater. Mr. Reynolds answered that there was no specific groundwater monitoring done but estimates were done through the department. Mr. Mocko stated that he did not see anything that would be considered an open well, as noted in the site plan. Mr. Temple and Mr. Kaputa agreed. Mr. Reynolds explained that that is the location, but it is a spring ~~seat~~ ***seep***, acknowledging that 'open well' is not the right wording. Mr. Mocko stated that it should be noted what and where it is so that it does not become problematic.

Chairperson Harper asked what kind of reaction the owners take to this. Mr. Mocko said that he has seen people fill areas on the site slope because they did not think there were any wetlands problems and the pressure of the water caused erosion and slope failure. Chairperson Harper said that, in anticipation of that kind of logic, the Commission should put some provisions as part of the approval process. Mr. Mocko explained that they can clearly state on the plan that it is a spring in a side hill that is active as a flow pattern, so they can understand upfront that an open well 8 feet by 8 feet is different than a spring. Mr. Reynolds suggested creating a treatment as part of the subdivision plan.

Chairperson Harper asked if there any other spring-type elements on the property. Mr. Reynolds said no, the biggest thing they noticed was that there are areas that are less than 5 feet to the ledge on the site. Mr. Temple asked if the drilled well on the property boundary is active. Mr. Reynolds said yes. Mr. Temple also stated that the applicant's notes on dust control, specifically the paragraphs on spreading emulsion and excavations, need to be revised. He also expressed concern about the rain garden and asked for more information on the cross section that was provided. Mr. Reynolds responded that the rain garden is a BMP and it is up on the rise. He stated that he likes to call them out as grassed areas. Mr. Temple said that is fine, but they should be called out as something. He also noted a typo in the paragraph in the operation maintenance plan: "nay" should be "may". Ms. McClain added that, in regard to the rain garden, it would be great to include suggested maintenance standards so that the homeowners know for what they are responsible. Mr. Mocko suggested a deed restriction or caveat. Ms. McClain and Mr. Temple agreed. Mr. Reynolds explained that there is no health department for stormwater, so it is something that falls through the cracks.

mins p. 5 ↑

mins p. 6 ↓

Chairperson Harper asked if a wetlands permit is necessary. Mr. Mocko said if no one wants to pursue that as a wetlands area, then it probably is not necessary, though it is a grey area. Mr. Mocko also explained that the sequencing for the erosion and sediment control plan could use beefing up. Mr. Reynolds agreed.

- END -

REYNOLDS ENGINEERING SERVICES, LLC

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Suite 202
♦ Colchester, CT 06415 ♦
Ph. (860) 465-7419
Fax (860) 456-1356

March 1, 2021

Thomas Azzara
Newberry Homes Co., LLC
106 Horizon Lane
Glastonbury, CT 06033

RE: **STORMWATER MANAGEMENT REPORT**
Equestrian Ridge Subdivision
582 Main Street
Glastonbury, Connecticut
Proj. No. 17047.00

Mr Azzara:

Pursuant to your request, the following design report was prepared to address the stormwater management proposed for the subdivision plan at 582 Main Street, Glastonbury, Connecticut.

Existing Conditions

The subject parcel (LOT) is approximately 6.53 acres and is located in the Town of Glastonbury, east of Main Street near the intersection of Foote Road. The property is wooded. The soils on the site and in the area of study are predominantly USDA soil series Manchester and Gloucester gravely sand, well drained with moderate to low runoff potential.

A portion of the site drains to the north toward Foote Road to a field/paddock near the intersection of Foote Road and Main Street. The field/paddock has been assigned Design Point #1 (DP-1) for this analysis. There is no defined outlet for storm water from this depressed area. The area acts as a natural detention/infiltration basin as it is topographically isolated and underlain by well drained soils.

A portion of the site drains to the west, to a culvert at Main Street. This culvert conveys water to the DOT drainage system and eventually across Main Street to an outlet point to the west. The culvert has been assigned Design Point #2 (DP-2) for this analysis.

A small portion of the site along the easterly boundary drains overland toward the east, eventually to an intermittent watercourse. Minimal changes in land use are

anticipated in this area of the site. Therefore, detailed analysis of storm water runoff from this area was not included in this analysis.

For the pre development storm water analysis, the site and contributing areas have been divided into 3 watershed areas with 2 points of analysis.

