October 2021

Prepared By: LaQuatra Bonci Associates

Landscape Committee

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Goals & Objectives

What is a Landscape Master Plan?

- Comprehensive study of landscape, drainage, and pavements throughout the Chruch property.
- Opportunity to study different techniques to improve visual and ecological health of property, and determine which are best for Holy Cross Greek Orthodox Church.
- Establish a realistic budget and priorities.
- Create a roadmap for future budgeting.
- Allow the Church to implement projects over time, as funding allows, in managable segments.

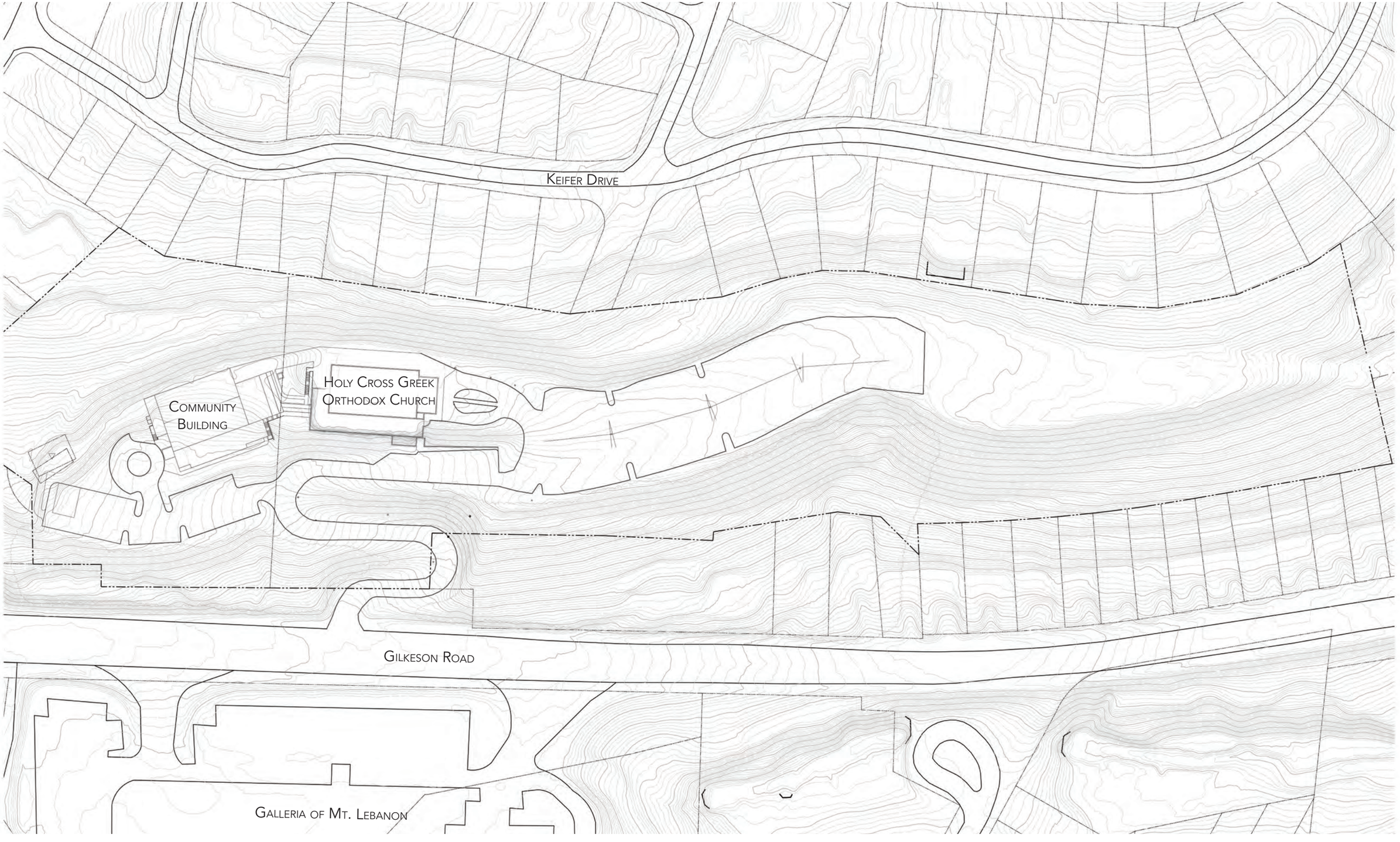
Goals of this Landscape Master Plan

- Enhance the grounds / property of Holy Cross Greek Orthodox Church to be as beautiful as the Church architecture.

Objectives

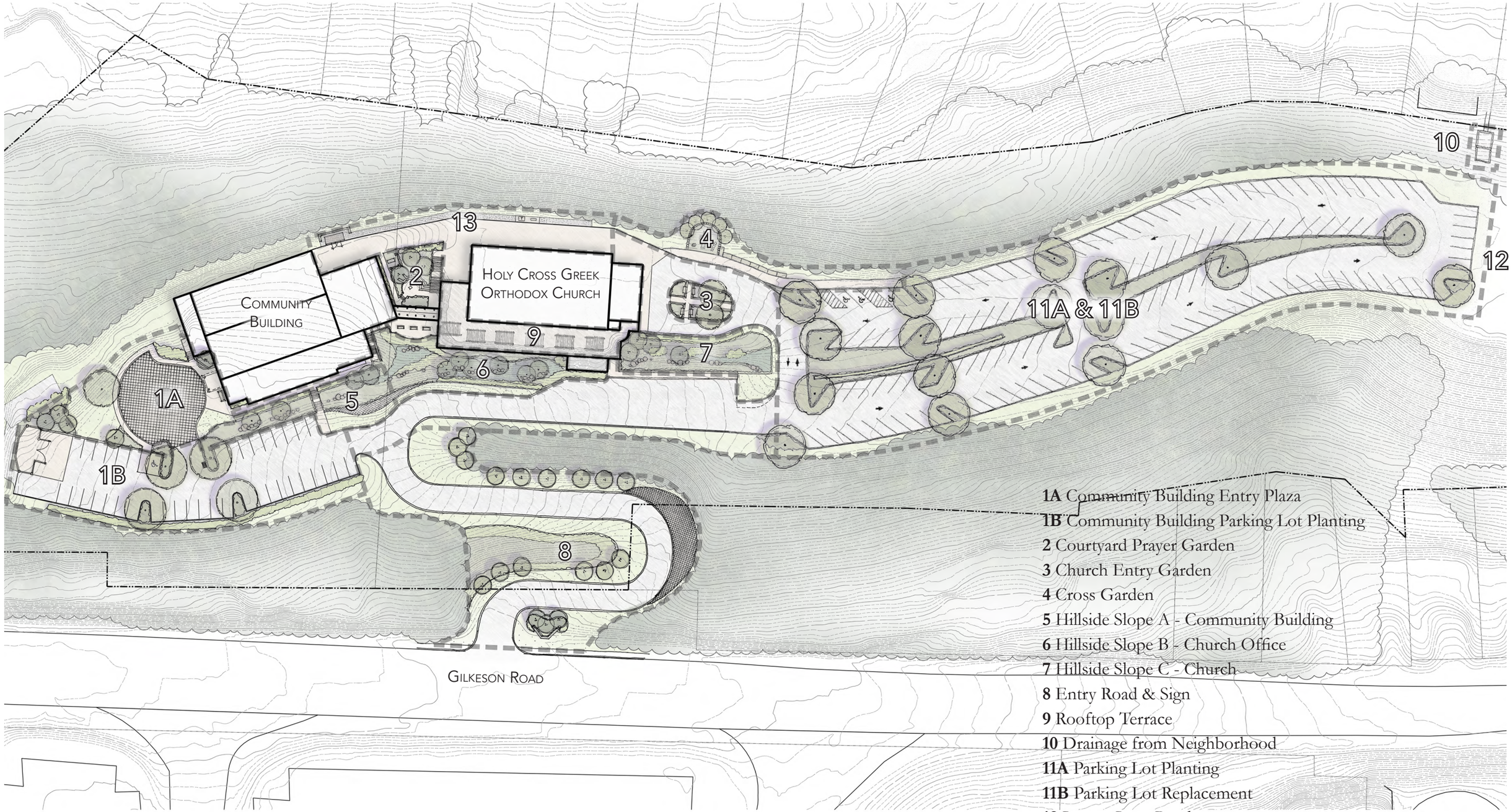
1. Create places for parishoners to use / enjoy / celebrate / pray.
2. Reduce erosion.
3. Reduce stormwater run-off.
4. Reduce long-term maintenance.

