



Proposed Project Anti-degradation Analysis

Pinecrest Orange Village, Cuyahoga County, Ohio

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Prepared for:
Pine Orange LLC
1138 W.9th Street, 2nd Floor
Cleveland, Ohio 44113

Prepared by:
Davey Resource Group
A Division of The Davey Tree Expert Company
1500 North Mantua Street
Kent, Ohio 44240
800-828-8312



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1.1 Project Description

This document was prepared in support of an application to the Ohio Environmental Protection Agency (OEPA) for a 401 Water Quality Certification Permit by Pine Orange LLC (Applicant) for Pinecrest (Project). The proposed Project site is located in Orange Village, Cuyahoga County, Ohio. The Project is a retail development located near interchange of I-271 and Harvard Road in Orange Village, Cuyahoga County.

The Project's purpose is to create a financially viable retail development within an area designated by Orange Village for commercial use.

The need for the retail expansion is driven by the high demand for a pedestrian friendly development comprised of retail, theaters, restaurants, entertainment, and office uses providing enhanced shopping and employment opportunities to the local community.

Rezoning of the Project site was recently approved by a voter referendum held on November 5, 2013. This referendum was passed based on a design plan very similar to the Preferred Development Alternative (PDA) as proposed in this application. One condition stated in the referendum requires that the Applicant construct a berm between the proposed development and the residential homes located to the east. The purpose of this berm is to create a visual shield for these adjacent homes.

With the PDA, the development footprint is 54.18 acres. A total of 3.306 acres of federally regulated wetland are proposed to be impacted, with 1.048 acres of wetland acreage avoided. The impacts are primarily to forested Category 1 and 2 wetlands (2.421 acres), with the remaining impacts to emergent and scrub/scrub wetlands (0.885 acres).

A total of 1,011 linear feet of intermittent and ephemeral streams will be impacted; this impact amount is excluding the 600 linear feet of stream that is found within on-site culverts. These streams are currently highly modified, ditched, with water quality degradation from adjacent residential use.

The Applicant is planning to start the construction of the Pinecrest development May 2015, with a completion date of October 2016. Off-site mitigation arrangements will be completed prior to the start of development.

A Minimal Degradation Plan (MDA) has also been designed for this Project. The MDA plan will minimize impacts to wetlands streams and overall surface water quality within the Project site. With the MDA, the development footprint is 52.77 acres. Wetland impacts total 2.454 acres of federally regulated wetlands, with a total of 1.900 acres of wetland being avoided. The impacts are primarily to forested Category 1 and 2 wetlands (1.660 acres), with the remaining impacts to emergent and scrub/scrub wetlands (0.794 acres).

Stream impacts under the MDA total 904 linear feet with a 173 linear feet being avoided. The stream impacts under the MDA are the same as the PDA with the exception of a portion of Stream 5.

The minimum Project objective that must be met consists of the construction of an economically viable retail development within the Project boundary. In order to meet this objective, further avoidance of the wetlands and streams is not possible due to the location of the water resources, the development design, and the mandated berm. Further avoiding the water resources found on site would result in a loss of Project income that would reduce the return on the investment to a level that would make the Project cost prohibitive.

1.2 Avoidance

The Non-degradation Alternative (NDA), with a development footprint of 38.53 acres, is the only alternative to implement the proposed Project without impacting water resources. However, this was found not to be a financially viable option for the Applicant, nor did it meet the Project's purpose. As a result, the NDA was removed from further consideration.

The Applicant also evaluated three off-site properties to determine if these sites can be developed in a practicable manner, and can be constructed with decreased impacts to aquatic resources. The term practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall Project purposes. Off-site Alternative Analysis mapping can be found in Attachment 1.

Profitable businesses employ detailed and sophisticated criteria to evaluate sites to determine the potential level of success their business could achieve at that site. To attract larger businesses to a commercial development, the minimum criteria are:

- **Site Size** – Larger parcels are given higher ratings since they yield greater critical mass to create co-tenancies. These co-tenancies further ensure economic viability, longevity and success.
- **Zoning** – Any site under consideration should be zoned to permit commercial, at minimum. More advantageous would be zoning that allowed a mix of office and retail. A zone change, if required, devalues a potential of the site to create a successful, financially feasible development.
- **Access** – Excellent traffic corridors adjacent to and servicing a proposed site are required. These traffic corridors provide and promote ease of access to the site for prospective businesses, users, efficient transport of goods, and assure provision of fire, life and safety services. The higher the level of access, the more attractive this site is to prospective users.
- **Visibility** – The property must have clear visibility from primary traffic corridors for the site to be considered viable. Businesses seek out readily visible sites for ease of identification, recognition and exposure. A primary criterion for most businesses to succeed is location next to and visibility from an adjacent freeway.
- **Adjacent Commerce** – The synergy created by existing businesses adjacent to a site under consideration strengthens the economic performance and forecasting of potential businesses. The consumer traffic generated by adjacent commerce enhances the consideration of a proposed site.

Various sites were investigated to determine availability and potential suitability for the proposed Project. Three potential sites were investigated using of the following criteria: 1) the target market; 2) zoning; 3) access and visibility; 4) site size and availability; 5) site constraints, including environmental features, and 6) financial considerations.

The Applicant reviewed the availability of land within a five mile radius of the proposed Project site that could accommodate a similar development to the Project but no sites for sale were found. However, the Applicant was able to identify three potential sites that were comparable to the Project site based on other Alternative Analysis criteria stated above. An environmental review of the alternative sites was done to determine if wetlands or streams were either present or

potentially present on the specific site. Resources reviewed include soil survey information, aerial photographs, U.S. Geologic Topographic (USGS) maps, USGS StreamStats, and National Wetland Inventory (NWI) maps.

Site 1 is located adjacent to and east of I-271, south of Harvard Road, and west of Brainard Road in Orange Village, Ohio. The site is adjacent to a commercial development to the south and undeveloped land zoned for single-family dwellings to the east. The land is currently not listed for sale, would require acquisition of multiple properties, and is currently zoned for Planned Mixed-Use Development District (PM-UD). When combined, the parcels are comparable in size and location to the Project site, but as shown in the National Wetlands Inventory (NWI) map (Attachment 1) wooded lots that contain forested and scrub/shrub wetlands are found on-site. An area of hydric soils (Condit silty clay loam) occurs on a portion of the site. Hydric soils are soils that have a high probability of supporting wetlands. The majority of this site is underlain with Mahoning silt loam, a non-hydric soil with hydric inclusions. Although not hydric, Mahoning soils frequently support wetlands, especially areas that have been disturbed in the past as this site has been. A significant portion of the site is underlain by non-hydric soils (Tioga loam, frequently flooded). Although listed as non-hydric, these soils are frequently flooded and are very limited for commercial buildings, per the Cuyahoga County Soil Survey.

