



City of South Haven

Agenda Item #6

Lake View Cemetery Master Plan

Background Information

Over the past year, staff has been working with Abonmarche Consultants to develop a master plan for the City's Lake View Cemetery located between Bailey Avenue and Blue Star Highway. The purpose of the master plan was to identify the needed infrastructure improvements, subdivide the improvements into logical projects, prepare cost estimates for the projects, and prioritize the projects based on available funding.

The master plan identifies various improvements including:

- Retaining Wall Reconstruction
- Stairway Reconstruction
- Building Improvements
- Yard Hydrant Replacements
- New Block Wayfinding Signage
- Pavement Improvements
- Drainage Improvements

Staff has reviewed the project costs and prepared a preliminary schedule that will phase improvement over the next 7 years. Over the next two fiscal years, all building improvements, grounds improvements, and yard hydrant improvements will be implemented. In addition, roadway crack sealing and maintenance will occur. Staff is recommending this schedule in order to address safety and usability issues as soon as feasible.

Storm sewer improvements and roadway reconstruction will be phased over multiple years after the safety and usability projects are completed.

At the March 10 regular meeting, the Parks Commission reviewed the master plan with Abonmarche. After discussion, Commissioners decided to table the issue to provide additional time to visit the site and review the details of the plan.

Recommendation

Continue discussion of the Lake View Cemetery Master Plan. Options to be considered include a workshop to be held at the Cemetery to review the needs identified in the Master Plan or the formation of a subcommittee to continue the review process and report back to the Commission.

Attachments

Lake View Cemetery Master Plan
Lake View Cemetery Annual Schedule



Lake View Cemetery



Master Plan
Lake View Cemetery
City of South Haven



Introduction:

The City of South Haven has realized that certain repairs are needed throughout Lake View Cemetery in order to extend the life-time of the cemetery and associated infrastructure. Outlining these repairs in an overall Lake View Cemetery Master Plan will allow necessary improvements to take place in a strategic, timely, and cost-effective manner. Abonmarche has been retained to complete an analysis of existing conditions, wants and needs—along with a prioritization of proposed projects—over the next 5 years. Our procedure for this project included the completion of a topographic survey, site review/evaluation, and meetings with city staff to determine desired priorities. Detailed cost estimates were then prepared for each of the priorities found in the attached spreadsheet. The following is a summary of the work that was completed and recommendations for improvements for Lake View Cemetery. The areas of work were broken down by the following categories:

Infrastructure Improvements:

- I. Storm Sewer System
- II. Areas at Risk of Ponding and Erosion:
- III. Overland Drainage
- IV. Water Lines / Yard Hydrants
- V. Roads
- VI. Building and Grounds Improvements
 - Bailey Street Entrance
 - Retaining Walls
 - Office / Restroom
 - Block Markers / Way-Finding System

Infrastructure Improvements:

I. Storm Sewer System

The condition of the existing storm drain system is currently unknown due to a lack of reliable as-built information as well as difficulty in completing a formal inspection of the system resulting from impediments with the structures. Topographic survey of roadways within the cemetery located the rim elevations of 43 storm structures. Field observation of these structures revealed that the majority are recessed between 18 to 24 inches below pavement grade, likely as a means to capture storm water effectively. Many of the structures are completely filled with dirt and leaves that made it difficult to determine the condition of inlet pipes into the structure (See Figure 1 on the following page). It is very likely that pipes in the cemetery are undersized by today's standards. In addition,

the age of the existing system coupled with the possibility of storm pipes being located near or underneath grave sites makes it highly unlikely that the system can be replaced in its current alignment. Any proposed storm sewer work will thus take place within the limits of the existing roadway network to avoid conflicts with the graves.

There have been numerous complaints about the recessed structures causing issues for plows and damage to vehicles that drive into the depressions. When new structures are placed or any road reconstruction is done in an area with structures, it is recommended that the rims be brought up to flush with the road grade to minimize this issue.

Based on the proposed Master Plan, only four structures are outside of the 5 year plan for replacement. These structures are isolated from both the existing and proposed network and thus are assumed to not be tied into the system in its current state. It is recommended that these structures be raised as previously stated to ensure that they do not impede traffic and plows within the cemetery.



Figure 1: Existing Storm Drain Conditions

II. *Areas at Risk of Ponding and Erosion*



A solution for the cemetery drainage problem as a whole has been provided in the attached drawings. There are three major drainage districts that exist in the cemetery which need to be managed through an updated and comprehensive drainage network. It is proposed that the following general improvements be made to the Catchment areas that are shown:

- Removal of existing storm structures within the boundaries of road reconstruction limits
- Installation of a comprehensive system of new storm sewers to be located down the roadway center line to minimize impact to potential grave plots located along the roadway edge. This includes installation of storm catch basins located at the roadway edge at or near the existing catch basin locations in the cemetery.
- Provide new castings for proposed structures that will be located flush to the proposed roadway to alleviate the damage to vehicles and plows within the cemetery.
- Reconstruct the existing roadway in locations where pipe is to be installed. Prioritize installation of pipe with areas that currently are in need of roadway structural repair. These areas have been noted on the cemetery master plan drawings. The areas proposed within the Master Plan repair all of the immediate roadway structural issues.

Since there is currently limited reliable information on the existing storm network in the cemetery, this design assumes that an entire new network is required. Salvage of existing structures and pipes appears unlikely due to the nature of pipes running near or under new grave sites as well as the advanced age of the network itself. Though it is recommended that the entire system be updated, further review of existing invert and structure conditions may help in the phasing of the projects to ensure the most critical repairs are made in a timely manner.

III. Overland Drainage

The interior road leading to the marked entrance along N. Bailey Ave is lined with a crumbling concrete swale on the southern edge. The existing condition does not allow for proper infiltration and redirection of flow to the storm water system and thus overflow spills over into the adjacent block. We propose providing a constructed water course that leads to the existing catch basin near the Bailey Ave entrance. This can be accomplished by providing a bituminous curb along the southern road edge, or constructing a small earth swale to channelize runoff. The attached estimate proposes the re-grading of the swale along with a small river stone layer being placed as a means to capture runoff and channelize it down to the existing storm structure. A detail of this repair is shown on the attached "Master Plan" map.

IV. Water Lines / Yard Hydrants



There are two styles of existing yard hydrants within Lake View Cemetery: eighteen (18) standard yard hydrants mounted at 18" on a 4' wooden post, and thirteen (13) hand-pump, frost-proof yard hydrants (See Figure 2). The location of these hydrants has been designated on the attached "Existing Conditions and Hydrant" map following this report.



Figure 2: Existing Yard Hydrant Conditions –Hand-Pump, Frost Proof (Left) & Standard Post Mounted (Right)

Guests of the cemetery have voiced complaints that the standard yard hydrants are too low to be easily used. Further, they have stated that the frost-proof hydrants are hard to operate. It is recommended that all thirty-one (31) yard hydrants be modified. We propose the following upgrades in order to improve the accessibility and ease of use for cemetery patrons while establishing uniform yard hydrants throughout Lake View Cemetery:

- Retrofit or replace the eighteen (18) standard hydrants on existing posts up to an acceptable height between 30-36 inches above grade.
- Replace all thirteen (13) hand-pump, frost proof hydrants with 3' standard water hydrants of the same style as remaining eighteen (18) standard hydrants.



Our initial site visit was completed after the water system had been turned off for the winter. Therefore, hydrants could not be checked to determine if they are all operational. Before replacement efforts are undertaken, the working condition of the hydrants shall be checked and if found to be non-functional further work may be required.