Existing Conditions



Landscape Master Plan

Project Key



1A Community Building Entry Plaza
1B Community Building Parking Lot Planting
2 Courtyard Prayer Garden
3 Church Entry Garden
4 Cross Garden
5 Hillside Slope A - Community Building
6 Hillside Slope B - Church Office
7 Hillside Slope C - Church
8 Entry Road & Sign
9 Rooftop Terrace
10 Drainage from Neighborhood
11A Parking Lot Planting
11B Parking Lot Replacement
12 Locust Lane Roadway
13 Service Drive

1A | Community Building Entrance Plaza

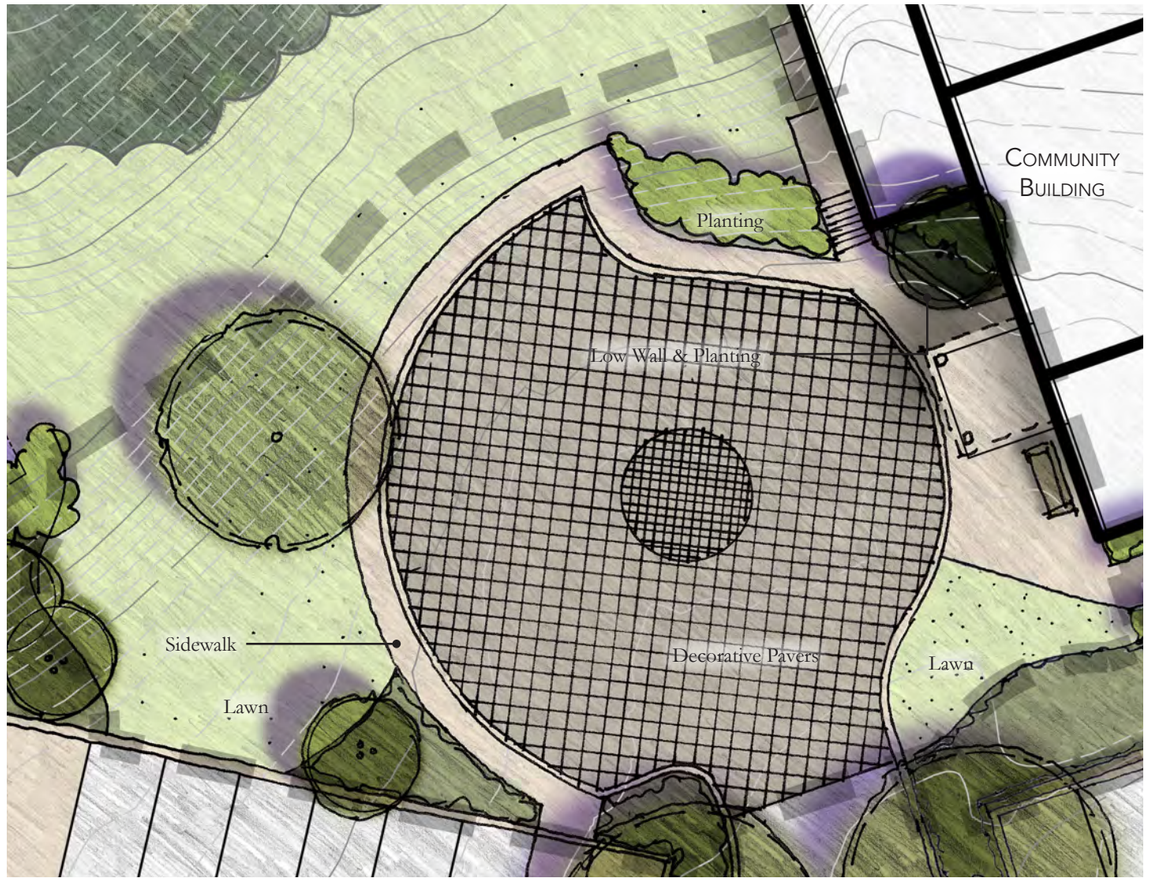
Current Conditions / Opportunities

- Deteriorating pavements and lack of planting
- No dedicated pedestrian sidewalk to Community Building door
- Building not being showcased
- One of the few level places within property

Proposed Improvements

- Decorative pavers in circular drop-off define the entry as special
- Pavers are permeable to allow water infiltration and reduce run-off
- Circular drop-off can be closed to traffic and double as plaza for events
- Add colorful planting and benches
- Illuminate the cross in the center window
- A firepit has been suggested, but needs further discussion

Site Plan



Before

After

1A | Community Building Entrance Plaza

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Preparation				
Removals / Clearing	$2.50	SF	7,614	$19,035.00
Site Preparation / Grading	$1.50	SF	7,614	$11,421.00
Site Improvements				
Standard / Mountable Concrete Curb / Planter Curb	$50.00	LF	62	$3,100
Veneer Wall	$100.00	SF	120	$12,000
4" Depth Permeable Paver (Includes Stone Base, Materials, Installation)	$28.00	SF	4,437	$124,236.00
4" Reinforced Concrete Paving	$12.50	SF	1,451	$18,137.50
Outlet Structure (Drainage)	$3,500.00	LS	1	$3,500.00
Planting				
Lawn - Seed	$0.60	SF	778	$466.80
Planting - Soil @ 12" Depth	$65.00	CY	78	$5,070.00
Trees - Canopy	$600.00	EA	1	$600.00
Trees - Understory	$500.00	EA	1	$500.00
Planting - Material	$4.50	SF	2,102	$9,459.00
Planting - Labor	$8.00	SF	2,102	$16,816.00
Mulch @ 3" Depth	$30.00	CY	30	$900.00
Electrical				
Light Fixtures - Poles Lights, Bollards, Indirect Lighting	$15,000.00	LS	1	$15,000.00
Furnishings				
Benches	$1,500.00	EA	1	$1,500.00
SUBTOTAL				$241,741.30
		Design Contingency	20.00%	$48,348.26
		Engineering Fee	12.00%	$29,008.96
TOTAL				**$319,098.52**

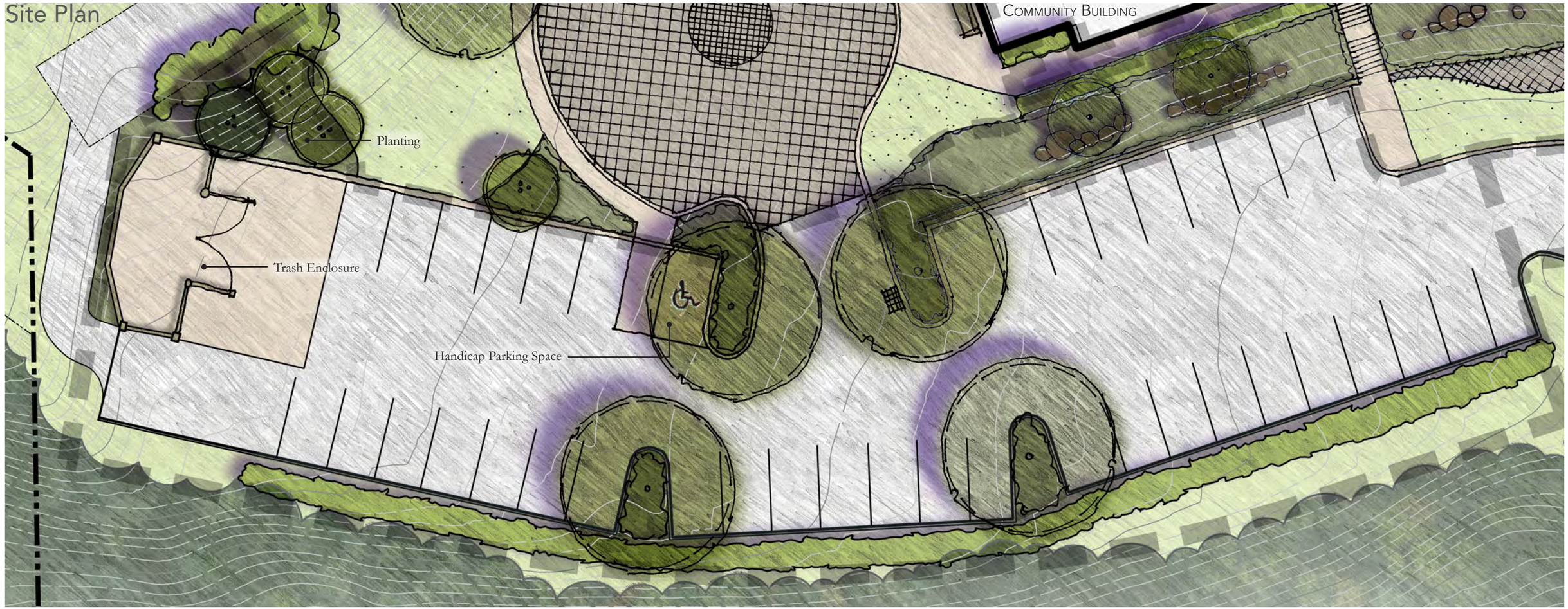
1B | Community Building Parking Lot Planting

Current Conditions / Opportunities

- Shrubs have been removed exposing weeds and overgrown slopes
- Dumpster fence is deteriorating and visible
- Trees in islands are not long-lived species and will continue to decline

Proposed Improvements

- Replace dumpster fence
- Install large shrubs to disguise dumpster from distance
- Replace trees in islands with longer-lived species
- Allow shrubs to re-grow, but maintain at a manageable height



1B | Community Building Parking Lot Planting

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Site Improvements				
Trash Enclosure / Gate	$5,000.00	LS	1	$5,000.00
Planting				
Planting - Soil @ 12" Depth	$65.00	CY	65	$4,225.00
Trees - Canopy	$600.00	EA	5	$3,000.00
Trees - Understory	$500.00	EA	3	$1,500.00
Planting - Material	$4.50	SF	1,732	$7,794.00
Planting - Labor	$8.00	SF	1,732	$13,856.00
Mulch @ 3" Depth	$30.00	CY	16	$480.00
TOTAL				**$35,855.00**