Watershed Area 1:
A 4.77-acre watershed that drains to a paddock/field, Design Point #1 (DP-1). This watershed includes wooded portions of the site and offsite residential properties along Foote Road. The peak rate of runoff from the 4.77-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 2:
A predominantly wooded, 4.16-acre area that drains to (DP-1). This watershed includes wooded portions of the site and an offsite residential property (Martin, 594 Main Street). The peak rate of runoff from the 4.16-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 3:
A wooded, 3.9-acre portion of property fronting Main Street forms a watershed that drains to the subject culvert at Main Street. An analysis point (DP-2) is designated for this watershed. The peak rate of runoff from the 3.9-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Analysis Point	Existing Condition Peak Rate of Runoff (cfs)				
	2-year	10-year	25-year	50-year	100-year
DP-1**	1.8	7.8	12.5	16.3	20.6
DP-2	-0-	0.1	0.5	1.0	1.8

** The Peak Rates of Runoff reported for DP-1 represent the estimated inflow to the field/paddock area. There is no estimated overflow of runoff from the field/paddock area from any analyzed storm event due to the estimated components of infiltration and detention that exist.

Proposed Conditions

The proposed development of the site consists of the construction of 4 single-family residences with driveways from Main Street and Foote Road as shown on the plan entitled, "Equestrian Ridge Subdivision, 582 Main Street, Glastonbury, Connecticut", sheets 1-10, dated 7/1/19. The proposed grading of the site includes stormwater retention areas to store excess storm runoff and maintain the existing drainage patterns on the site.

The proposed storm water management system associated with the proposed common driveway will direct and convey storm water runoff from the lots and driveway to the retention area. The retention area has been located to closely follow the drainage patterns and watersheds discussed in the Existing Conditions section. The watershed areas associated with each of the storm water discharge design point were delineated. The stormwater discharge anticipated from each post development watershed was estimated. The results of these calculations are presented below.

The proposed retention area is designed to slow the velocity of runoff, encourage infiltration and convey it toward the design point. The proposed retention area has been sized to store the increase in peak runoff due to the development estimated for the 100-year return period and convey it along the existing drainage paths.

Rock aprons are proposed to protect the outlet of each driveway culvert from erosion. In addition, the rock apron will reduce the velocity of runoff exiting the driveway culverts to minimize impacts to the downstream areas.

The Lot Development Plans include measures (rain gardens) to infiltrate storm water runoff, in excess of the predevelopment condition from the developed areas (lawn, driveway and roof). The implementation of this best management practice will encourage infiltration of runoff at its source closely maintain the existing drainage patterns on the site.

Watershed Area 1:
Watershed Area 1 is a 3.92-acre watershed that drains to a paddock/field (DP-1). This watershed includes offsite residential properties along Foote Road. The peak rate of runoff from the 3.92-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 2A:
Watershed Area 2A is a 2.61-acre area. This watershed is predominantly off-site residential property (Martin, 594 Main Street) that drains to (DP-1). The peak rate of runoff from the 2.16-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 2B:
Watershed Area 2B is a 0.54-acre watershed that includes portions of the proposed common driveway and associated slopes. The water from this watershed flows to a proposed rock apron and infiltration trench near Foote Road before flowing overland to Design Point #1. The peak rate of runoff from the 0.54-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 2C:
Watershed Area 2C is a 0.98-acre watershed that includes woods and developed portions of Lot 4. The storm water runoff from this watershed is diverted via a storm water berm to the proposed Retention Area and eventually DP-2. Individual lot development plans include measures (rain gardens) to infiltrate storm water runoff from the impervious areas proposed on each lot in excess of the predevelopment condition. The peak rate of runoff from the 0.98-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 3A:
Watershed Area 3A is a 3.46-acre watershed that includes woods and developed portions of Lots 1, 2 and 3. Storm water runoff from this watershed drains to the subject culvert at Main Street (DP-2). Individual lot development plans include measures (rain gardens) to infiltrate storm water runoff from the impervious areas proposed on each lot in excess of the predevelopment condition. The peak rate of runoff from the 3.46-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Watershed Area 3B:
Watershed Area 3B is a 1.25-acre watershed that includes woods and developed portions of Lots 2 and 3. Storm water runoff from this watershed that drains to the proposed Retention Area and then to the subject culvert at Main Street (DP-2). Individual lot development plans include measures (rain gardens) to infiltrate storm water runoff from the impervious areas proposed on each lot in excess of the predevelopment condition. The peak rate of runoff from the 1.25-acre drainage area was estimated using the TR-20 Method, (see attached computation sheets).