Hawthorne Creek (identified by StreamStats) and the associated topography divide the site and create another major limitation for development.

Although this site is within the target market range, adjacent to existing retail development, is easily accessible via I-271, and is of sufficient size for a retail development; the property is not available, is not zoned commercial, and developing this site would result in significant impacts to water resources. This site is not a practicable, available alternative that could be developed with less adverse impacts to water resources.

Site 2 is located east of I-271, south of Harvard Road, and west of Brainard Road in Orange Village, Ohio. The site is adjacent to single-family dwellings to both the south and east. The land is currently not listed for sale, would require acquisition of multiple properties, and is currently zoned for Single Family Dwelling District (U-1). When combined, the parcels are comparable in size and location to the Project site, but like Site 1 it is also covered with wooded lots and has forested and scrub/shrub wetlands (Attachment 1). In addition, the site is underlain with hydric soils (Condit silty clay loam), and Mahoning silt loam, a non-hydric soil with hydric inclusions. Although Wiley Creek is not directly on Site 2, one of its major tributaries is located within the site boundary. As with Site 1, environmental resources would be negatively affected on this site if development were to occur.

Similar to Site 1, this location is within the target market range, adjacent to existing retail development, and is of sufficient size for a retail development; the property is not available, is not zoned commercial, is not easily visible to the target market via I-271, and developing this site would result in significant impacts to water resources. This site is not a practicable, available alternative that could be developed with less adverse impacts to water resources.

Site 3 is located west of I-271 and Richmond Road, south of Chagrin Boulevard, and east of Commerce Park in Beachwood, Ohio. The site is adjacent to single-family dwellings to the east, developed commercial area to the west, and Eaton Corporation to the south. The land is currently not listed for sale and is zoned for Single Family (U1A1). Site 3 is a single parcel, is less forested than Sites 1 and 2, but has a narrow footprint and no existing access to Chagrin Boulevard or any other main road. Although this site is located near a major arterial with access to I-271, Site 3 is not visible from I-271 in comparison to the other sites. This site is underlain with non-hydric

soils with hydric inclusions (Mahoning urban land complex, undulated). Streams would not be an obstacle for development.

This location is in the target market range, and has fewer water resources located on site than the other sites; Site 3 has poor visibility and accessibility via I-271, the property is not available, is not zoned commercial, and is an insufficient size for a retail development. Although this site has the potential to be developed with less adverse impacts to water resources, this location is not a practicable, available alternative that could meet the Project's purpose.

After evaluating the sites identified for the alternative analysis, the Pinecrest Road site was the only feasible location available for the proposed Project. Several factors lead to this conclusion. First, from an environmental perspective, the Pinecrest site is primarily a re-development of an existing residential home subdivision. Whereas the alternative sites currently consist of undeveloped land that would require a greater disturbance to the natural environment and water resources. Second, the Applicant has purchased land options for the Project site over the last five years and as such, the use of an alternative site would require additional time and cost for land acquisition. This, in and of itself, financially precludes the use of the alternative sites. Finally, in 2013 the Pinecrest Road site was approved to be re-zoned for mixed-use, a vote that had the current Pinecrest development in mind when doing so.

If the Pinecrest development were not built, there would be multiple consequences for the developer and the community at large. For the developer, there would be major financial impacts. These impacts include a loss of revenue from sales, as well as a significant amount of time, energy, and money that has been put into the acquisition and design of the Pinecrest retail development.

In terms of effects on the community, the current Pinecrest residential area is a financial burden for the Village of Orange both through lost revenue from property taxes and as a degraded neighborhood that is almost entirely abandoned.

1.3 Minimization

The Project's purpose is to create a financially viable retail development within an area designated by Orange Village for commercial use. As designed, the Project will result in a total of 3.306 acres of wetland impacts, avoiding 1.048 acres of the overall on-site wetland. A total of 1,011 linear feet streams will be impacted, avoiding 66 linear feet. Because of building requirements mandated by the referendum, as well as physical constraints dictated by local ordinances such as right of way widths, curvatures of roadway, setbacks, parking,- the design of the site was limited regarding further minimization efforts.

It is important to note that all of the existing single family homes have septic systems, and based on Cuyahoga County Board of Health inspection records, some of these systems are failing. Inspections of all septic systems on-site were not conducted, but are likely failing based on the condition of the systems that were assessed. A map identifying the failing systems can be found within the Project Mapping section, Figure 8.

In addition, records show some of the septic systems within the Project area as 'pass' were completed over a decade ago and would likely no longer be given a 'pass' rating. One of the failing septic systems is located adjacent to Stream 5. Because of the failure of this system, it is highly probable that untreated sewage is leaching into this waterbody. Further, because of the site topography, most of the septic systems flow east, to the majority of the streams and wetlands. With the inflow of untreated sewage, the overall water quality of the receiving streams and wetlands is being regularly degraded. As a result, all of this flow is released into the watershed of Willey Creek (04110003). The proposed development will remediate this existing situation by providing connectivity to a functional gravity sanitary sewer system located in Orange Place, and will provide Phase I and II treatment of storm water flow. This new system will dramatically improve the quality of the water draining into the remaining wetlands, entering the storm water system, and thus reducing pollutants currently dispensed into the watershed of Willey Creek and the Chagrin River.

The Village of Orange Regulations Section 1377 "Storm Water Management Regulations" requires the developer to detain water in a storm basin and release the flow at a rate equal to the pre-developed rate of flow for each storm event up to and including a 100-year event. The proposed development is being designed to meet the current code requirements by holding back the flow rate of the post developed site to a 1-year pre-developed flow rate for the 5, 10, 25, and 50-year storm events. The proposed storm water design will meet the current code requirements which will result in a net positive impact on downstream properties, as the current home impervious surfaces have no storm water or water quality controls.

All on-site storm water will pass through a Phase II storm water treatment system in compliance with the Ohio EPA Phase II Storm Water regulations. This will be accomplished through a large off-site detention basin that will be modified to meet Phase II water quality requirements.

To assess a further scaled-down version of the Project that would result in no impacts to surface water and still meet the Project goals, the NDA was designed to fully avoid impacts to water resources. However, based on these design modifications, the NDA greatly limits the development options and significantly reduces the developable area. An additional challenge of developing the site based on the NDA is the berm required by the referendum that must be located between the development and the residents of Waterford Court. Avoiding the wetlands found in this area requires moving the entire development to the west. The referendum also requires that the berm completely block the view of any buildings/structures, which limits the potential height of the

building and parking structures on the Project site. As a result, the Applicant is unable to reduce the building footprint by building up versus out.