These repairs should not be as invasive as the storm system upgrades and thus can take place at any rate that is desired by the City. If budget allows, it is recommended that these upgrades take place early on in the Master Plan life, to alleviate issues that exist with the current hydrant network since these upgrades will require little to no subsurface work and will provide both a visual upgrade to the cemetery as well as ease of use to the patrons at little cost.

V. Roads

After a walkthrough of the road network within Lake View Cemetery, we have identified six (6) sections of pavement that are in need of immediate resurfacing (labeled 1-6 on the "Master Plan" map). The parking area located near the shop should be included in this immediate resurfacing since it is in poor condition and is the primary staging area for funerals located in the cemetery. Because the remaining roadways have only minimal defects compared to the highlighted segments and the cemetery does not experience heavy traffic, the remaining roads can likely be maintained for another ten (10 years) with immediate crack sealing and subsequent crack sealing every 3-5 years. On the next page is a comparative example between roadways that are in need of immediate repair compared to those that need standard maintenance. These comparisons were made based upon a visual inspection using the PASER rating system.





Figure 3: Roadway Conditions – PASER Rating 7 (Left) & PASER Rating 2 (Right)

Any repairs to the existing storm network should be coordinated with repairs needed to the existing roadways. It is recommended that current funding be focused on either Catchment area B or C since these are areas of concern in terms of flooding and erosion risk as well as pavements that require immediate attention. Catchment area A requires an upgrade of the storm network but many of the roadways in this section of the cemetery were in acceptable condition and thus should be upgraded after the aforementioned sections.

VI. Building and Grounds Improvements:

Several Building and Grounds improvements have been identified for the cemetery. These improvements have been broken down into the following categories based on location or item of work:

Bailey Street Entrance

- Repair existing wall or install new veneer stone in front of existing concrete masonry – to match stone at end pillars
- Signage – install new individual cast metal letters over existing wall



- Monuments/pillars – optional statuary mounted on top of end pillars

Retaining Walls

There are four (4) retaining walls within the Cemetery that are in poor or failing condition (See “Master Plan” map). The walls are labeled according to the adjacent Grave Lot that they are located on/near. One 25 foot cinder block wall, Wall M, is located along the south edge of the Monroe Addition. The second cinder block wall, Wall D, is approximately 40 feet long and is located on the west edge of Block D. The third wall, Wall A, is located on the south edge of Block A and is made of stone inlayed concrete. Wall A is 20 feet on either side of four concrete stairs with a galvanized metal handrail on the west side of the stairs (40 feet of wall total). The fourth wall, Wall 4, is located along the west edge of the older Block 4. Wall 4 is crumbling concrete with small stone inlay. The following images show the existing cinder block walls as well as the existing concrete masonry wall that is a sample of what design is wanted on future walls.



Figure 4: Wall Conditions – Cinder Block Wall (Left) & Concrete with Stone Inlay (Right)

The cemetery manager would like to replace all walls with new stacked/battered concrete masonry units, utilizing the existing stones in Wall A. Converting the cinder block walls will allow for a uniform look within the cemetery. Additionally, the concrete steps at Wall A will be replaced with new, code-compliant steps with concrete stoops at top and bottom of steps and new handrails.

Office/Restroom

- New walk to entry – replace existing sidewalk to office with 5 foot wide walk and over-sized stoop at entrance – new entry ADA compliant



- Bathroom remodel – replace plumbing fixtures, toilet partition, replace lighting, repaint walls, re-finish door and replace door knob with lever type
- Office remodeling – replace lighting and ceilings, replace flooring and re-paint walls
- Office HVAC – replace furnace with new split system – heat pump outside with wall-mounted fan unit in office – primarily a system for cooling but can heat office from Fall through Spring
- Electrical service upgrade – upgrade power to building to allow air conditioning to building. Current power panel is not code compliant.
- Roof repairs and fascia improvements – replace existing low slope roofing, cover wood fascia with aluminum fascia material - for reduced maintenance, paint soffit
- Exterior walls/windows/doors – replace entry doors with aluminum entry door (insulated), replace windows, and paint exterior walls, and remove security bars at windows
- Information kiosk – replace existing on outside wall, install new lighting over door and kiosk – recessed in soffit

Block Markers/Way-Finding System

The existing block marker and way finding system within the cemetery is accomplished using white concrete pillars with taped on lettering. Many of the markers are not a uniform height and the lettering requires constant replacement. The cemetery manager would prefer a more rustic look to the markers that is clear, concise, and uniform throughout the entire cemetery. Wrought iron posts with fixed signs at section corners and road junctions to guide visitors are desired.

It is recommended that the existing markers be removed and updated using a more clear and uniform system. Layout of the system should be accomplished by noting transition points between blocks and should keep in mind the need for drivers/walkers in the cemetery to be able to easily and quickly orient themselves within a given section. A field walkthrough to lay out the new markers should be completed to ensure that the new locations meet the aforementioned goals.

VII. Priority List for Improvements

Upon complete review of the aforementioned improvements for the Lake View Cemetery, a priority list was constructed as a basis for work to be completed for the next five years. This list is based on the immediate needs followed by wish list items. The categories shown match the attached estimate and detailed pricing is shown for each category respectively.

- Catchment Area C – Phase 1 \$187,000
Storm sewer improvements and associated road reconstruction—includes parking lot.



- Catchment Area B – Phase 1 \$174,000
Storm sewer improvements and associated road reconstruction.
- Wall A Stair and Pavement Repair \$16,000
Retaining Wall A reconstruction, stair reconstruction with handrails, and adjacent roadway reconstruction.
- Catchment Area C – Phase 2 \$241,000
Storm sewer improvements and associated road reconstruction.
- Catchment Area B – Phase 2 \$155,000
Storm sewer improvements and associated road reconstruction.
- Catchment Area A \$123,000
Storm sewer improvements and associated road reconstruction.
- Roadway Crack Sealing and Maintenance Repairs \$11,000
Roadway crack sealing and maintenance on remaining roads (2 applications).
- Yard Hydrant Repairs \$15,000
Retrofit and / or replacement of all thirty-one (31) yard hydrants to 3' standard yard hydrants.
- Building Improvements – Phase 1 \$25,000
Bathroom remodel, new walk, information kiosk, roof repairs and fascia improvements.
- Building Improvements – Phase 2 \$21,000
Office remodel and electrical service upgrade.
- Building Improvements – Phase 3 \$20,000
Upgrade of exterior walls/ window /doors and replacement of office HVAC system with new split system.
- Grounds Improvements \$105,000
*Repair existing or install new entrance wall with appropriate signage and / or monuments.
Retaining wall replacement and upgrades to the block markers/way-finding system.*
- Total Project Construction Costs \$949,000
- Total Project Cost* \$1,091,000



* Total Project Cost includes contingency, design, and permitting fees. Figures rounded to nearest thousand dollars. See estimate for detailed item breakdown.

These recommendations are based on a five year Master Plan life and should be reevaluated as such to ensure that the goals of the Cemetery continue to be met in the future.