2 | Courtyard Prayer Garden

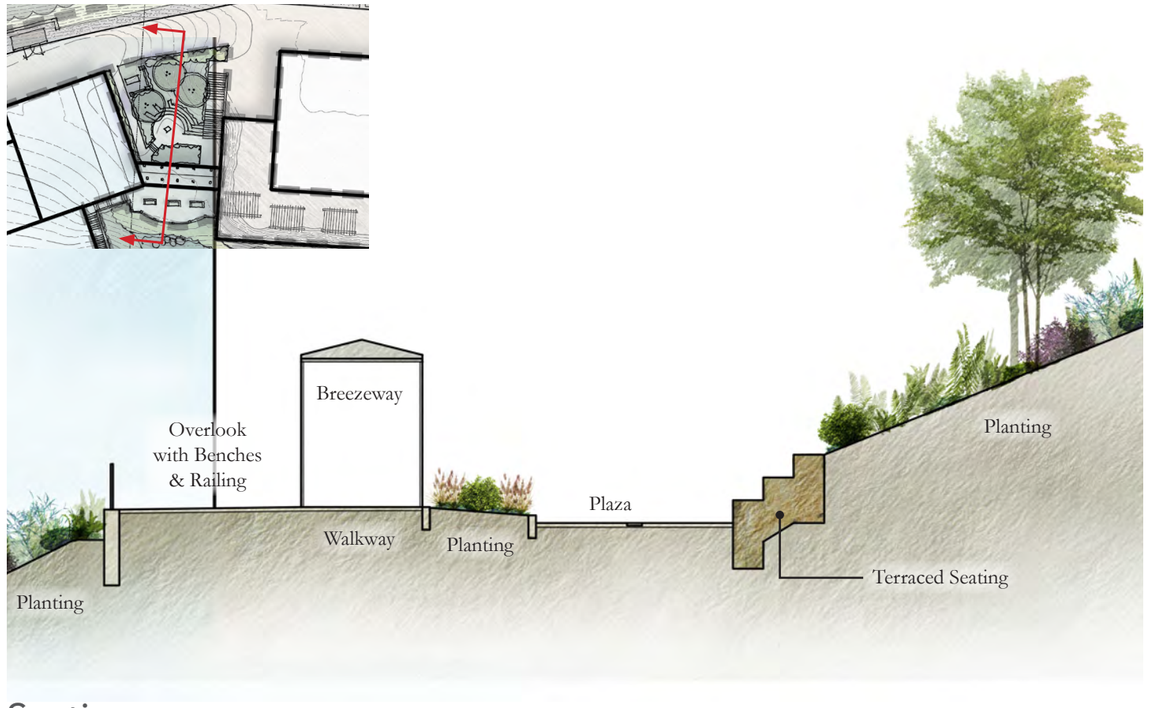
Site Plan

Current Conditions / Opportunities

- Underutilized
- Service drive and transformer visible
- Wonderful location – between church and community center - for gathering space
- One of the few level places within property

Proposed Improvements

- Create amphitheater seating within slope for groups of +/-40 people
- Widen steps from church to accommodate more people and eliminate weeds
- Opportunity for icons and veneration, to activate blank wall of community center
- Add colorful planting and accent lighting
- Use planting to separate gathering space from breezeway
- Screen transformer with fence and dense planting to disguise service drive
- Create larger patio north of breezeway to serve as dramatic overlook. Install benches and decorative railings



Section

2 | Courtyard Prayer Garden

Before

After

2 | Courtyard Prayer Garden

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Preparation				
Removals / Cleaning	$2.50	SF	2,926	$7,315.00
Site Preparation / Grading	$1.50	SF	2,926	$4,389.00
Site Improvements				
Concrete Stairs	$150.00	LF	272	$40,800.00
Concrete Terraced Seat Walls	$500.00	CY	40	$20,000.00
Stair Handrail	$100.00	LF	60	$6,000.00
Decorative Railing	$200.00	LF	67	$13,400
4" Depth Paver	$28.00	SF	174	$4,872.00
4" Reinforced Concrete Paving	$12.50	SF	949	$11,862.50
Raise Drain	$2,500.00	LS	1	$2,500.00
Shrine / Icon	$2,000.00	LS	1	$2,000.00
Planting				
Planting - Soil @ 12" Depth	$65.00	CY	56	$3,640.00
Trees - Understory	$500.00	EA	3	$1,500.00
Planting - Material	$4.50	SF	1,511	$6,799.50
Planting - Labor	$8.00	SF	1,511	$12,088.00
Mulch @ 3" Depth	$30.00	CY	14	$420.00
Electrical				
Indirect Lighting	$15,000.00	LS	1	$15,000.00
New Electrical Wiring	$5,000.00	LS	1	$5,000.00
Furnishings				
Benches	$1,500.00	EA	4	$6,000.00
SUBTOTAL				$163,586.00
		Design Contingency	15.00%	$24,537.90
		Engineering Fee	12.00%	$19,630.32
TOTAL				**$207,754.22**

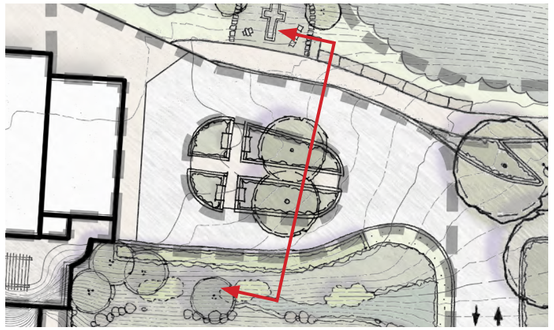
3 | Church Entry Garden

Current Conditions / Opportunities

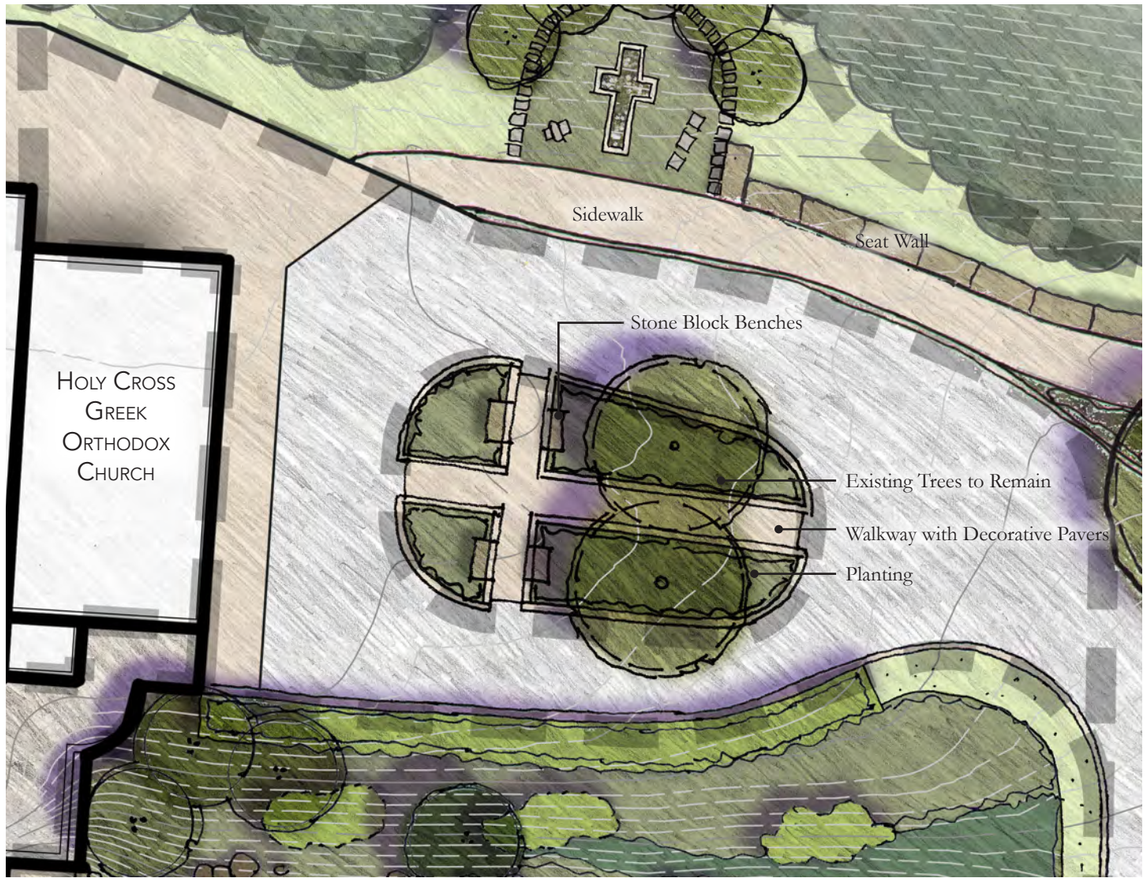
- Beautiful entrance to church needs a more dramatic statement
- Roadway and pedestrian paving are the same material – no distinction
- No seating
- Great opportunity for gatherings, wedding photographs, etc.