Under the NDA the development acreage is 38.19, with 251,920 square feet of retail space and restaurant. This area is significantly less than the achievable development acres for the PDA (54.18 acres, 335,600 square feet of retail space and restaurant,) and the MDA (52.77 acres, 335,600 square feet of retail space and restaurant). As this option does not meet the Applicant's Project purpose and is financially prohibitive, it is an unacceptable alternative.

A no-build option would also result in no impacts to water resources. However, this would deprive the Applicant of any commercial use of the site. The Applicant has already invested significant time, money, and other resources in procuring this site, thus resulting in a net loss in financial terms for this option.

1.4 Magnitude of the Proposed Lowering of Water Quality

The following water resource impacts are based on the Preferred Alternative Plan:

Stream Discussion

The potential habitat value of the streams was assessed using the Headwaters Habitat Evaluation Index (HHEI). These streams assessed within the range of Class I and II primary headwater habitat. Class I streams have little or no aquatic life potential, except seasonally when flowing water is present for short time periods following precipitation. Class II streams have the potential to exhibit moderately diverse communities. The proposed Project will impact a total of 361 feet of ephemeral stream and 650 feet of intermittent stream out of a total of 1,077 feet of stream found on the Project site.

Stream 4 is an ephemeral stream totaling 61 linear feet, and assessed as a Modified Class II stream. Stream 5 is an intermittent stream totaling 716 linear feet, and assessed as a Modified Class II stream. Stream 6 is an ephemeral stream totaling 239 linear feet, and assessed as a Modified Class II stream; Stream 7 is an ephemeral stream totaling 61 linear feet, and assessed as a Modified Class I stream. All four streams have been highly impacted in the past from channelization, riparian vegetation removal, culverting, yard waste dumping, and leaching from the adjacent failing septic systems.

The streams on this site are not unique or rare within the locality or state. Based on the topography in Geauga County, the streams found on the Project site are typical headwater streams for the area but are highly degraded because the waterbodies are located within a residential development and are adjacent to failing septic systems.

To ensure the receiving waters are not adversely impacted by the development activities, a number of Best Management Practices (BMP) will be employed during construction. These include but are not limited to: stabilized construction entrances and access roads, silt fencing, geotextile mats on steep grades, inlet protection, installation of sediment basins, phased development, minimization of the amount of soil exposed during construction activity, temporary stabilization of soils within 14 days of soil exposure, and establishing vegetation in drainage swales.

Streams 4, 6, and 7 are modified ephemeral, headwater streams. These types of streams have little or no aquatic life potential, per the Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (Ohio EPA, Division of Surface Water, 2012). The aquatic life potential of these streams is limited by the lack of substrate diversity and the lack of regular water flow.

Stream 5 is a modified Class II, intermittent headwater stream. Because of the lack of perennial flow, no fish occur within this stream. Generally, Class II PHWH streams may exhibit moderately diverse communities of warm water adapted native fauna that would be present seasonally. This stream crosses through an existing residential development that currently uses septic systems. These are old and failing systems that allow sewage to leach into these streams thereby inhibiting the development of diverse communities of native fauna. Because of the failing septic system that occurs adjacent to this stream (as identified on the map in Attachment 2), only pollution tolerant macroinvertebrates can survive within this stream. With the discontinuance of the leaching the failing septic systems into the Stream 5, the diversity of the fauna in the remaining stream will actually improve and the composition of the aquatic species will switch from pollution intolerant to pollution tolerant species.

The proposed impacted streams are not currently used for commercial activities, entertainment, or tourism. These are typical headwater streams with no value in regards to recreation, tourism, or commercial activities. Currently any streams that occur within an area that is being used by home owners has been channelized, culverted, and is regularly mowed and cleared to the stream edge.

Wetlands Discussion

The functions and value of the wetlands were evaluated using the Ohio Rapid Assessment Methodology (ORAM). Seven wetlands totaling 4.354 acres were identified on the Project site. Four of the seven wetlands being impacted assessed within the range of Category 1 wetlands. Category 1 wetlands are of the lowest ecological quality supporting minimal habitat, hydrological, recreational, and educational functions. The remaining three wetlands assessed within the range of Category 2 wetlands. Category 2 wetlands are considered general high quality waters, with the potential to support moderate wildlife habitat, hydrological, and recreational functions.

The wetlands on this site are not locally or regionally scarce. Under the PDA plan, Wetlands I, J and K will be filled completely, the remaining wetlands on-site will be partially filled.

The site design will require that 3.306 acres of federally regulated wetland be impacted. Wetlands E, F and G are located along the eastern edge of the site. The impacts to these wetlands are necessitated by the results of the berm mandated by the public referendum as previously stated, and will result in these wetlands being filled. Wetland E is a 0.019 acre, Category 1 emergent wetland; Wetland F is a 1.949 acre, modified Category 2 primarily forested wetland; and Wetland G is a 1.564 acre, modified Category 2 primarily forested wetland.

Wetland H is an emergent/forested, 0.338 acre, Category 2 wetland, located at the front entrance of the proposed site and cannot be avoided, resulting in its proposed fill.

The other wetlands found on the site include Wetland I, a 0.009 acre, Category 1 emergent wetland; Wetland J, a 0.125 acre, Category 1 scrub/shrub wetland; and Wetland K, a 0.305 acre Category 1 primarily emergent wetland. Wetlands J, K, and I are located on the western portion of the site being developed for parking purposes. Since the Project site is a retail development, customer parking is an essential component. As a result, these wetlands will be filled to meet the parking requirements of the development plan.

The wetlands proposed to be impacted have moderate community interspersion, some areas of diverse microtopography, and sparse coverage of invasive plant species. But the proposed Project and these wetlands are located in an existing residential development.

Portions of these wetlands are mowed, yard waste is regularly dumped in the wetlands, understory vegetation is cleared, paths have been created within the wetlands, past fill activities have occurred, and septic drainage is leaching into these water resources. These wetlands have minimal to no buffers with moderately high intensity of surrounding land use, and have little connectivity to other natural areas. All these factors limit the diversity and quality of aquatic species so that it is likely that these wetlands are currently dominated by pollution intolerant species. As with the streams, removing the sewage leaching from the failing septic systems will allow the number of pollution intolerant species to increase.

Because it is proposed to impact a large portion of the wetlands on-site, there will be a loss of potential habitat. However, due to the lower quality of the habitat features of these wetlands the overall effects on wetland habitat are minimal. To ensure the wetlands being avoided are not adversely impacted by the development activities, all necessary Best Management Practices (BMP) will be employed during construction, as previously discussed.