Analysis Point	Proposed Condition Peak Rate of Runoff (cfs)				
	2-year	10-year	25-year	50-year	100-year
DP-1**	1.7	7.4	12.2	16.0	20.3
DP-2	-0-	0.1	0.5	1.0	1.7

** The Peak Rates of Runoff reported for DP-1 represent the estimated inflow to the field/paddock area. There is no estimated overflow of runoff from the field/paddock area from any analyzed storm event due to the estimated components of infiltration and detention that exist.

Conclusion:

The proposed development will not significantly change drainage patterns on the site. Excess storm water runoff will be conveyed to the proposed stormwater retention area.

The proposed retention area is a stable outlet for the proposed drainage system. Further, the proposed rock aprons and infiltration trench will reduce the velocity of runoff exiting the drainage system, thus minimizing impacts to the areas downstream.

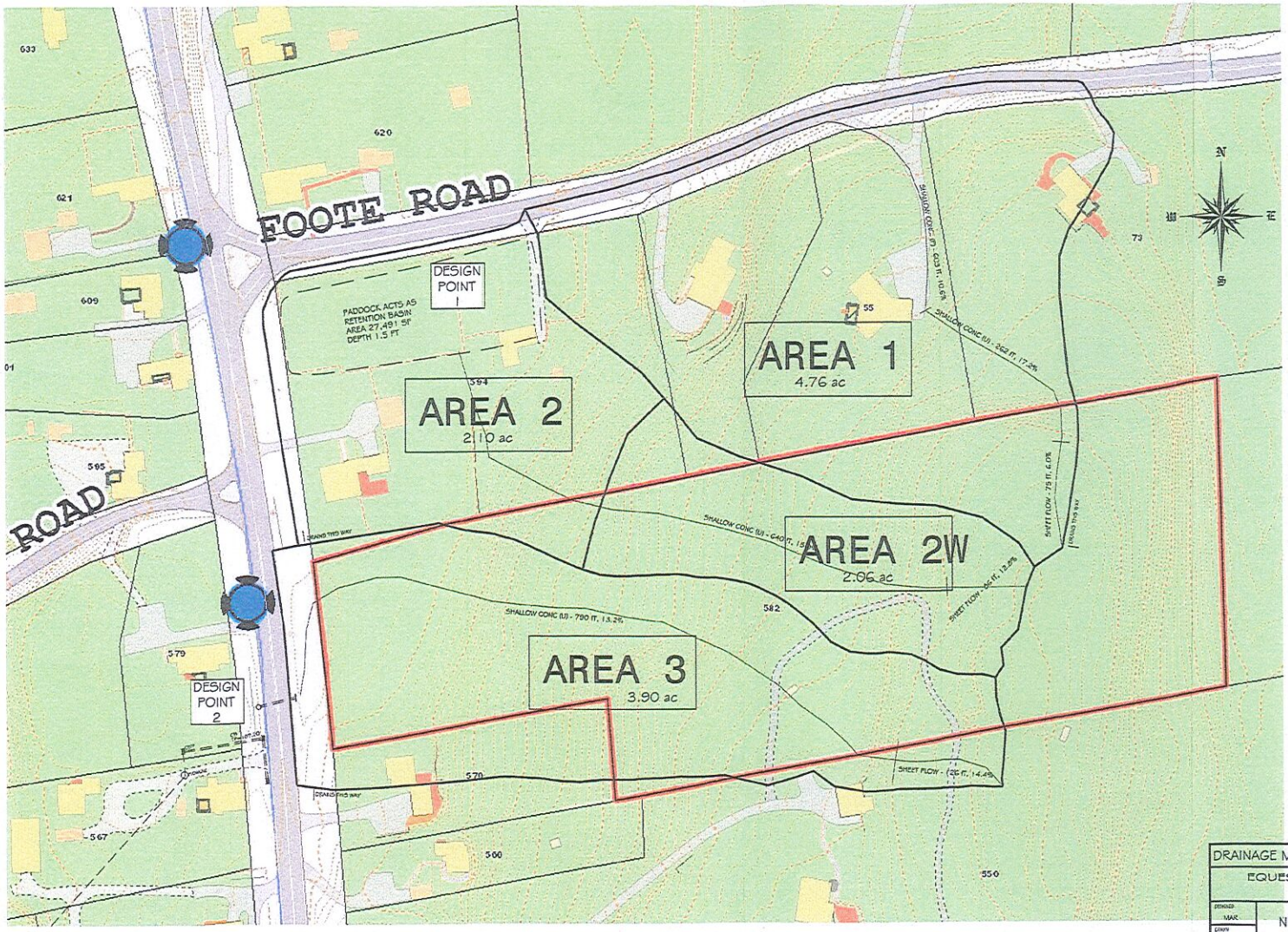
Individual lot development plans include measures (rain gardens) to infiltrate storm water runoff from the impervious areas proposed on each lot in excess of the predevelopment condition.