Attachments:

Existing Conditions and Hydrant Map
Master Plan Maps
Preliminary Alternative Cost Estimate



Project Name: City of South Haven - Lakeview Cemetery Master Plan
 Project Number: 14-0696
 Estimated By: Sam Jablonowski, EIT
 Checked By: Timothy Drews, PE
 Date: 1/19/2015
 Description: Roadway Reconstruction/Resurfacing and Drainage, Building and Grounds Improvements
 Scope: Various locations throughout cemetery

Hydrant Repairs & Replacements

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 600.00	\$ 600.00
Restoration	1	LS	\$ 1,000.00	\$ 1,000.00
Traffic Maintenance (Signage)	1	LS	\$ 250.00	\$ 250.00
Yard Hydrant, Rem	13	Ea	\$ 100.00	\$ 1,300.00
Yard Hydrant (Retrofit or Replace)	31	Ea	\$ 250.00	\$ 7,750.00
Contingency			15%	\$1,700.00
Total: Construction Cost				\$12,600.00
Engineering - Design & Permitting			15%	\$1,900.00
Subtotal: Hydrant Repairs & Replacements				\$14,500.00

Catchment A

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 4,500.00	\$ 4,500.00
Restoration	1	LS	\$ 5,000.00	\$ 5,000.00
Traffic Maintenance (Signage)	1	LS	\$ 500.00	\$ 500.00
Pavt, Rem	900	Syd	\$ 5.00	\$ 4,500.00
Machine Grading	7	Sta	\$ 1,000.00	\$ 7,000.00
Aggregate Base, 8 inch	900	Syd	\$ 6.00	\$ 5,400.00
Subbase, CIP (12 inch)	325	Cyd	\$ 9.00	\$ 2,925.00
HMA (3 inch)	170	Ton	\$ 70.00	\$ 11,900.00
Dr Structure, Rem	7	Ea	\$ 350.00	\$ 2,450.00
Sewer, CI A, 12 inch, Tr Det B	650	Ft	\$ 42.00	\$ 27,300.00
Dr Structure, 24 inch dia	7	Ea	\$ 1,100.00	\$ 7,700.00
Dr Structure, 48 inch dia	5	Ea	\$ 1,600.00	\$ 8,000.00
Dr Structure Cover	12	Ea	\$ 500.00	\$ 6,000.00
Contingency			15%	\$14,000.00
Total: Construction Cost				\$107,175.00
Engineering - Design & Permitting			15%	\$16,100.00
Subtotal: Catchment A				\$123,275.00

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Catchment B - Phase 1

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 6,300.00	\$ 6,300.00
Restoration	1	LS	\$ 5,000.00	\$ 5,000.00
Traffic Maintenance (Signage)	1	LS	\$ 500.00	\$ 500.00
Pavt, Rem	1200	Syd	\$ 5.00	\$ 6,000.00
Machine Grading	10	Sta	\$ 1,000.00	\$ 10,000.00
Aggregate Base, 8 inch	1200	Syd	\$ 6.00	\$ 7,200.00
Subbase, CIP (12 inch)	400	Cyd	\$ 9.00	\$ 3,600.00
HMA (3 inch)	200	Ton	\$ 70.00	\$ 14,000.00
Dr Structure, Rem	6	Ea	\$ 350.00	\$ 2,100.00
Sewer, CI A, 12 inch, Tr Det B	950	Ft	\$ 42.00	\$ 39,900.00
Dr Structure, 24 inch dia	12	Ea	\$ 1,100.00	\$ 13,200.00
Dr Structure, 48 inch dia	8	Ea	\$ 1,600.00	\$ 12,800.00
Dr Structure Cover	20	Ea	\$ 500.00	\$ 10,000.00
River Rock (For Drainage Swale)	10	Cyd	\$ 70.00	\$ 700.00
Contingency			15%	\$19,700.00
Total: Construction Cost				\$151,000.00
Engineering - Design & Permitting			15%	\$22,700.00
Subtotal: Catchment B - Phase 1				\$173,700.00

Catchment B - Phase 2

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 5,600.00	\$ 5,600.00
Restoration	1	LS	\$ 5,000.00	\$ 5,000.00
Traffic Maintenance (Signage)	1	LS	\$ 500.00	\$ 500.00
Pavt, Rem	1200	Syd	\$ 5.00	\$ 6,000.00
Machine Grading	9	Sta	\$ 1,000.00	\$ 9,000.00
Aggregate Base, 8 inch	1200	Syd	\$ 6.00	\$ 7,200.00
Subbase, CIP (12 inch)	400	Cyd	\$ 9.00	\$ 3,600.00
HMA (3 inch)	210	Ton	\$ 70.00	\$ 14,700.00
Structure, Rem	12	Ea	\$ 350.00	\$ 4,200.00
Sewer, CI A, 12 inch, Tr Det B	765	Ft	\$ 42.00	\$ 32,130.00
Dr Structure, 24 inch dia	9	Ea	\$ 1,100.00	\$ 9,900.00
Dr Structure, 48 inch dia	7	Ea	\$ 1,600.00	\$ 11,200.00
Dr Structure Cover	16	Ea	\$ 500.00	\$ 8,000.00
Contingency			15%	\$17,600.00
Total: Construction Cost				\$134,630.00
Engineering - Design & Permitting			15%	\$20,200.00
Subtotal: Catchment B - Phase 2				\$154,830.00

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 Scope: Various locations throughout cemetery

Catchment C - Phase 1 (Includes Parking Lot)

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 6,800.00	\$ 6,800.00
Restoration	1	LS	\$ 5,000.00	\$ 5,000.00
Traffic Maintenance (Signage)	1	LS	\$ 500.00	\$ 500.00
Pavt, Rem	2350	Syd	\$ 5.00	\$ 11,750.00
Machine Grading	18	Sta	\$ 1,000.00	\$ 18,000.00
Aggregate Base, 8 inch	2350	Syd	\$ 6.00	\$ 14,100.00
Subbase, CIP (12 inch)	800	Cyd	\$ 9.00	\$ 7,200.00
HMA (3 inch)	400	Ton	\$ 70.00	\$ 28,000.00
Sewer, CI A, 12 inch, Tr Det B	160	Ft	\$ 42.00	\$ 6,720.00
Sewer, CI A, 15 inch, Tr Det B	390	Ft	\$ 48.00	\$ 18,720.00
Sewer, CI A, 18 inch, Tr Det B	200	Ft	\$ 53.00	\$ 10,600.00
Dr Structure, 24 inch dia	2	Ea	\$ 1,100.00	\$ 2,200.00
Dr Structure, 48 inch dia	5	Ea	\$ 1,600.00	\$ 8,000.00
Dr Structure Cover	7	Ea	\$ 500.00	\$ 3,500.00
Contingency			15%	\$21,200.00
Total: Construction Cost				\$162,290.00
Engineering - Design & Permitting			15%	\$24,400.00
Subtotal: Catchment C - Phase 1 (Includes Parking Lot)				\$186,690.00

Catchment C - Phase 2

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 8,700.00	\$ 8,700.00
Restoration	1	LS	\$ 5,000.00	\$ 5,000.00
Traffic Maintenance (Signage)	1	LS	\$ 500.00	\$ 500.00
Pavt, Rem	2000	Syd	\$ 5.00	\$ 10,000.00
Machine Grading	15	Sta	\$ 1,000.00	\$ 15,000.00
Aggregate Base, 8 inch	2000	Syd	\$ 6.00	\$ 12,000.00
Subbase, CIP (12 inch)	675	Cyd	\$ 9.00	\$ 6,075.00
HMA (3 inch)	350	Ton	\$ 70.00	\$ 24,500.00
Structure, Rem	14	Ea	\$ 350.00	\$ 4,900.00
Sewer, CI A, 12 inch, Tr Det B	1055	Ft	\$ 42.00	\$ 44,310.00
Sewer, CI A, 15 inch, Tr Det B	140	Ft	\$ 48.00	\$ 6,720.00
Dr Structure, 24 inch dia	12	Ea	\$ 1,100.00	\$ 13,200.00
Dr Structure, 48 inch dia	12	Ea	\$ 1,600.00	\$ 19,200.00
Dr Structure Cover	24	Ea	\$ 500.00	\$ 12,000.00
Contingency			15%	\$27,400.00
Total: Construction Cost			-	\$209,505.00
Engineering - Design & Permitting			15%	\$31,500.00
Subtotal: Catchment C - Phase 2				\$241,005.00