Proposed Improvements

- Add an additional walkway within the planters
- Decorative pavers differentiate pedestrian walkway from drive lanes
- Add stone block benches for seating that are similar color to church
- Reuse existing plant material and add more colorful perennials
- Up-light trees and install new decorative lights on perimeter
- Realign existing trees



Site Plan



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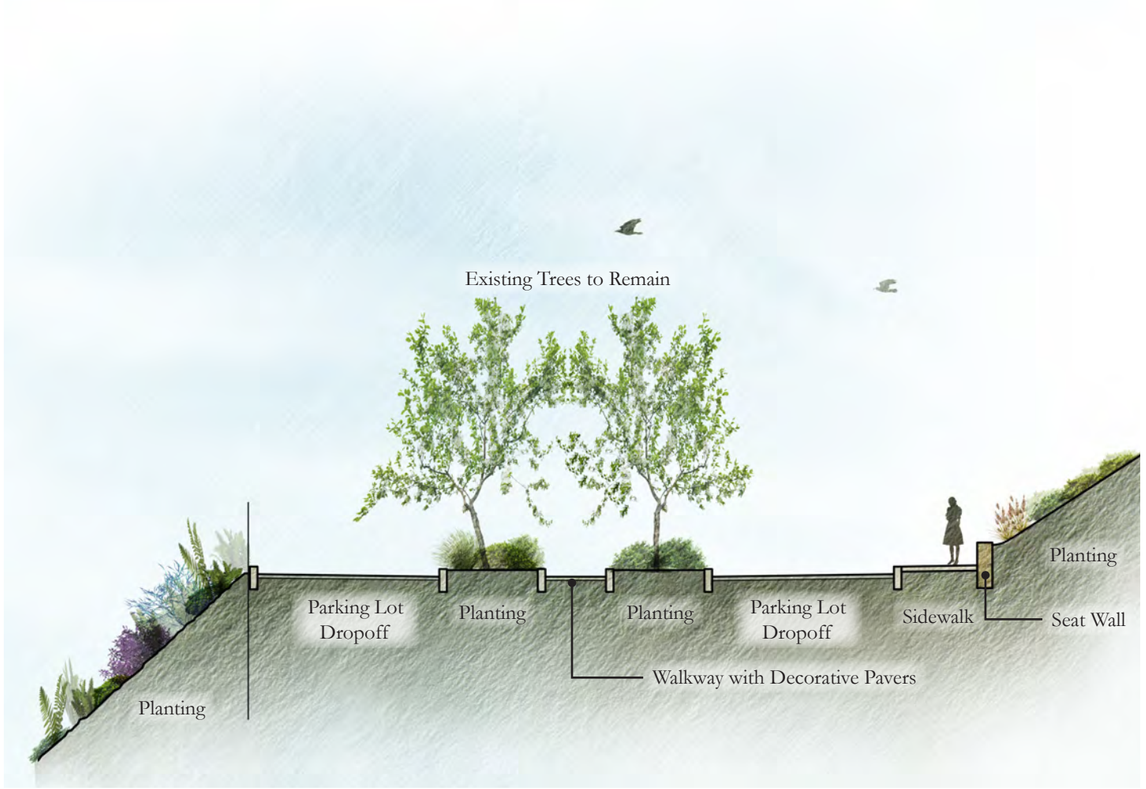


3 | Church Entry Garden

Before

After

3 | Church Entry Garden

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Removals / Cleaning	$2.50	SF	4,474	$11,185.00
	Site Preparation / Grading / Mulch Removal	$1.50	SF	4,474	$6,711.00
Site Improvements					
	Standard / Mountable Concrete Curb / Planter Curb	$50.00	LF	241	$12,050
	Precast Seating Plinths	$500.00	CY	8	$4,000.00
	4" Depth Paver	$22.00	SF	376	$8,272.00
	4" Reinforced Concrete Paving	$12.50	SF	376	$4,700.00
	Asphalt Repair	$7,500.00	LS	1	$7,500.00
Planting					
	Lawn - Soil @ 6” Depth	$45.00	CY	20	$900.00
	Lawn - Seed	$0.60	SF	2,000	$1,200.00
	Planting - Soil @ 12" Depth	$65.00	CY	20	$1,300.00
	Planting - Material	$4.50	SF	750	$3,375.00
	Planting - Labor	$8.00	SF	750	$6,000.00
	Mulch @ 3" Depth	$30.00	CY	9	$270.00
Electrical					
	Light Fixtures - Poles Lights, Bollards, Indirect Lighting	$10,000.00	LS	1	$10,000.00
	New Electrical Wiring	$5,000.00	LS	1	$5,000.00
	SUBTOTAL				$77,463.00
			Design Contingency	15.00%	$11,619.45
			Engineering Fee	12.00%	$9,295.56
	TOTAL				**$98,378.01**

4 | Cross Garden

Site Plan

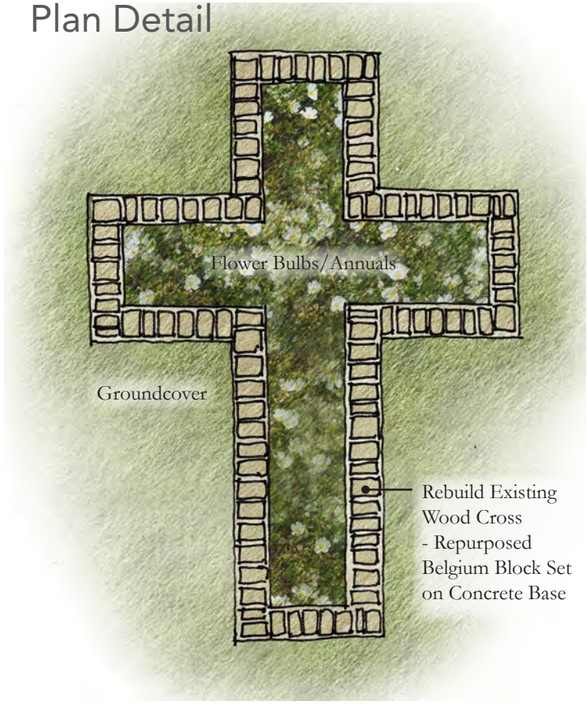
Current Conditions / Opportunities

- Current wooden cross planter is deteriorating
- Need location to showcase stone cross from historic church
- Lack of pedestrian sidewalk from parking to entry doors
- Opportunity to dramatically change entry sequence

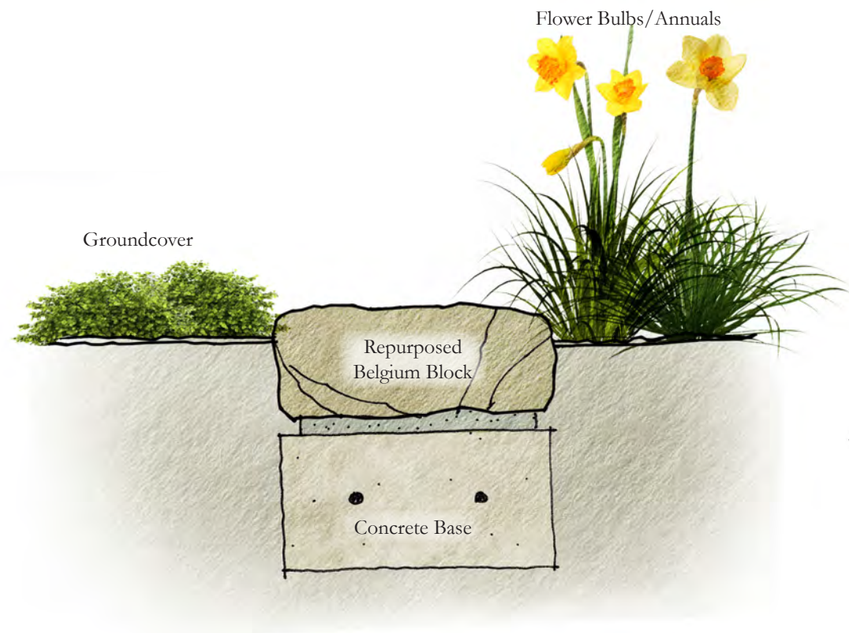
Proposed Improvements

- Use Belgium Block to create a more permanent cross planter (remove wood)
- Install historic stone cross to create a “cross garden”
- Install low wall for seating and erosion control
- Pave dedicated pedestrian sidewalk from parking lot to church doors at base of slope
- Use existing groundcover to fill-n around crosses, while colorful bulbs and annuals can accentuate the crosses
- Install accent lighting to showcase crosses at night