The wetlands on the Project site are not currently used for commercial, recreation, or tourism activities. Currently any wetlands that occur within an area that is being used by home owners is being mowed, cleared, and/or modified to allow free access,

1.5 Technical Feasibility and Cost Effectiveness

All three on-site alternatives are technically feasible and would require similar technology to implement. The resources necessary to implement the alternatives would also be similar and are available. The significant difference between the alternatives is in the economic and operational feasibility as explained below.

The NDA has a much smaller overall footprint which has been designed to totally avoid the streams and wetlands on site. With the reduction in buildable area comes a decrease in retail space; theater, office, and hotel space; and an increase in parking within parking garages (1880 spaces). In particular, the total leasable retail space drops from 335,600 square feet to 251,920 square feet. This smaller footprint reduces the construction costs and results in a decrease in construction jobs and construction tax revenue. Even though the overall construction costs are reduced with this alternative, they are still very high relative to leasable retail space, and as such, the NDA is not a practicable, cost effective alternative. These relatively high costs are a result of the increased number of parking spaces in garages and the longer, higher walls designed to avoid wetlands and streams and provide a buffer to the adjacent homes to the east, as required by the public referendum. Recurring costs will also be reduced, as there will be a reduction in wages, supplies, etc. required to support the commercial development.

The MDA reduces impacts from the PDA by replacing a significant amount of the surface parking with multiple level garages. This allows for greater avoidance of water resources; however, the cost for parking garages is significantly higher than surface parking (\$15,000 - \$20,000 per space for garage vs. \$2,000-\$4,000 per space for surface). This makes the infrastructure & site cost significantly higher for this alternative, while the total leasable retail space remains the same. As a result, the return on investment and risk drop below a reasonable level. Construction costs for this alternative are higher than the PDA and will result in an increase in construction jobs and tax revenue. The long term operation and maintenance costs for parking garages are also significantly higher than surface parking and as such, the recurring cost will be higher for this alternative when compared to the PDA. Revenue from leasable space is in line with the PDA, but would do not support the increased maintenance cost.

The PDA results in more impacts when compared to the MDA due to the increased footprint required for surface parking spaces. As mentioned above, the initial and long term maintenance costs are significantly less for surface parking than garage parking. From a community and economic perspective, this design returns the most financial value as rental incomes are in line with the MDA, but overall construction costs are lower. The construction cost for this alternative is lower than the MDA with a slight decrease in construction jobs and tax revenue. When compared to the MDA, the long-term maintenance cost is lower because surface parking is less expensive to maintain.

1.6 Economic Consideration

As part of this submission process, the Applicant completed a socio-economic evaluation of both development costs and community economic benefits for the PDA and the MDA. The development of the Pinecrest site will have no adverse effect on local unemployment, poverty, or household incomes, but will improve both short-term and long-term employment in the area through construction, maintenance, and retail jobs.

In the PDA, the design layout was established to conform most closely to the development design approved in the November 5, 2013 public referendum. In the PDA analysis, criteria were established to maximize development potential by providing the most desirable overall site configuration. This objective will enhance perceived value, thus allowing the Project to facilitate its highest economic return. This design would result in a total of 54.18 acres of developable land on total development acreage of 57.07 acres.

The estimated Project development costs for Preferred Development will generate a net Investors IRR of 24.7%. The PDA's financial return to the Applicant is significantly better than the MDA.

The community benefits from this development are related to the total construction jobs required by this site development, and the hundreds of permanent jobs required to staff the retail development and maintain the development including landscaping, lawn care, buildings, and parking lots, as well as secondary, but direct project related needs (real estate sales, contracts, etc.). Although specific numbers for these jobs and services are not easily estimated, it is clear that, of the two alternatives, this alternative would provide the maximum value in these categories. The anticipated annual state and local tax revenue for the PDA is approximately just under \$11,000,000.

The MDA has been designed to minimize the on-site wetland impacts, while still complying with the referendum requirements. However, it will still require a total wetland fill of 2.454 acres and 904 linear feet of stream. The community benefits of the MDA are anticipated to be similar to the benefits noted for the PDA. These benefits include construction jobs, permanent retail and support jobs, and state and local tax revenue.

The estimated Project costs and anticipated revenues for the MDA are presented in the Socio-economic Analysis. Due to the fact that there is an increase in construction and long term maintenance costs for the MDA as compared to the PDA, the MDA's financial return is reduced to an Investor's IRR of 19.8%. This is nearly a 20% reduction in return, when compared to the projected PDA Investor's IRR of 24.7%. The Investor's IRR of 19.8% is considered to be at the low end as compared to industry standards for such a major development investment.

The MDA and the PDA both provide the local community an environmental benefit, as the Project is anticipated to result in an improvement in water quality post-construction, as the failing septic systems will be replaced by a functional sewer system as well as Phase 1 and 2 storm water controls.

As the MDA construction costs reduce the overall return on investment, the PDA is the practicable and economically viable alternative that best balances the unavoidable environmental impacts with the Project purpose.

1.7 Cumulative Impact

It is assumed that past impacts to wetlands and streams within this watershed have happened, as residential and commercial growth has occurred within the watershed. This proposed development will not result in any significant added impact to water quality and will in fact; result in an improvement in water quality draining from this site.

As previously stated, several of the homes on-site have septic systems that are failing. Due to the site topography, the septic waste flows into the streams and/or wetlands to the east. As this flow is generally not well treated, it is contributing to a decrease in the overall water quality of the receiving streams and wetlands. All of this flow from the Project site eventually drains into Willey Creek and thence to the Chagrin River, a State Scenic River. The proposed development will remediate this existing situation by providing connectivity to a functional gravity sanitary sewer system located in Orange Place, and provide Phase 1 and 2 treatment of storm water flow. This new system will improve the water quality of the overall site feeding into remaining wetlands, entering the storm water system and thus reducing pollutants currently contributing to the Willey Creek watershed. All on-site storm water will be passed through a Phase II storm water treatment system in compliance with the Ohio EPA Phase 2 Storm Water regulations. This will be accomplished through the modification of an existing storm water management basin to incorporate features that will treat the required water quality volume.

1.8 Indirect Impacts

Because it is not practicable to avoid the majority of the streams and wetlands on the Project site, some indirect impacts are expected. However, as stated in section 1.4 Magnitude of the Proposed Lowering of Water Quality, the proposed impacts will have minimal overall effect on habitat and aquatic species in the watershed due to the lack of existing aquatic species and that most of these water resources are already highly disturbed.