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Wall A Stair and Pavement Repair

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 600.00	\$ 600.00
Restoration	1	LS	\$ 1,000.00	\$ 1,000.00
Traffic Maintenance (Signage)	1	LS	\$ 250.00	\$ 250.00
Pavt, Rem	325	Syd	\$ 5.00	\$ 1,625.00
Machine Grading	2	Sta	\$ 1,000.00	\$ 2,000.00
Aggregate Base, 6 inch	325	Syd	\$ 5.00	\$ 1,625.00
Subbase, CIP (12 inch)	110	Cyd	\$ 9.00	\$ 990.00
HMA (3 inch)	55	Ton	\$ 70.00	\$ 3,850.00
Contingency			15%	\$1,800.00
Total: Construction Cost				\$13,740.00
Engineering - Design & Permitting			15%	\$2,100.00
Subtotal: Wall A Stair and Pavement Repair				\$15,840.00

Crack Sealing and Maintenance Repairs (2 Applications)

Item	Quantity	Unit	Unit Cost	Item Cost
Mobilization	1	LS	\$ 400.00	\$ 400.00
Traffic Maintenance (Signage)	1	LS	\$ 500.00	\$ 500.00
HMA Crack Treatment, Lane (1.5 Miles per Application))	3.0	Lnmi	\$ 2,500.00	\$ 7,500.00
Contingency			15%	\$1,300.00
Total: Construction Cost				\$9,700.00
Engineering - Design & Permitting			15%	\$1,500.00
Subtotal: Crack Sealing and Maintenance Repairs (2 Applications)				\$11,200.00

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Building Improvements

Phase 1

Item	Quantity	Unit	Unit Cost	Item Cost
New Walk	1	LS	\$ 3,000.00	\$ 3,000.00
Bathroom Remodel	1	LS	\$ 9,000.00	\$ 9,000.00
Roof Repairs & Fascia Improvements	1	LS	\$ 7,000.00	\$ 7,000.00
Information Kiosk	1	LS	\$ 3,000.00	\$ 3,000.00
Total: Construction Cost				\$22,000.00
Architecture - Design & Permitting			15%	\$3,300.00
Subtotal: Building Improvements				\$25,300.00

Phase 2

Item	Quantity	Unit	Unit Cost	Item Cost
Office Remodel	1	LS	\$ 15,000.00	\$ 15,000.00
Electrical Service Upgrade	1	LS	\$ 3,000.00	\$ 3,000.00
Total: Construction Cost				\$18,000.00
Architecture - Design & Permitting			15%	\$2,700.00
Subtotal:				\$20,700.00

Phase 3

Item	Quantity	Unit	Unit Cost	Item Cost
Exterior Walls/Windows/Doors	1	LS	\$ 10,000.00	\$ 10,000.00
Office HVAC - New Split System	1	LS	\$ 7,000.00	\$ 7,000.00
Total: Construction Cost				\$17,000.00
Architecture - Design & Permitting			15%	\$2,600.00
Subtotal:				\$19,600.00

Grounds Improvements

Item	Quantity	Unit	Unit Cost	Item Cost
Miscellaneous (Interior Walls, Stairways)	1	LS	\$ 16,000.00	\$ 16,000.00
Bailey Street Entrance	1	LS	\$ 40,000.00	\$ 40,000.00
Wells Street Signage	1	LS	\$ 4,000.00	\$ 4,000.00
Blue Star Marker/Monument	1	LS	\$ 4,000.00	\$ 4,000.00
Wayfinding System	30	Ea	\$ 500.00	\$ 15,000.00
Contingency			15%	\$11,900.00
Total: Construction Cost				\$90,900.00
Engineering - Design & Permitting			15%	\$13,700.00
Subtotal: Grounds Improvements				\$104,600.00

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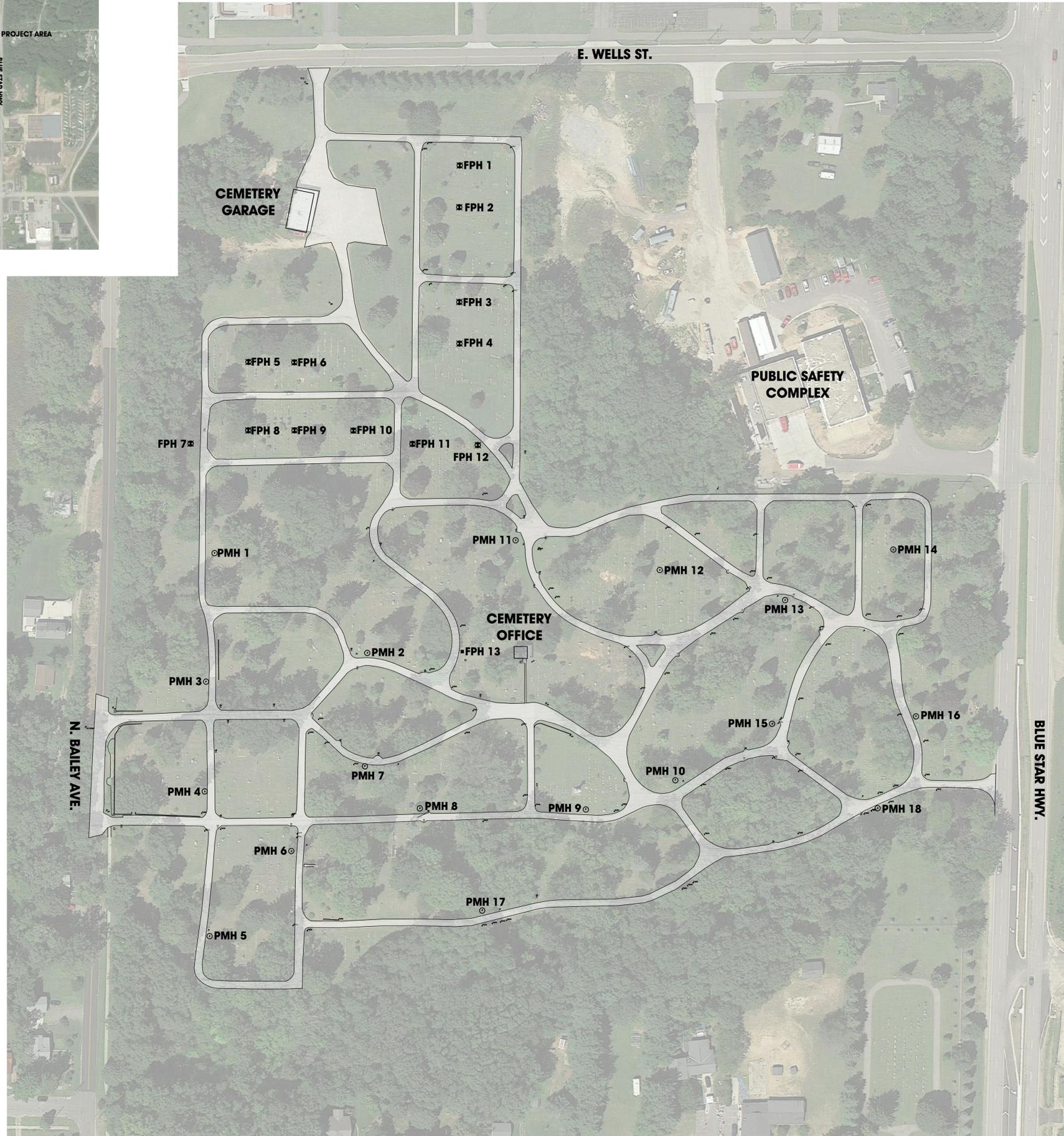
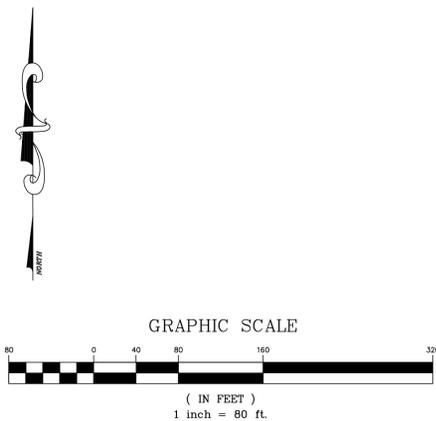
Totals