Plan Detail



Section Detail



4 | Cross Garden

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Removals / Cleaning	$2.50	SF	510	$1,275.00
	Site Preparation / Grading	$1.50	SF	510	$765.00
Site Improvements					
	Standard / Mountable Concrete Curb / Planter Curb	$50.00	LF	186	$9,300.00
	Precast Seat Wall	$500.00	CY	20	$10,000.00
	4" Reinforced Concrete Paving	$12.50	SF	1,185	$14,812.50
	Blockstone Border	$30.00	LF	70	$2,100.00
	Blockstone Cross	$30.00	LF	40	$1,200.00
	Lawn / Asphalt Repair	$7,500.00	LS	1	$7,500.00
Planting					
	Lawn - Seed	$0.60	SF	377	$226.20
	Lawn - Soil @ 6" Depth	$45.00	CY	7	$315.00
	Planting - Soil @ 12" Depth	$65.00	CY	18	$1,170.00
	Planting - Material	$4.50	SF	510	$2,295.00
	Planting - Labor	$8.00	SF	510	$4,080.00
	Mulch @ 3" Depth	$30.00	SY	5	$150.00
Electrical					
	Light Fixtures - Poles Lights, Bollards, Indirect Lighting	$5,000.00	LS	1	$5,000.00
	New Electrical Wiring	$2,500.00	LS	1	$2,500.00
	SUBTOTAL				$60,188.70
			Design Contingency	15.00%	$9,028.31
	TOTAL				**$69,217.01**

5 | Hillside Slope A - Community Building

Site Plan

Current Conditions / Opportunities

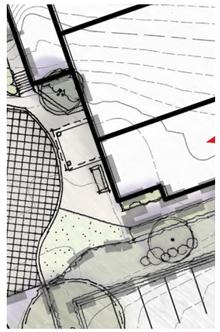
- Trees and shrubs removed from slope have created exposed mulch and soil
- Unattractive first impression of side of community center
- Slope will eventually erode into parking lot
- North side of building – limited sun
- Opportunity to make a dramatic visual statement

Proposed Improvements

- Install mixture of low, colorful planting to stabilize slope and hold soil
- Install large boulders to stabilize slope and create deep planting pocket
- Plant small trees that will not obscure community center or create mold on facade
- Add steps at end of parking lot that lead to side door
- Grade steep slope and re-install Belgium Block to integrate slopes together
- Create lawn area at base of slope for ease of maintenance and snow plowing

5 | Hillside Slope A - Community Building

Section



5 | Hillside Slope A - Community Building

Before

After

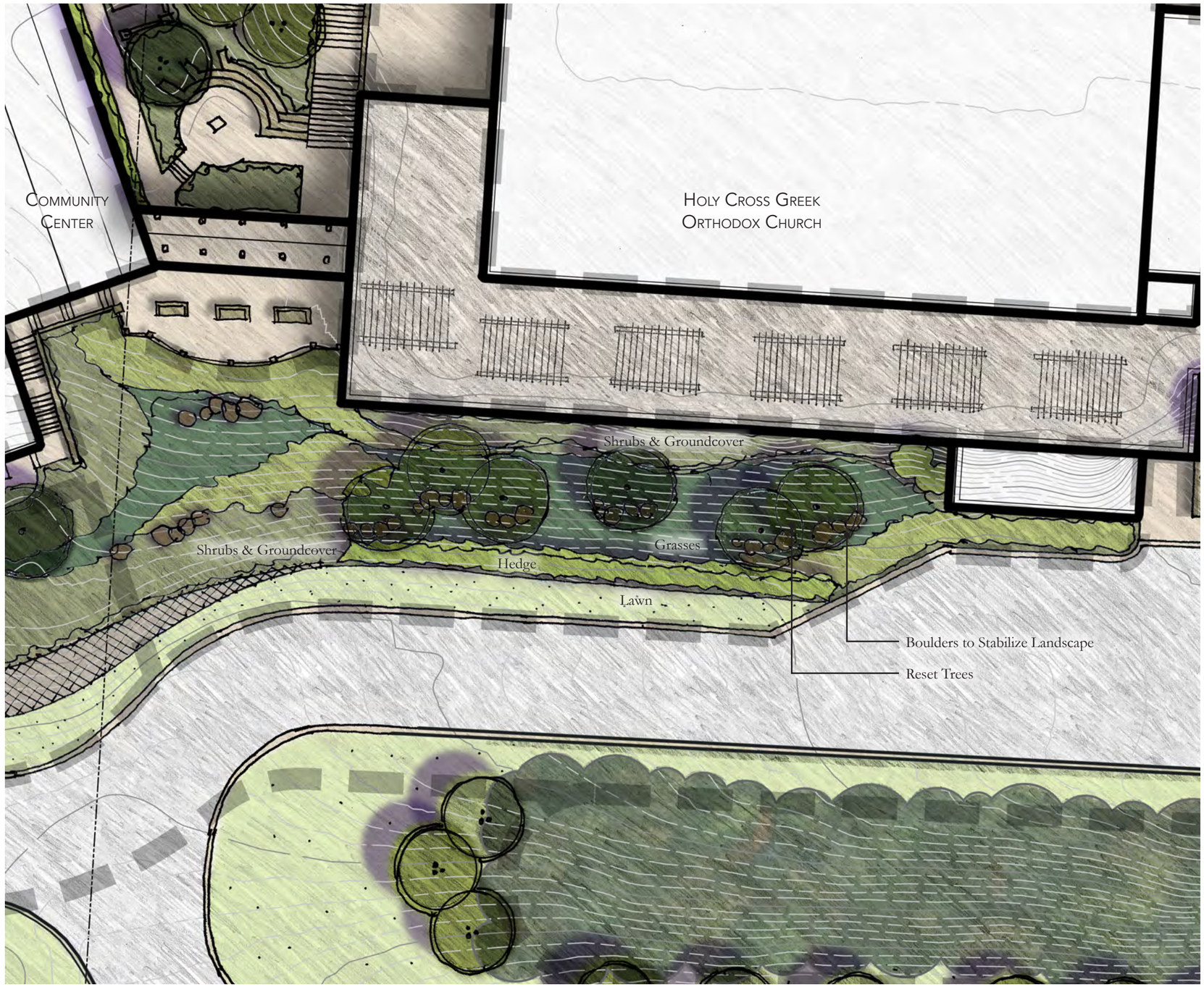
5 | Hillside Slope A - Community Building

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Site Preparation / Grading	$1.50	SF	9,558	$14,337.00
	E&S Control	$3,500.00	LS	1	$3,500.00
Site Improvements					
	8" Curb Walls	$100.00	LF	90	$9,000
	Concrete Steps	$150.00	LF	80	$12,000.00
	Boulders	$7,500.00	LS	1	$7,500.00
	Block Stone Removal	$5.00	SF	500	$2,500.00
	Block Stone Installation	$20.00	SF	500	$10,000.00
Planting					
	Lawn - Seed	$0.60	SF	1,197	$718.20
	Lawn - Soil @ 6" Depth	$45.00	CY	31	$1,395.00
	Planting - Soil @ 12" Depth	$65.00	CY	170	$11,050.00
	Trees - Canopy	$600.00	EA	1	$600.00
	Trees - Understory	$500.00	EA	4	$2,000.00
	Planting - Material	$4.50	SF	4,603	$20,713.50
	Planting - Labor	$8.00	SF	4,603	$36,824.00
	Mulch @ 3" Depth	$30.00	CY	43	$1,290.00
	SUBTOTAL				$133,427.70
			Design Contingency	10.00%	$13,342.77
			Engineering Fee	12.00%	$16,011.32
	TOTAL				**$162,781.79**