To further minimize on-site and off-site impacts both during and after construction, the Applicant will utilize a number of BMPs. These include but are not limited to: stabilized construction entrances and access roads, silt fencing, geotextile mats on steep grades, inlet protection, installation of sediment basins, phased development, minimization of the amount of soil exposed during construction activity, temporary stabilization of soils within 14 days of soil exposure, and establishing vegetation in drainage swales. Additional measure will be taken to ensure no future indirect impacts will occur. These include but are not limited to: storm water management basins that will manage runoff volume and moderate post construction flow peaks to the receiving waters through soil percolation and controlled water storage. These control measures will ensure that peak post-development rates of surface water runoff from the site do not exceed the peak pre-development rates of runoff.

To address concerns regarding potential loss of hydrology to off-site wetlands, and/or flooding to adjacent properties as a result of construction, an assessment of the possible effects of the berm and other development activities was conducted. It was determined that the proposed berm for the Pinecrest development will not cut off flow to the remaining wetlands, nor will it create a flooding problem along the base of the berm. The pre-development flow of the site runs east and south, collecting into Stream 5. This existing general flow pattern will be maintained. See Attachment 3 for a map showing estimated off-site wetlands and general flow patterns.

The existing on-site watershed draining east into Wetlands G and F will be partially filled and redirected, decreasing the on-site watershed by approximately 57%. It should be noted that the footprint of Wetlands G and F will be impacted as well as reduced by approximately 70%. The post-development watershed supporting these wetlands will slightly exceed pre-development (as a ratio), so hydrology to Wetlands G and F will be maintained with the proposed design.

Placement of the mound will also not impede flow since the existing site naturally drains west to east (towards Wetlands G and F) eventually draining to an off-site stream that runs south towards Harvard Road. There will be no rise in water levels that would affect the wetland hydrology or additional flooding of adjacent property since the off-site stream will remain.

1.9 Construction Storm Water Management Plans

Storm water management planning for the Project will incorporate BMPs and other techniques necessary to maintain compliance with the federal Water Pollution Control Act, Ohio Water Pollution Control Act, Ohio NPDES permit, and Village of Orange storm water management regulations for storm water discharges associated with construction activity.

Storm water management planning will address issues related to both water quantity and quality by incorporating appropriate techniques from the latest Ohio Rainwater and Land Development manual and to maintain compliance with the applicable “Ohio Environmental Protection Agency Authorization For Storm water Discharges Associated With Construction Activity Under the National Pollutant Discharge Elimination System” permit.

1.10 Post-Construction Storm Water Management Plans

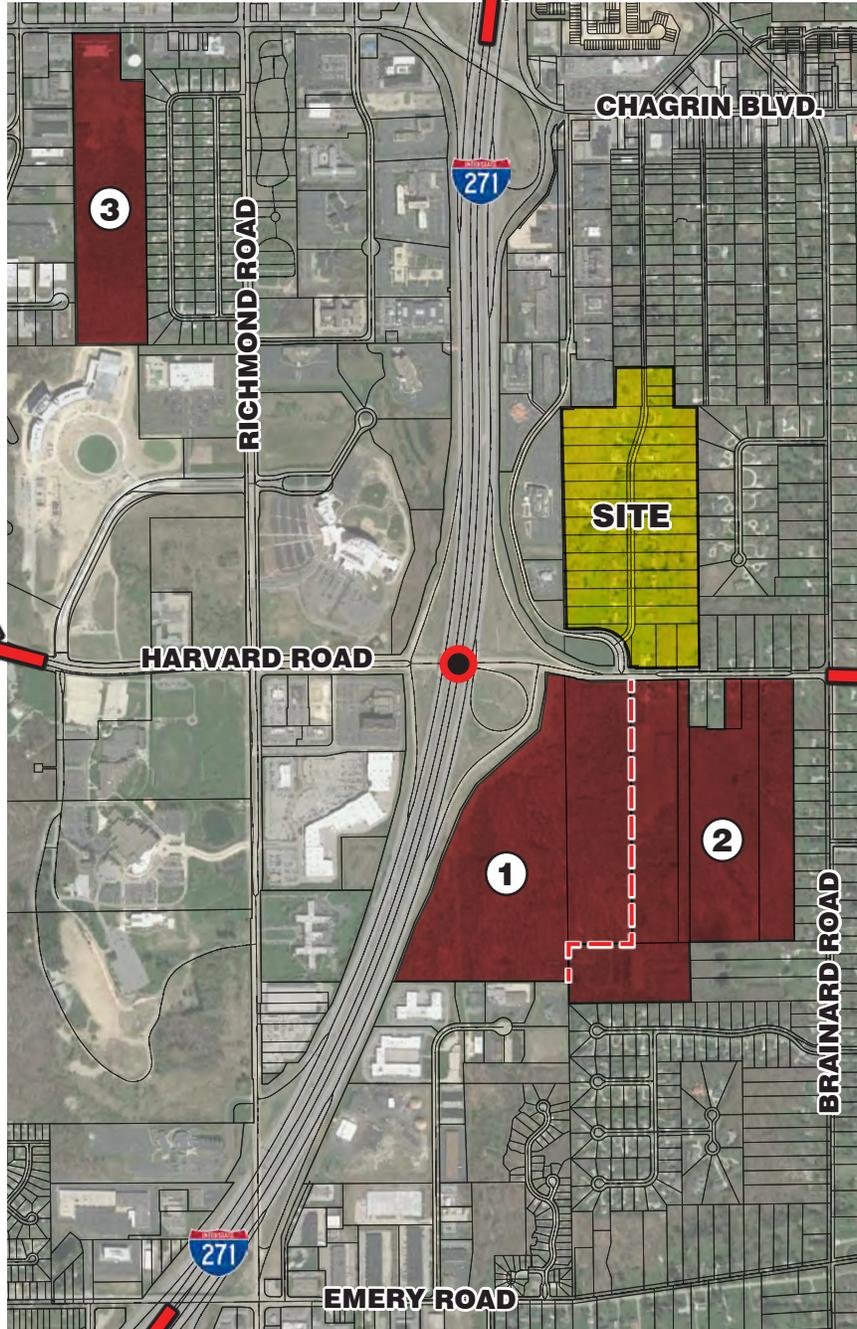
For Long-term management, Storm Water Pollution Prevention Plans (SWPPPs) will be developed for individual projects as various facilities are developed. These plans will incorporate non-structural preservation methods, erosion prevention practices, sediment controls, runoff controls, post-construction storm water management, surface water protection, non-sediment pollution controls, and on-going maintenance plans. Post-construction BMPs may include Infiltration Basins, Enhanced Water Quality Swales, Dry or Wet Extended Detention Basins, Sand and/or Other Media Filtration Systems, Bio-retention Cells, Pocket Wetlands, Vegetated Filter Strips, and/or other appropriate BMPs. Development planning will strive to maintain or enhance natural systems, limit impacts, and coordinate SWPPPs for various projects.