The proposed development will not adversely impact the drainage of surface runoff on the site or in the surrounding area.

If you have any questions, please contact me at (860) 465-7419.

Sincerely,

Mark A. Reynolds, P.E. CT #19789



DRAINAGE MAP-PRE DEVELOPMENT CONDITIONS

EQUESTRIAN RIDGE SUBDIVISION

GLASTONBURY, CONNECTICUT 06073

DESIGNED MAR	PREPARED FOR NEWBERRY HOMES CO, LLC 106 HORIZON LANE GLASTONBURY, CONNECTICUT 06033	SCALE 1" = 50'
DRAWN MAR		DATE 10/1/20
	REYNOLDS ENGINEERING SERVICES, LLC 63 BOGG LANE - LEBANON, CONNECTICUT 06249 phone: 860-465-7419	PROJ. NO. 170-07.00
		SHEET NO. 1 OF 1

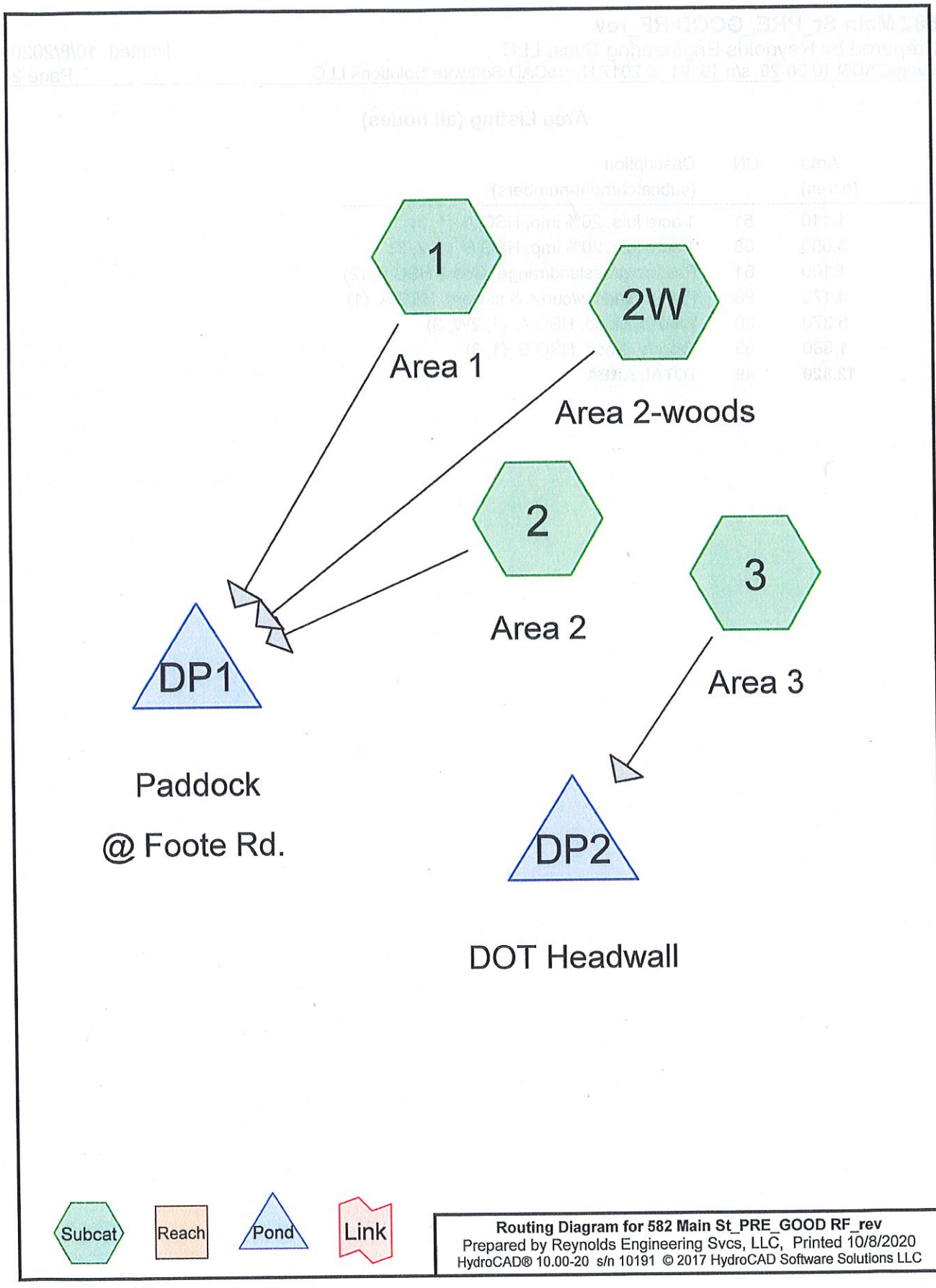
To my knowledge and belief, I we state is substantially correct as noted hereon.