6 | Hillside Slope B - Church Office

Site Plan



Current Conditions / Opportunities

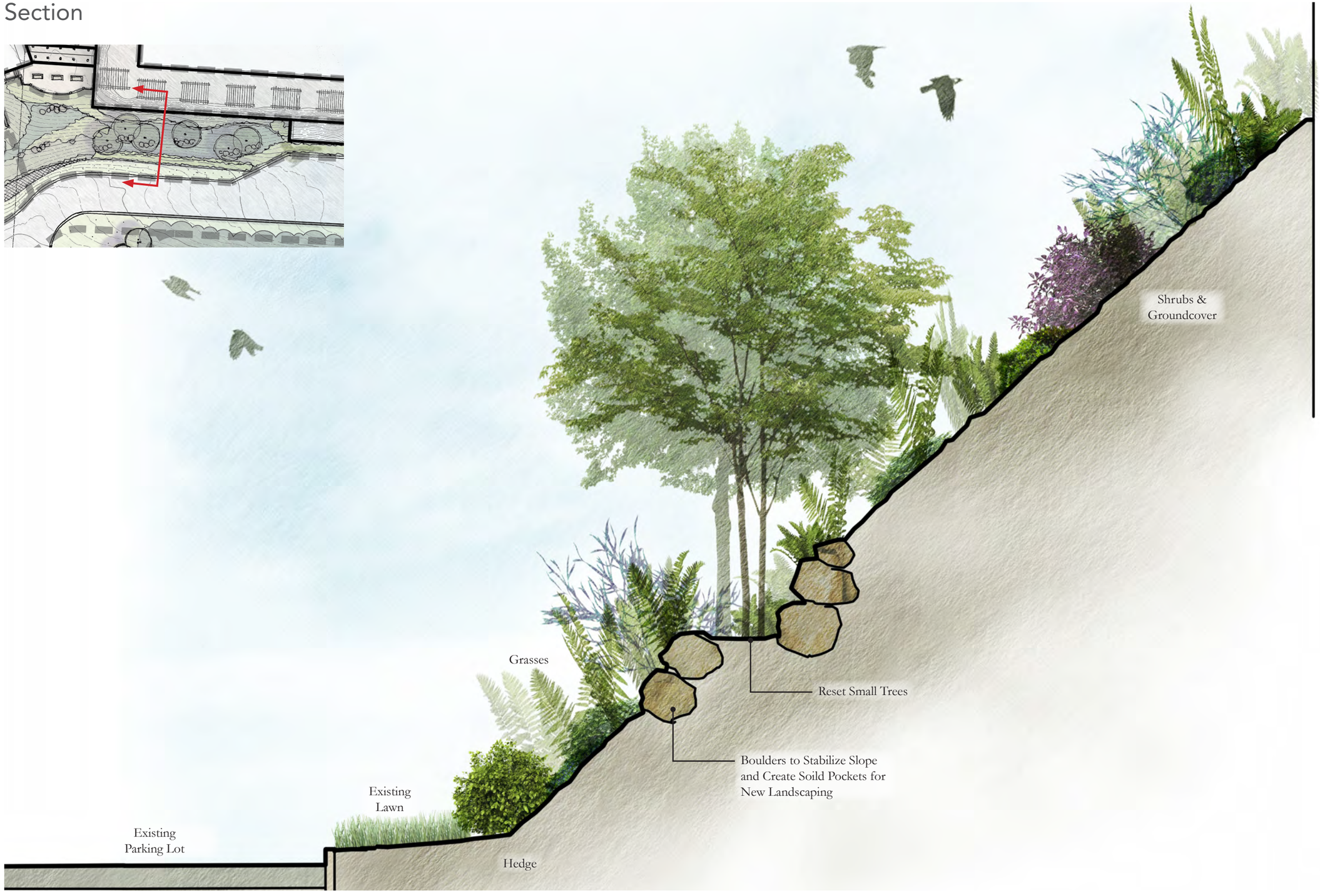
- Trees and shrubs removed from sloped have created exposed mulch and soil
- Recent volunteer planting appears inadequate and lost in a sea of mulch
- Unattractive first impression of side of church
- Slope will eventually erode into roadway
- North side of building – limited sun
- Opportunity to make a dramatic visual statement

Proposed Improvements

- Install mixture of low, colorful planting to stabilize slope and hold soil
- Transplant existing plants to add similar plants to strengthen statement
- Install large boulders to stabilize slope and create deep planting pocket
- Plant small trees that will not obscure church or create mold on facade
- Add hedge at base of slope for continuity and slope retention
- Create lawn area along roadway for ease of maintenance and snow plowing

6 | Hillside Slope B - Church Office

Section



6 | Hillside Slope B - Church Office

Before

After

6 | Hillside Slope B - Church Office

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Site Preparation / Grading	$1.50	SF	5,112	$7,668.00
	E&S Control	$3,500.00	LS	1	$3,500.00
Site Improvements					
	E & S Blanket	$2.50	SF	7,500	$18,750.00
	Reset Blockstone	$20.00	SF	500	$10,000.00
	Boulders	$20,000.00	LS	1	$20,000.00
Planting					
	Lawn - Seed	$0.60	SF	680	$408.00
	Lawn - Soil @ 6" Depth	$45.00	CY	13	$585.00
	Planting - Soil @ 12" Depth	$65.00	CY	166	$10,790.00
	Reset Existing Trees	$200.00	EA	8	$1,600.00
	Reset Existing Shrubs	$50.00	EA	20	$1,000.00
	Planting - Material	$4.50	SF	4,432	$19,944.00
	Planting - Labor	$8.00	SF	4,432	$35,456.00
	Mulch @ 3" Depth	$30.00	CY	41	$1,230.00
	SUBTOTAL				$130,931.00
			Design Contingency	15.00%	$19,639.65
			Engineering Fee	12.00%	$15,711.72
TOTAL					**$166,282.37**

7 | Hillside Slope C - Church

Site Plan

Current Conditions / Opportunities

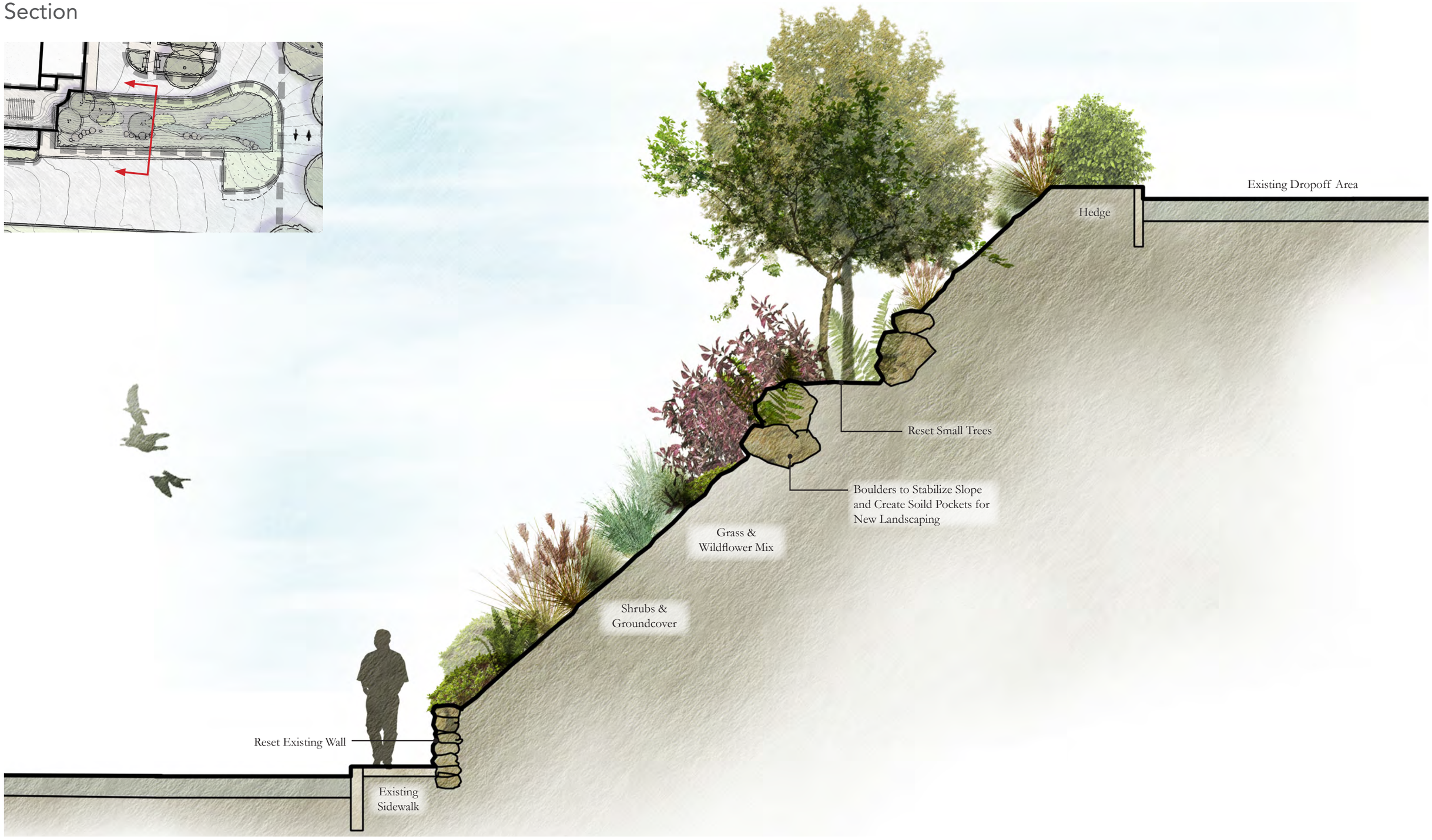
- Trees and shrubs removed from slope have created exposed mulch and soil
- Weeds and groundcovers adequately holding some of slope – to be retained
- Unattractive first impression of side of church
- Slope will eventually erode into parking spaces
- North side of building – limited sun
- Opportunity to make a dramatic visual statement

Proposed Improvements

- Install mixture of low, colorful planting to stabilize slope and hold soil
- Preserve and reset existing stone retaining wall
- Install large boulders to stabilize slope and create deep planting pocket
- Plant small trees that will not obscure church or create mold on facade
- Preserve existing large shrubs and groundcovers – install new plants around them as not to compromise integrity of slope