No off-site impacts are anticipated with the development of this site because the measures taken during construction and post-construction will ensure that there will be no significant degradation of the receiving waters and the associated aquatic ecosystem.

Attachment 1

KEY MAP

7 Miles to
Mayfield Rd
from I-271/Exit 28B
Harvard Road



9 Miles to
Interstate 77
from I-271/Exit 28B
Harvard Road

3 Miles to
Som Center Road
from I-271/Exit 28B
Harvard Road

2 Miles to
Warrensville Hts
from I-271/Exit 28B
Harvard Road

ALTERNATIVE SITES ANALYSIS

Orange Village, Ohio

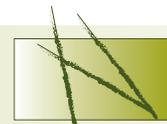
Beachwood, Ohio

Date: 09-29-2014

Project #: 13637



NORTH



NEFF
& ASSOCIATES

Civil Engineers + Landscape Architects + Planners + Surveyors

WETLAND RESOURCES



SOURCE: U.S. Fish & Wildlife Services - National Wetland Inventory

LEGEND

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Other

ALTERNATIVE SITES ANALYSIS

Orange Village, Ohio

Beachwood, Ohio

Date: 09-29-2014

Project #: 13637



NORTH



NEFF
& ASSOCIATES

Civil Engineers + Landscape Architects + Planners + Surveyors

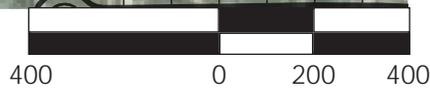
SITE #1 - NOT LISTED FOR SALE

PARCEL NO. 90103018
90142002
APPROX. ACRES 94.76
OWNER City of Cleveland



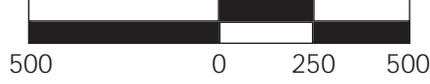
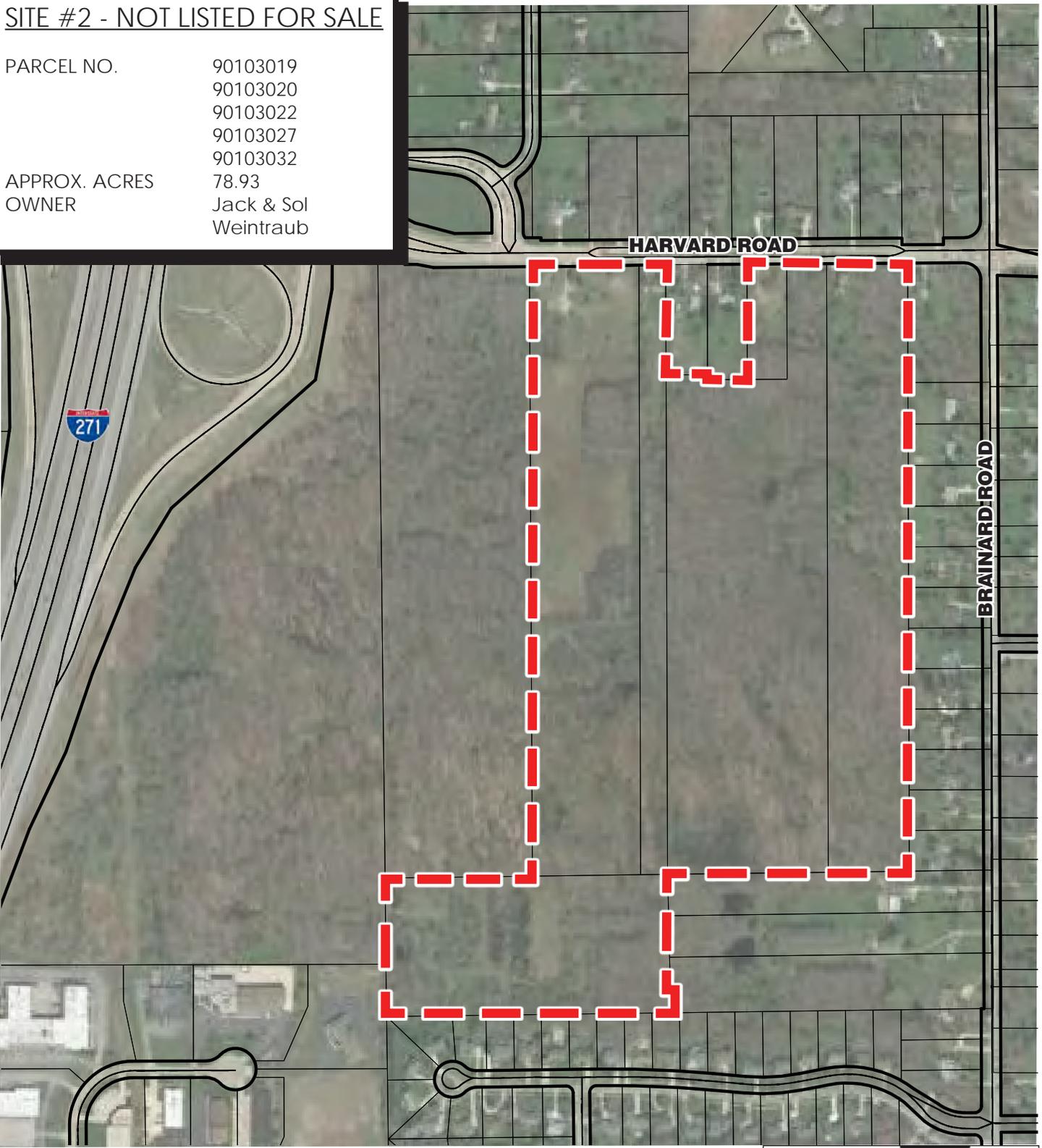
HARVARD ROAD