Item	Item Cost
Subtotal: Hydrant Repairs & Replacements	\$14,500.00
Subtotal: Catchment A	\$123,275.00
Subtotal: Catchment B - Phase 1	\$173,700.00
Subtotal: Catchment B - Phase 2	\$154,830.00
Subtotal: Catchment C - Phase 1 (Includes Parking Lot)	\$186,690.00
Subtotal: Catchment C - Phase 2	\$241,005.00
Subtotal: Wall A Stair and Pavement Repair	\$15,840.00
Subtotal: Crack Sealing and Maintenance Repairs (2 Applications)	\$11,200.00
Subtotal: Building Improvements	
Phase 1	\$25,300.00
Phase 2	\$20,700.00
Phase 3	\$19,600.00
Subtotal: Grounds Improvements	\$104,600.00
Total: Project Cost	\$1,091,240.00



LAKE VIEW CEMETERY VICINITY MAP

-  EXISTING HMA SURFACE
-  POST MOUNTED YARD HYDRANT (PMH 1-13)
-  FROST-PROOF YARD HYDRANT (FPH 1-18)



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PROJECT:
**LAKEVIEW CEMETERY
 SOUTH HAVEN, MICHIGAN**

SHEET TITLE:
**EXISTING CONDITIONS
 AND
 HYDRANT MAP**

DRAWN BY:
DJL

DESIGNED BY:
SPJ

PM REVIEW:

QA/QC REVIEW:

DATE:
DECEMBER 2014

SEAL:

SIGNATURE:

DATE:

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SCALE:
 HORZ: 1" = 80'
 VERT: N/A

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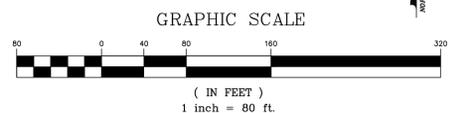
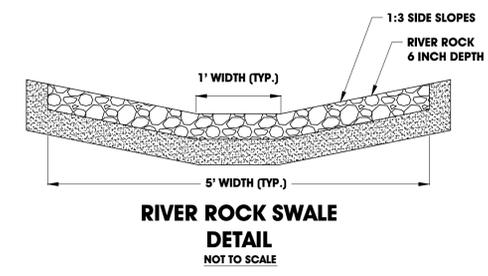
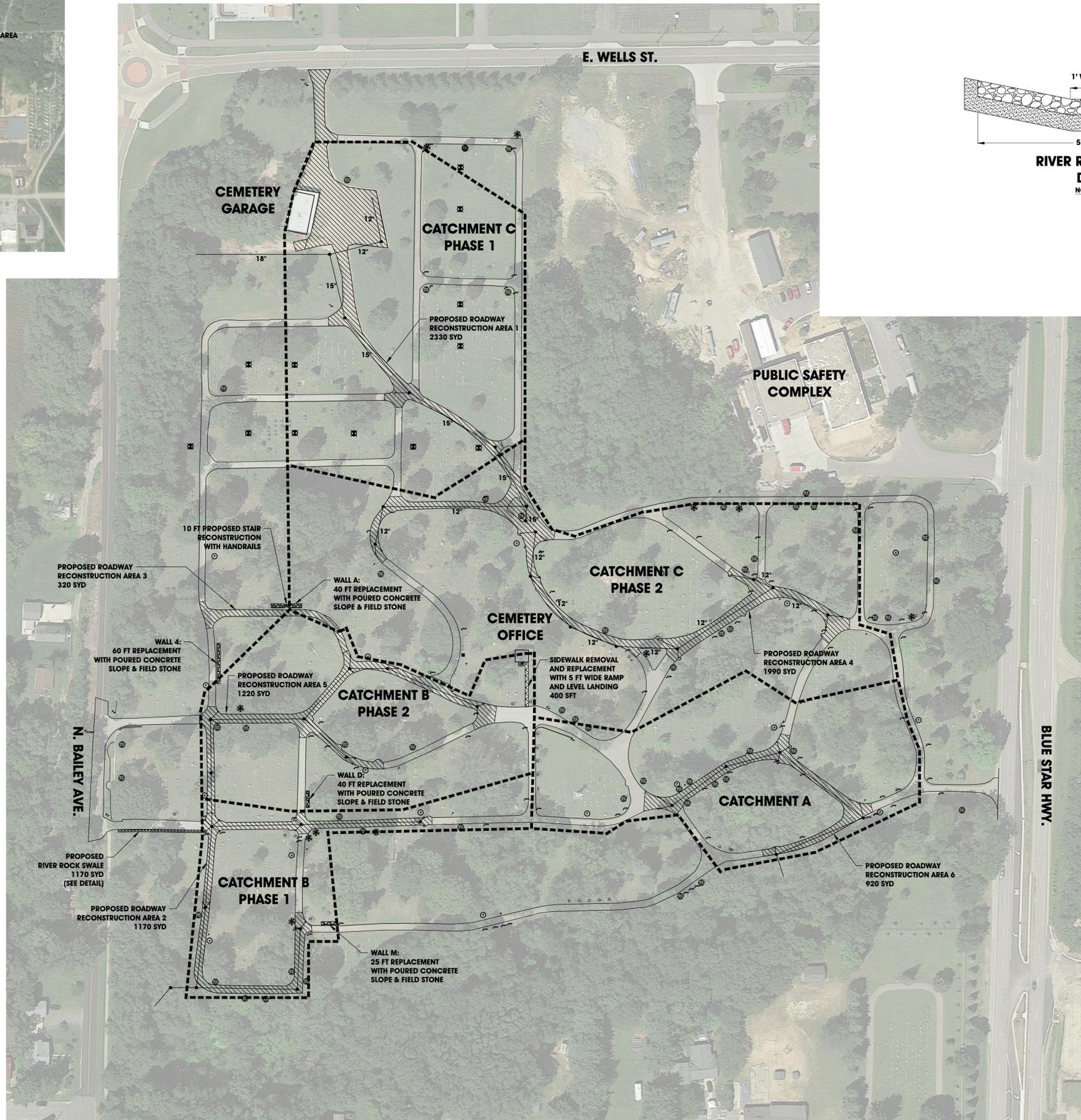
SHEET NO.
1 of 6

NO.	REVISION DESCRIPTION:	BY:	DATE:



LAKE VIEW CEMETERY VICINITY MAP

-  **PROPOSED ROADWORK**
-  **PROPOSED SIDEWALK**
-  **PROPOSED WALL WORK**
-  **DR STRUCTURE, 48 INCH DIA**
-  **DR STRUCTURE, 48 INCH DIA**
-  **POST MOUNTED YARD HYDRANT**
-  **FROST-PROOF YARD HYDRANT**



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LAKEVIEW CEMETERY
SOUTH HAVEN, MICHIGAN

MASTER PLAN

SHEET TITLE:
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QA/QC REVIEW:
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SIGNATURE:
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VERT: **N/A**