7 | Hillside Slope C - Church

Section



7 | Hillside Slope C - Church

Before

After

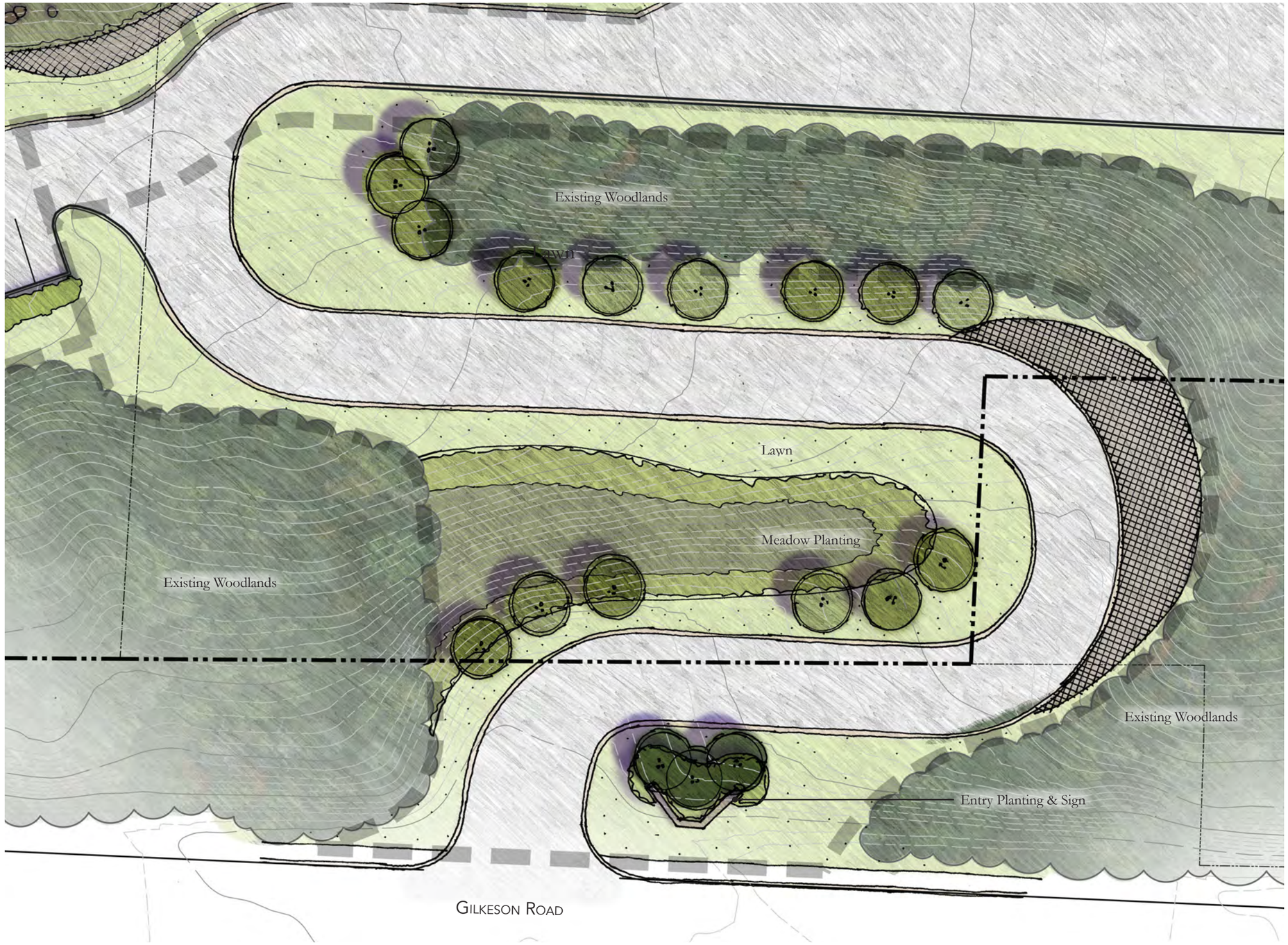
7 | Hillside Slope C - Church

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Remove Curbs	$5.00	LF	75	$375.00
	Repair Curbs	$35.00	LF	75	$2,625.00
	Site Preparation / Grading	$1.50	SF	4,984	$7,476.00
	E&S Control	$3,500.00	LS	1	$3,500.00
Site Improvements					
	Patch Asphalt	$2,500.00	LS	1	$2,500.00
	E & S Blanket	$2.50	SF	2,500	$6,250.00
	Boulders	$15,000.00	LS	1	$15,000.00
	Re-Set Existing Wall	$30.00	SF	600	$18,000.00
Planting					
	Lawn - Seed	$2.50	SF	1,000	$2,500.00
	Lawn - Soil @ 6" Depth	$45.00	CY	19	$855.00
	Planting - Soil @ 12" Depth	$65.00	CY	48	$3,120.00
	Trees - Understory	$500.00	EA	4	$2,000.00
	Planting - Material	$4.50	SF	2,750	$12,375.00
	Planting - Labor	$8.00	SF	2,750	$22,000.00
	Mulch @ 3" Depth	$30.00	CY	37	$1,110.00
	SUBTOTAL				$99,686.00
			Design Contingency	10.00%	$9,968.60
			Engineering Fee	12.00%	$11,962.32
	TOTAL				**$121,616.92**

8 | Entry Road & Sign

Site Plan



Current Conditions / Opportunities

- Trees and shrubs removed from slope have created exposed mulch and soil
- Belgium Block slope needs continued maintenance
- Crabapple trees along road are short-lived species
- Unattractive first impression from Gilkeson Road
- Not shadowed by building – full sun exposure
- Opportunity to make a dramatic visual statement

Proposed Improvements

- Install wildflower meadow mix on steep slopes which is colorful, deep rooted to prevent erosion, does not require topsoil when installed, and requires almost no maintenance
- Existing woodland and scrub vegetation between roadway and church should remain to prevent erosion, but new colorful planting installed at border to obscure scrub
- Replace crabapples with small, native longer-lived species (Redbud)
- Emphasize sign with colorful planting

8 | Entry Road & Sign

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Preparation				
Site Preparation / Grading / Remove Mulch	$1.50	SF	18,000	$27,000.00
Site Improvements				
Repair/Re-Point Blockstone	$3.00	SF	6,000	$18,000.00
Planting				
Lawn - Seed	$2.50	SF	13,354	$33,385.00
Wild Flower - Seed	$2.50	SF	3,200	$8,000.00
Lawn - Soil @ 6" Depth	$45.00	CY	245	$11,025.00
Planting - Soil @ 12" Depth	$65.00	CY	30	$1,950.00
Trees - Understory	$500.00	EA	18	$9,000.00
Planting - Material	$4.50	SF	1,500	$6,750.00
Planting - Labor	$8.00	SF	1,500	$12,000.00
Mulch @ 3" Depth	$30.00	CY	5	$150.00
SUBTOTAL				$127,260.00
		Design Contingency	15.00%	$19,089.00
TOTAL				**$146,349.00**

9 | Rooftop Terrace

Site Plan

Current Conditions / Opportunities

- Empty terrace could be programmed for events and functions
- Structure of church limits what can be installed on terrace
- North side of building – limited sun
- Opportunity to create a gathering space

Proposed Improvements

- Install portable/moveable trellis structures with temporary lights and furniture
- Install temporary/moveable tables and chairs
- Planting in moveable pots and urns
- Trellis and furniture can be arranged differently for different functions or added over time

9 | Rooftop Terrace

Before

After

9 | Rooftop Terrace

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Preparation				
Engineering Evaluation	$5,000.00	LS	1	$5,000.00
Site Improvements				
Trellis Structures	$5,000.00	EA	6	$30,000.00
Picnic Tables / Benches	$2,000.00	EA	12	$24,000.00
Pots	$350.00	EA	15	$5,250.00
Potting Soil / Plants	$1,500.00	LS	1	$1,500.00
Electrical				
Structure Lights	$1,000.00	EA	6	$6,000.00
Wiring	$2,500.00	LS	1	$2,500.00
SUBTOTAL				$74,250.00
	Design Contingency		15.00%	$11,137.50
	Structural Engineering Fee		12.00%	$8,910.00
TOTAL				**$94,297.50**

10 | Drainage from Neighborhood

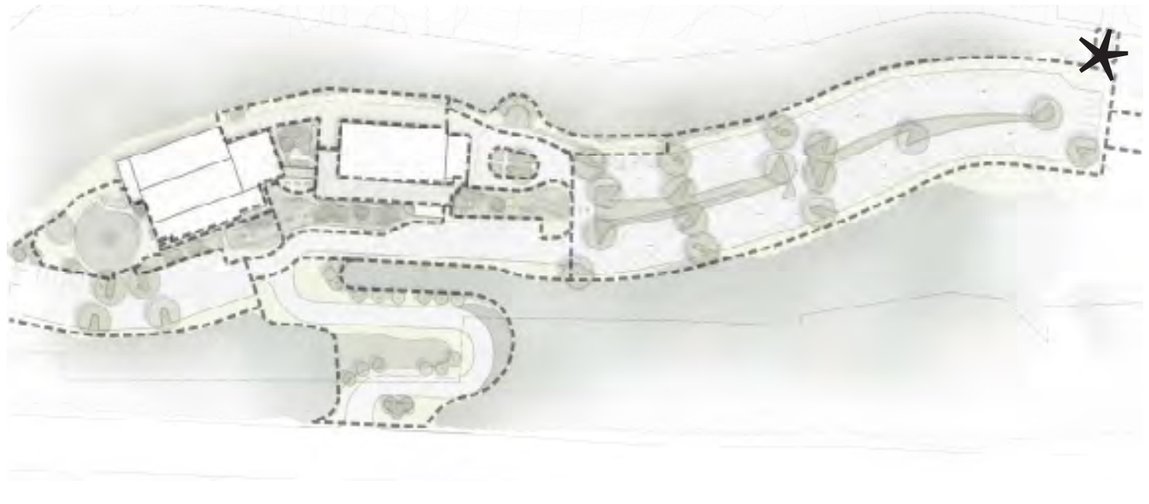
Current Conditions / Opportunities

- USC municipal pipe collects runoff from street and neighborhood above
- Discharge on church property causes erosion
- USC not willing to correct problem
- Opportunity to showcase how to effectively manage runoff