271



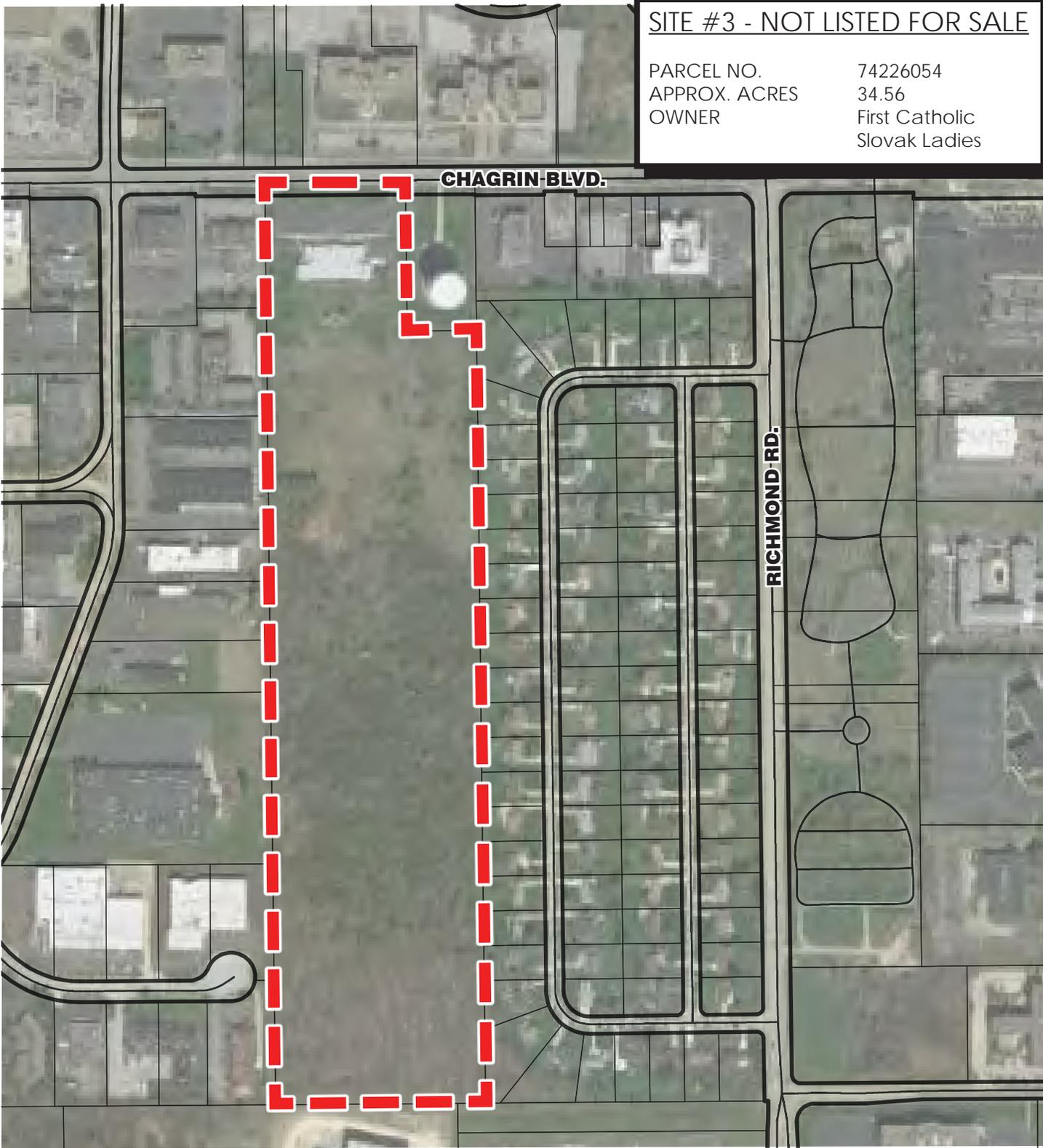
SITE #2 - NOT LISTED FOR SALE

PARCEL NO. 90103019
 90103020
 90103022
 90103027
 90103032
APPROX. ACRES 78.93
OWNER Jack & Sol
 Weintraub



SITE #3 - NOT LISTED FOR SALE

PARCEL NO.	74226054
APPROX. ACRES	34.56
OWNER	First Catholic Slovak Ladies



CHAGRIN BLVD.

RICHMOND RD.