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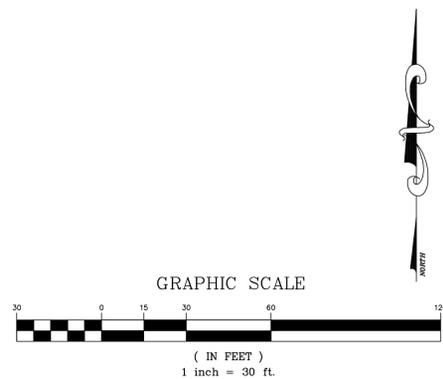
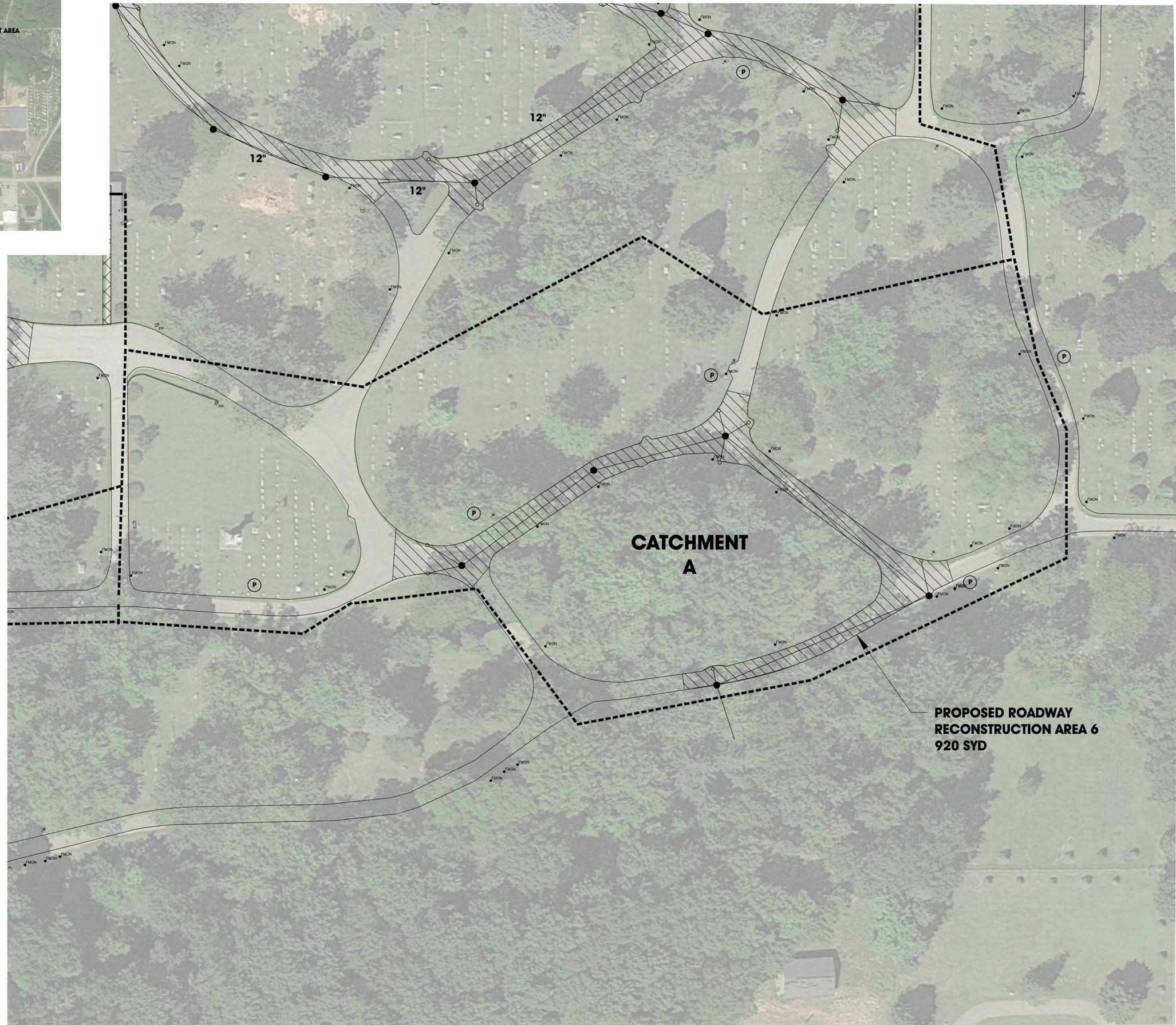
SHEET NO.
2 of 6

NO.	REVISION DESCRIPTION:	BY:	DATE:



LAKE VIEW CEMETERY VICINITY MAP

-  **PROPOSED ROADWORK**
-  **PROPOSED SIDEWALK**
-  **PROPOSED WALL WORK**
-  **DR STRUCTURE, 48 INCH DIA**
-  **DR STRUCTURE, 48 INCH DIA**
-  **POST MOUNTED YARD HYDRANT**
-  **FROST-PROOF YARD HYDRANT**



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**LAKEVIEW CEMETERY
 SOUTH HAVEN, MICHIGAN**

**MASTER PLAN
 CATCHMENT AREA A**

SHEET TITLE:
 DRAWN BY: **DJL**
 DESIGNED BY: **SPJ**
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 QA/QC REVIEW:
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SIGNATURE:
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 HORZ: **1" = 30'**
 VERT: **N/A**

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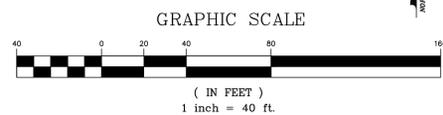
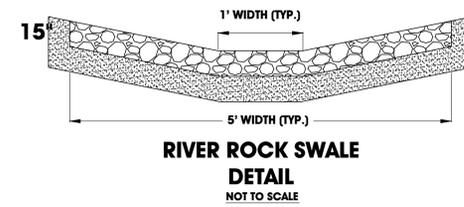
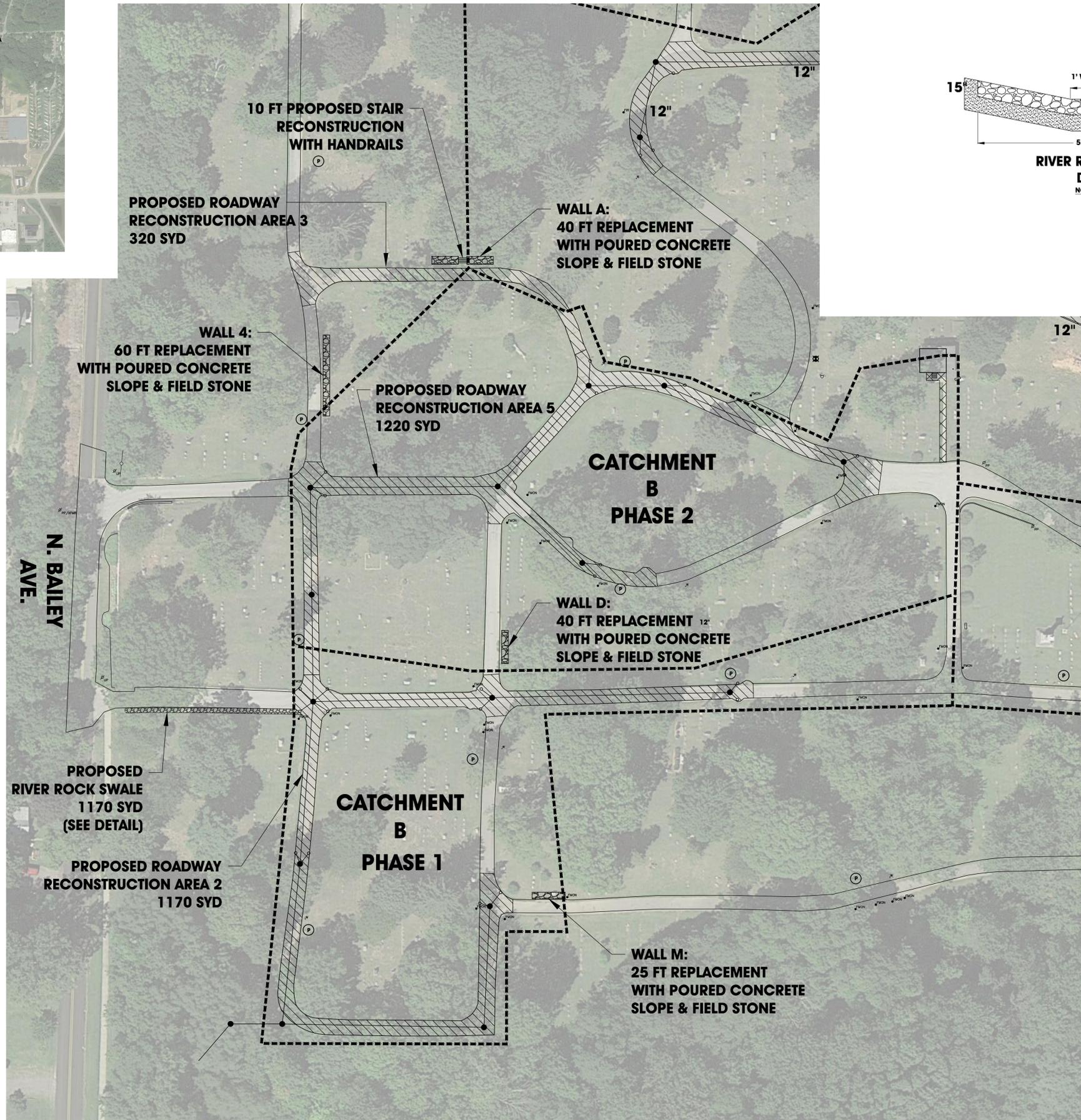
SHEET NO.
3 of 6