Mark A. Reynolds, P.E. CT LIC. # 19700

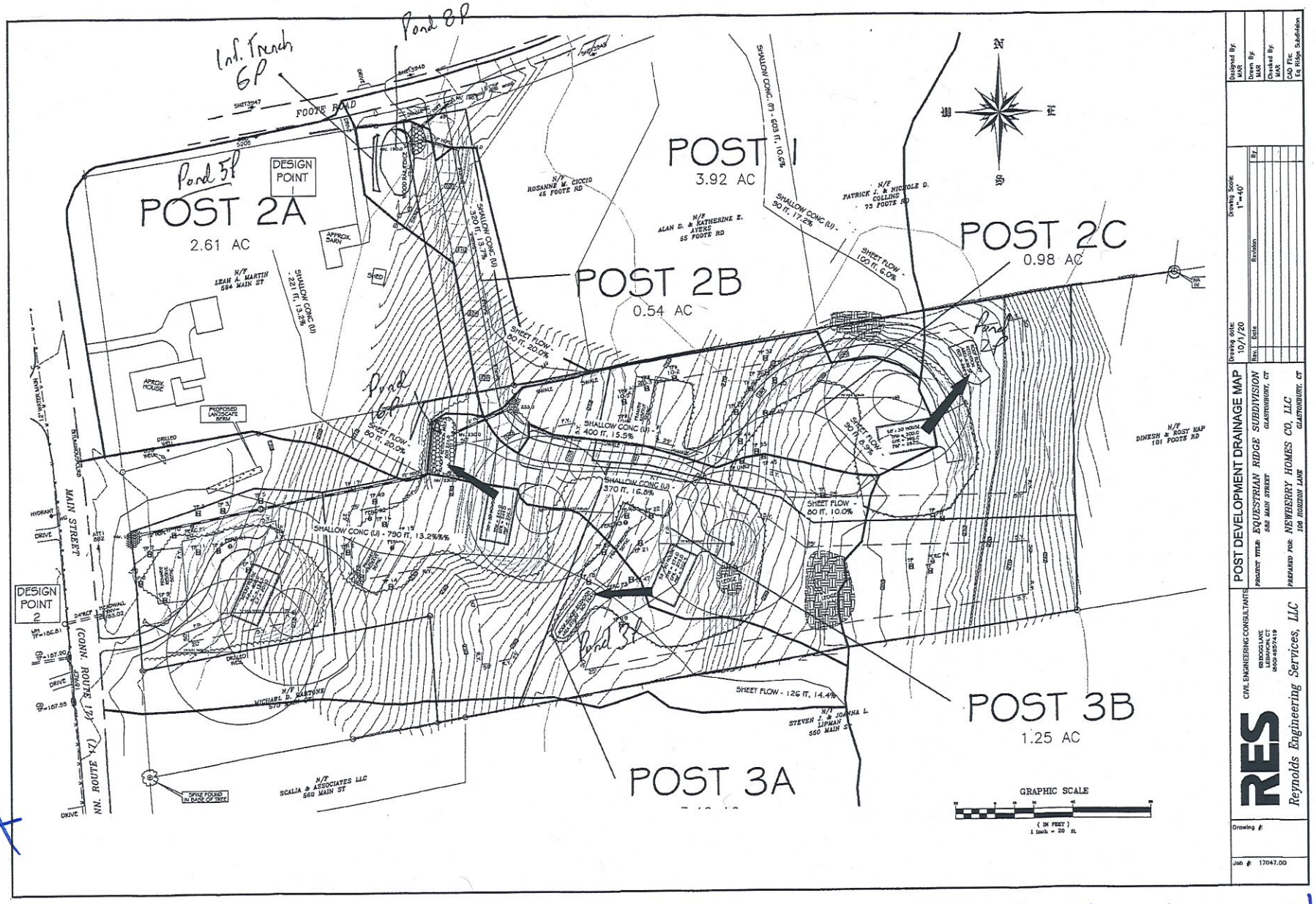
Contractors is not valid without the signature and embossed impressed seal.