400 0 200 400

ALTERNATIVE SITES ANALYSIS
Orange Village, Ohio Beachwood, Ohio

Date: 09-29-2014

Project #: 13637



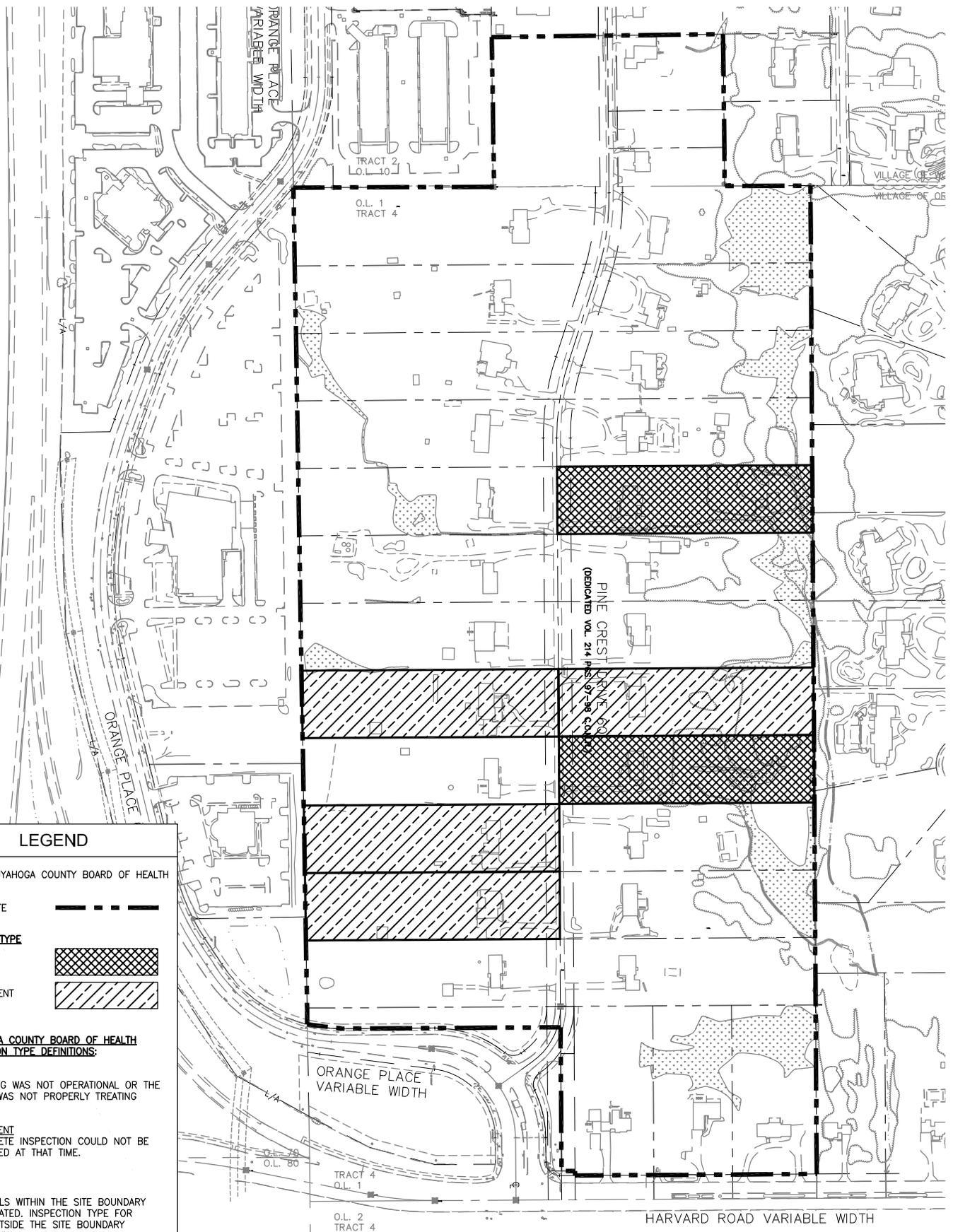
NORTH



NEFF
& ASSOCIATES

Civil Engineers + Landscape Architects + Planners + Surveyors

Attachment 2



LEGEND

SOURCE: CUYAHOGA COUNTY BOARD OF HEALTH

PROJECT SITE 

INSPECTION TYPE

FAIL 

ASSESSMENT 

CUYAHOGA COUNTY BOARD OF HEALTH INSPECTION TYPE DEFINITIONS:

FAIL
SOMETHING WAS NOT OPERATIONAL OR THE SYSTEM WAS NOT PROPERLY TREATING SEWAGE.

ASSESSMENT
A COMPLETE INSPECTION COULD NOT BE PERFORMED AT THAT TIME.

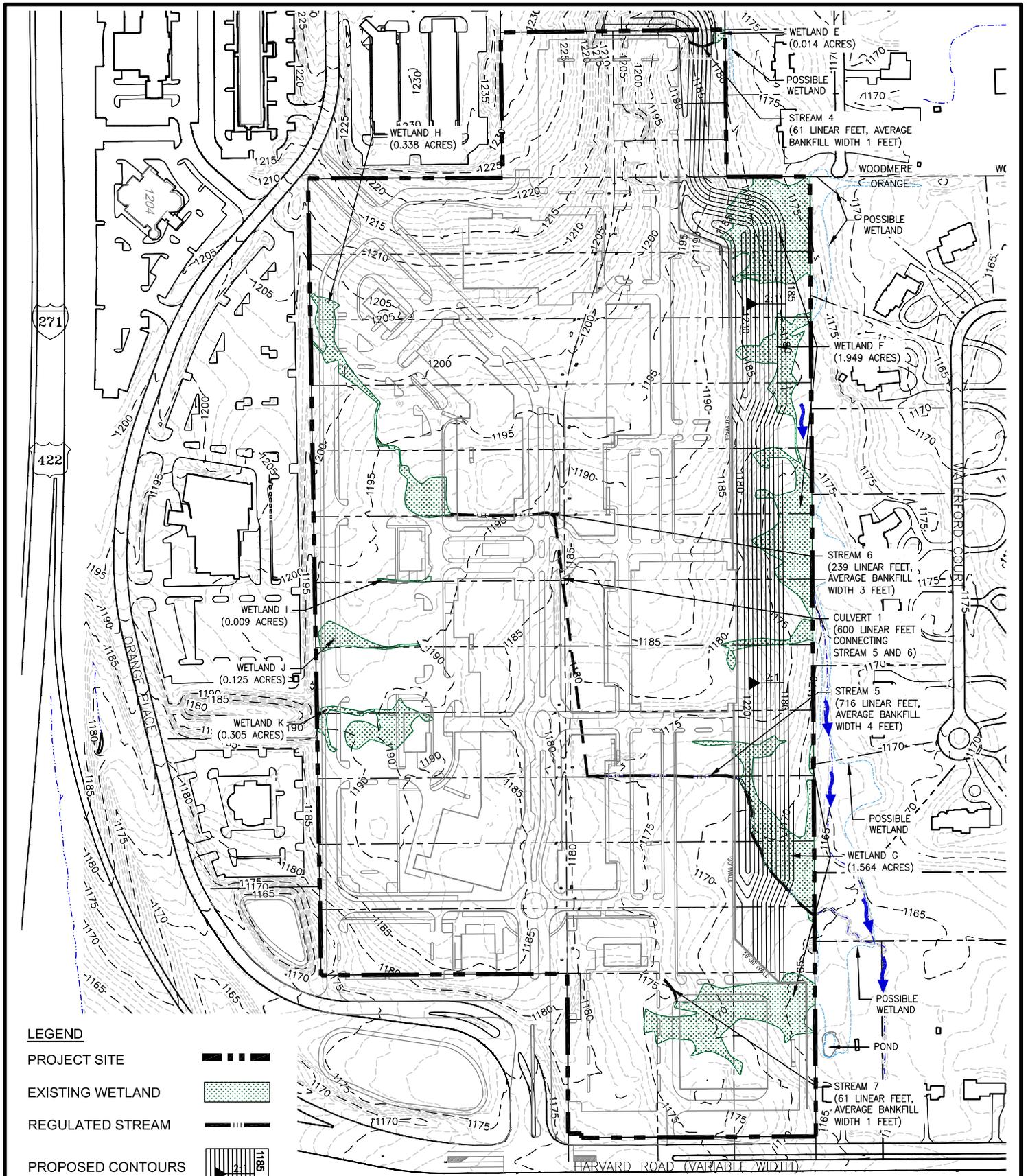
NOTE:
ONLY PARCELS WITHIN THE SITE BOUNDARY WERE EVALUATED. INSPECTION TYPE FOR PARCELS OUTSIDE THE SITE BOUNDARY ARE UNKNOWN.

JOB #: 13637
DATE: NOVEMBER 2014



PINECREST MIXED USE DEVELOPMENT
FIGURE #8 - SEPTIC LOCATION MAP
VILLAGE OF ORANGE, CUYAHOGA COUNTY, STATE OF OHIO

Attachment 3

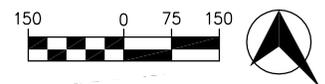


SOURCE: AEROCON PHOTOGRAMMETRIC SERVICES, INC, DATED MARCH 9, 2013

LEGEND

- PROJECT SITE
- EXISTING WETLAND
- REGULATED STREAM
- PROPOSED CONTOURS
- EXISTING CONTOURS

JOB #: 13637
DATE: DECEMBER 2014



PINECREST MIXED USE DEVELOPMENT
FIGURE #1 - TOPOGRAPHIC MAP
VILLAGE OF ORANGE, CUYAHOGA COUNTY, STATE OF OHIO