NO.	REVISION DESCRIPTION:	BY:	DATE:



LAKE VIEW CEMETERY VICINITY MAP

-  PROPOSED ROADWORK
-  PROPOSED SIDEWALK
-  PROPOSED WALL WORK
-  DR STRUCTURE, 48 INCH DIA
-  DR STRUCTURE, 48 INCH DIA
-  POST MOUNTED YARD HYDRANT
-  FROST-PROOF YARD HYDRANT



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PROJECT:
**LAKEVIEW CEMETERY
 SOUTH HAVEN, MICHIGAN**

SHEET TITLE:
**MASTER PLAN
 CATCHMENT AREA B**

DRAWN BY:
DJL

DESIGNED BY:
SPJ

PM REVIEW:

QA/QC REVIEW:

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 VERT: N/A

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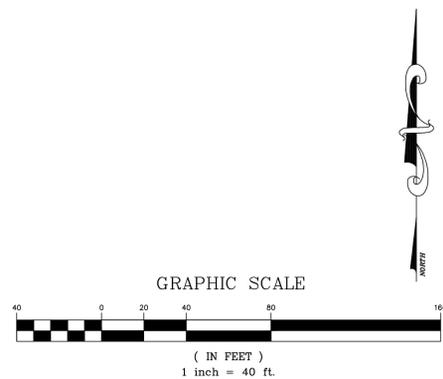
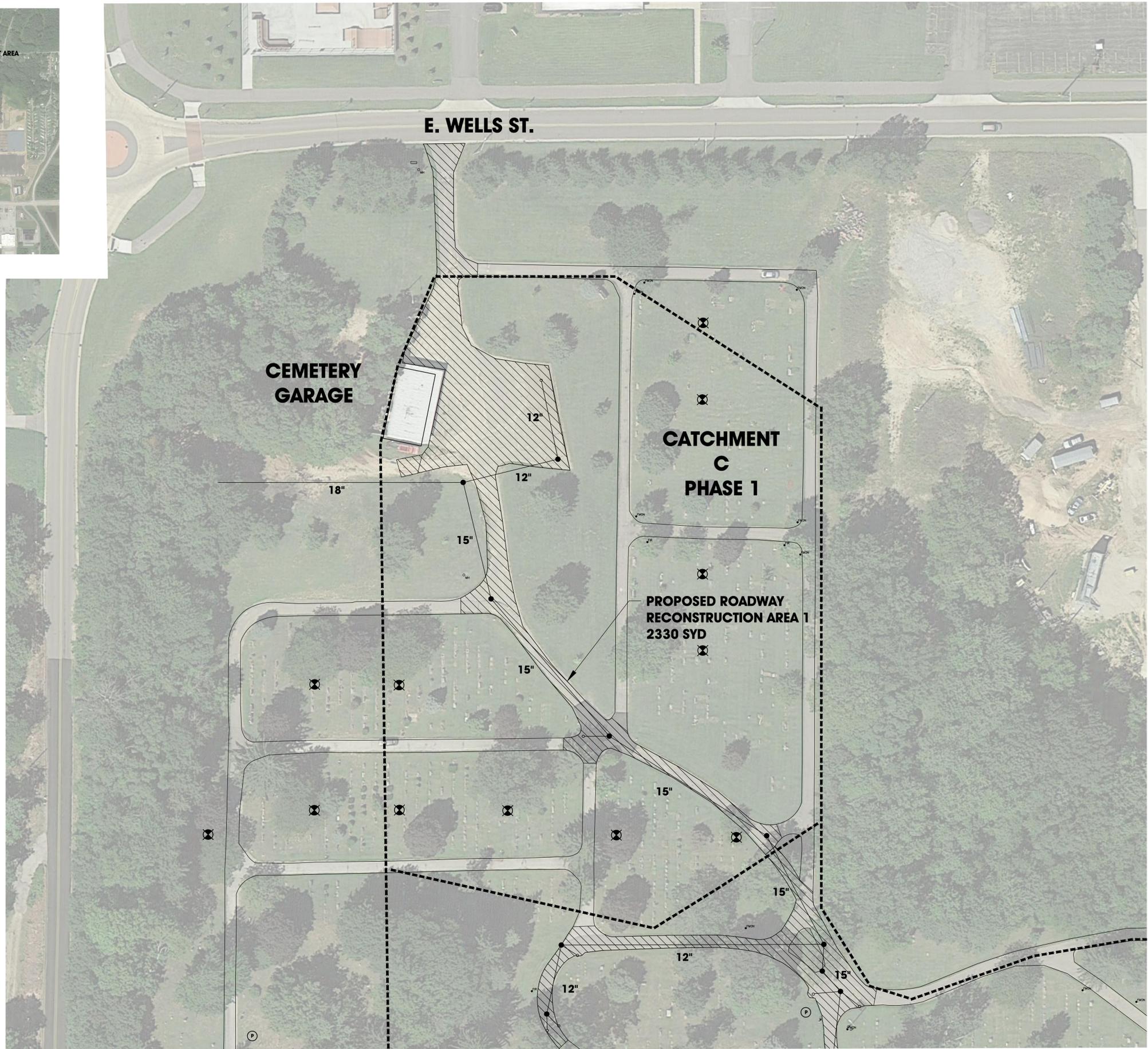
SHEET NO.
4 of 6

NO.	REVISION DESCRIPTION:	BY:	DATE:



LAKE VIEW CEMETERY VICINITY MAP

-  **PROPOSED ROADWORK**
-  **PROPOSED SIDEWALK**
-  **PROPOSED WALL WORK**
-  **DR STRUCTURE, 48 INCH DIA**
-  **DR STRUCTURE, 48 INCH DIA**
-  **POST MOUNTED YARD HYDRANT**
-  **FROST-PROOF YARD HYDRANT**