Pre

Pre-development pattern

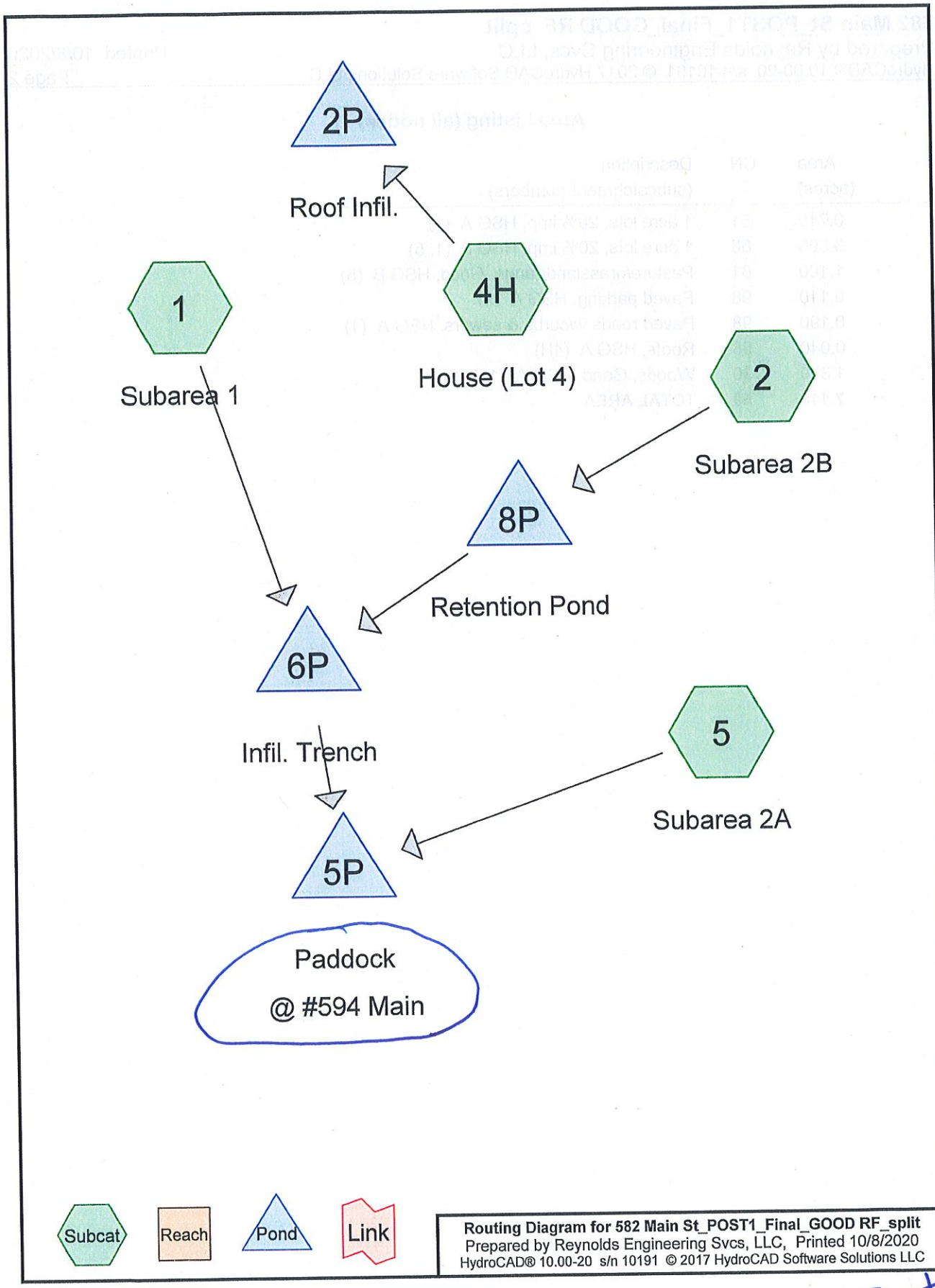


Pre schematic

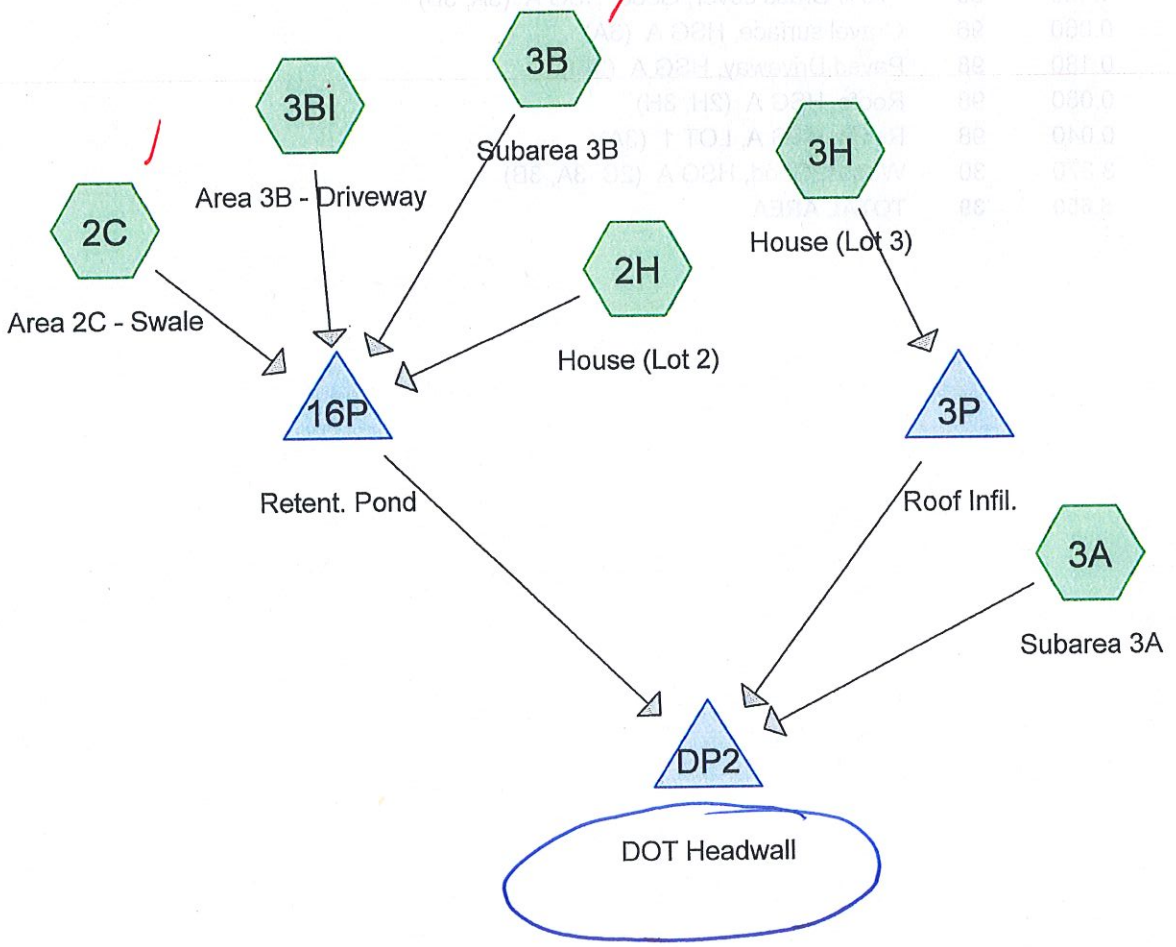


Post

Post-development pattern



Post-dev schematic



Subcat Reach Pond Link

Routing Diagram for 582 Main St_POST2_Final_GOOD RF
Prepared by Reynolds Engineering Svcs, LLC, Printed 10/8/2020
HydroCAD® 10.00-20 s/n 10191 © 2017 HydroCAD Software Solutions LLC

Post-dev schematic