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PROJECT:
 LAKEVIEW CEMETERY
 SOUTH HAVEN, MICHIGAN

SHEET TITLE:
 MASTER PLAN
 CATCHMENT AREA C
 PHASE 1

DRAWN BY: DJL
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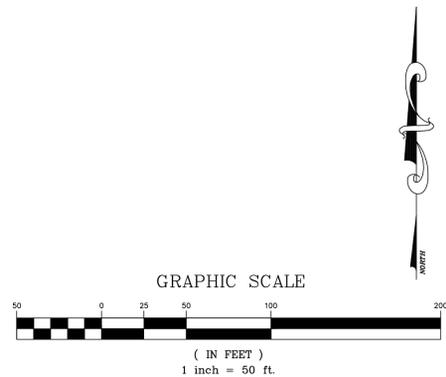
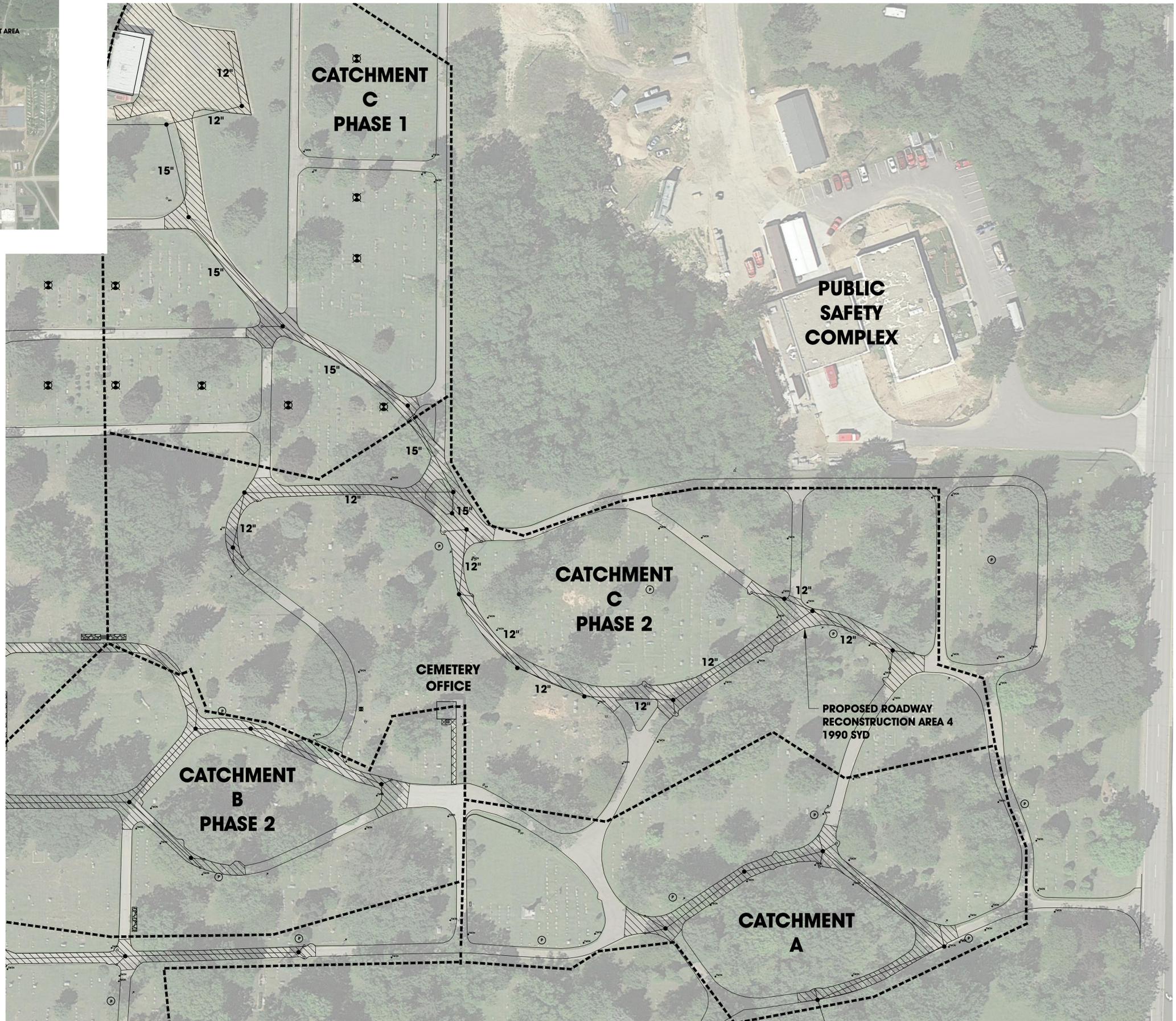
SHEET NO.
 5 of 6

NO.	REVISION DESCRIPTION:	BY:	DATE:



LAKE VIEW CEMETERY VICINITY MAP

-  PROPOSED ROADWORK
-  PROPOSED SIDEWALK
-  PROPOSED WALL WORK
-  DR STRUCTURE, 48 INCH DIA
-  DR STRUCTURE, 48 INCH DIA
-  POST MOUNTED YARD HYDRANT
-  FROST-PROOF YARD HYDRANT



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PROJECT:
**LAKEVIEW CEMETERY
 SOUTH HAVEN, MICHIGAN**

SHEET TITLE:
**MASTER PLAN
 CATCHMENT AREA C
 PHASE 2**

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6 of 6

NO.	REVISION DESCRIPTION:	BY:	DATE:

LAKE VIEW CEMETERY IMPROVEMENTS								
	Total Cost	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022
Catchment Area C- Phase 1 <i>Storm sewer improvements and associated road reconstruction-includes parking lot</i>	\$ 187,000			\$ 187,000				
Catchment Area B- Phase 1 <i>Storm sewer improvements and associated road reconstruction</i>	\$ 174,000				\$ 174,000			
Wall A Stair and Pavement Repair <i>Retaining Wall A reconstruction, stair reconstruction with handrails, and adjacent roadway reconstruction</i>	\$ 16,000	\$ 16,000						
Catchment Area C- Phase 2 <i>Storm sewer improvements and associated road reconstruction</i>	\$ 241,000					\$ 241,000		
Catchment Area B- Phase 2 <i>Storm sewer improvements and associated road reconstruction</i>	\$ 155,000						\$ 155,000	
Catchment Area A <i>Storm sewer improvements and associated road reconstruction</i>	\$ 123,000							\$ 123,000
Roadway Crack Sealing and Maintenance Repairs <i>Roadway crack sealing and maintenance on remaining raads (2 applications)</i>	\$ 11,000	\$ 11,000						
Yard Hydrant Repairs <i>Retrofit and/or replacement of all thirty-one (31) yard hydrants to 3' standard yard hydrants</i>	\$ 15,000		\$ 15,000					
Building Improvements - Phase 1 <i>Bathroom remodel, new walk, information kiosk, roof repairs and fascia improvements</i>	\$ 25,000	\$ 25,000						
Building Improvements - Phase 2 <i>Office remodel and electrical service upgrade</i>	\$ 21,000	\$ 21,000						
Building Improvements - Phase 3 <i>Upgrade of exterior walls/window/doors and replacement of office HVAC system with new split system</i>	\$ 20,000		\$ 20,000					
Grounds Improvements <i>Repair existing or install new entrance wall with appropriate signage and/or monuments</i> <i>Retaining wall replacement and upgrades to the block markers/way-finding system</i>	\$ 105,000	\$ 105,000						
Annual Total Cost	\$ 1,093,000	\$ 178,000	\$ 35,000	\$ 187,000	\$ 174,000	\$ 241,000	\$ 155,000	\$ 123,000