Proposed Improvements

- Create two-tiered capture basin – first basin allows sediment to settle out, and second is filled with stone to allow infiltration
- Upper basin has concrete floor for ease of maintenance
- Emergency overflow connects into parking lot drainage system

Proximity Map



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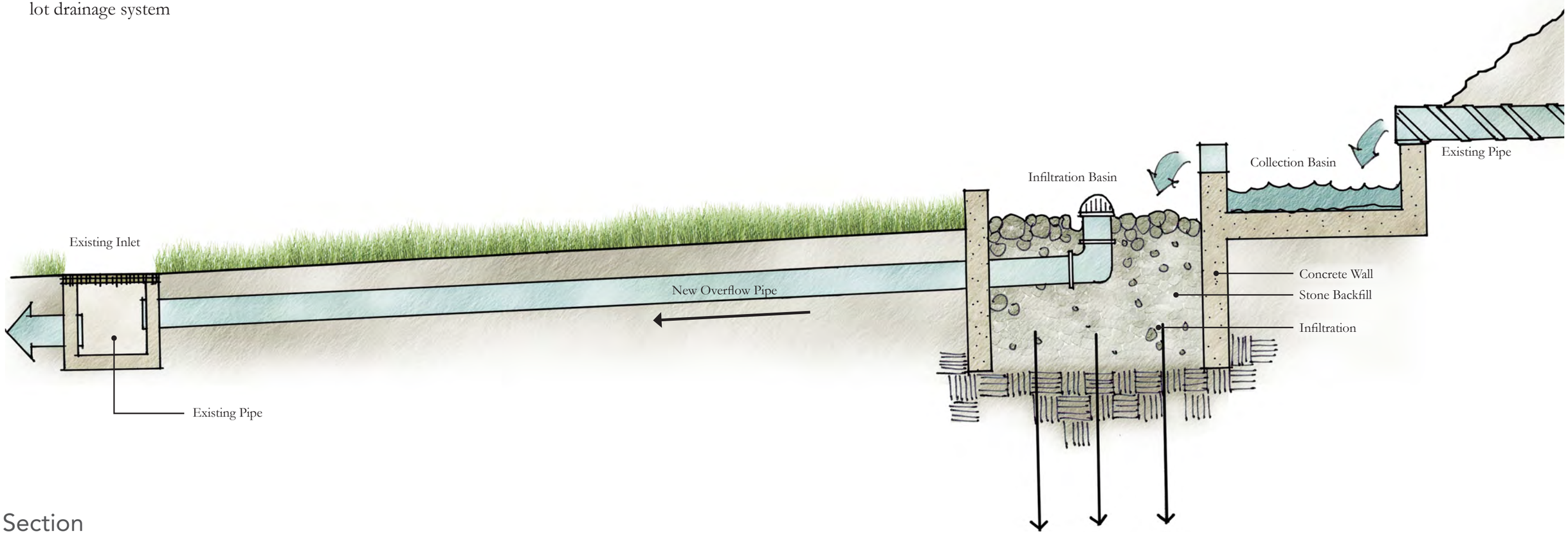


10 | Drainage from Neighborhood

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Excavation	$5,000.00	LS	1	$5,000.00
	E&S Control	$2,500.00	LS	1	$2,500.00
Site Improvements					
	Concrete Slab	$15.00	SF	225	$3,375
	Wall Concrete	$500.00	CY	18	$9,000
	Gravel	$50.00	TON	37	$1,850.00
	Overflow Pipe	$60.00	LF	100	$6,000.00
	Lawn / Asphalt Repair	$5,000.00	LS	1	$5,000.00
SUBTOTAL					$32,725.00
			Design Contingency	15.00%	$4,908.75
			Engineering Fee	12.00%	$3,927.00
TOTAL					**$41,560.75**

11A | Parking Lot Planting

Site Plan

Current Conditions / Opportunities

- Vast parking lot is visually overwhelming
- Islands lack significant trees or planting

Proposed Improvements

- Install trees and low-maintenance plants within islands
- Short-term solution to improve visual quality of parking lot

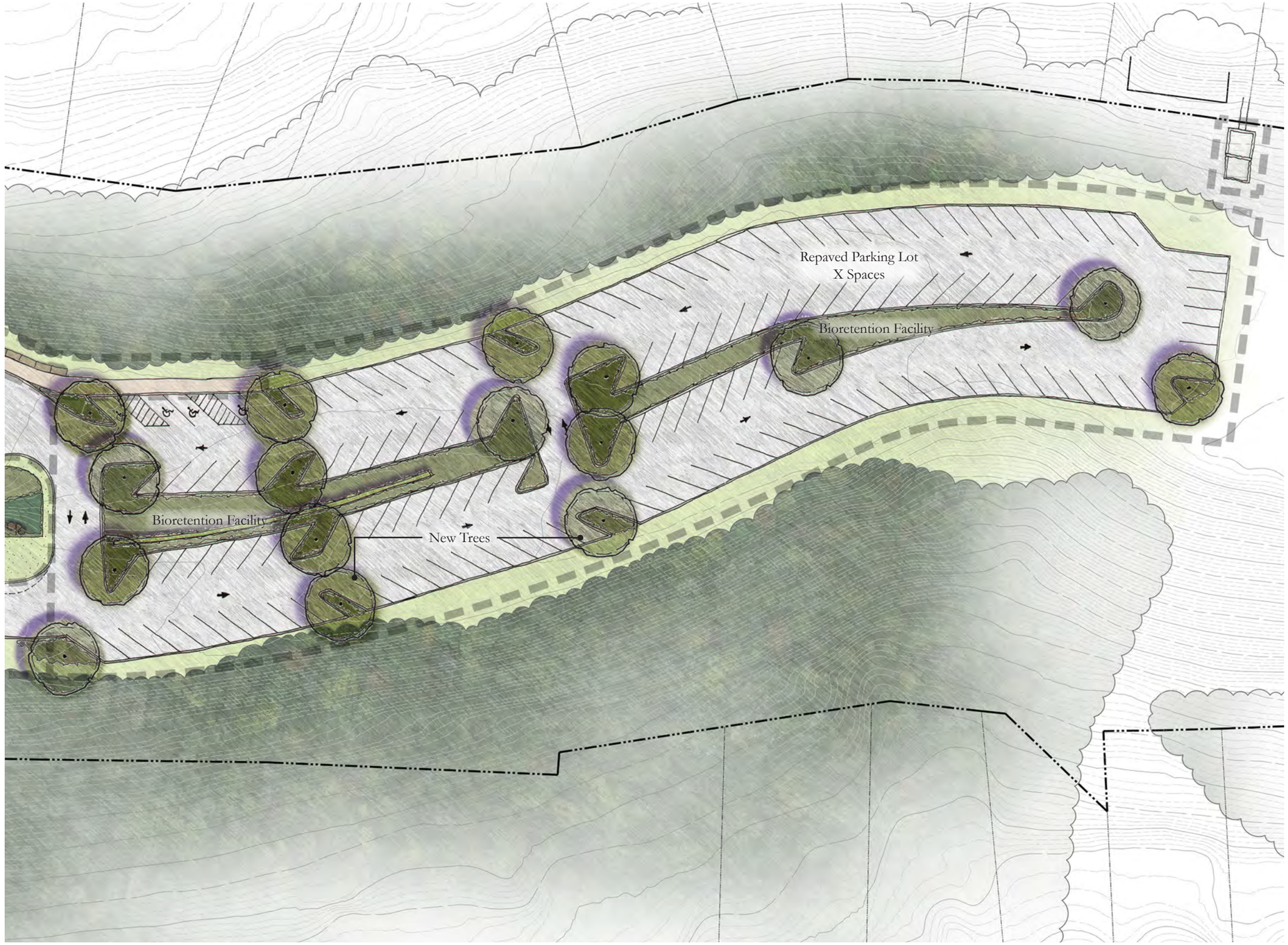
11A | Parking Lot Planting

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Site Improvements				
River Rock	$8.00	SF	5,000	$40,000
Planting				
Lawn - Seed	$0.60	SF	5,000	$3,000.00
Planting - Soil @ 12" Depth	$65.00	CY	44	$2,860.00
Trees - Canopy	$600.00	EA	6	$3,600.00
Planting - Material	$4.50	SF	1,200	$5,400.00
Planting - Labor	$8.00	SF	1,200	$9,600.00
Mulch @ 3" Depth	$30.00	CY	11	$330.00
SUBTOTAL				$64,790.00
		Design Contingency	15.00%	$9,718.50
TOTAL				**$74,508.50**

11B | Parking Lot Replacement

Site Plan



Current Conditions / Opportunities

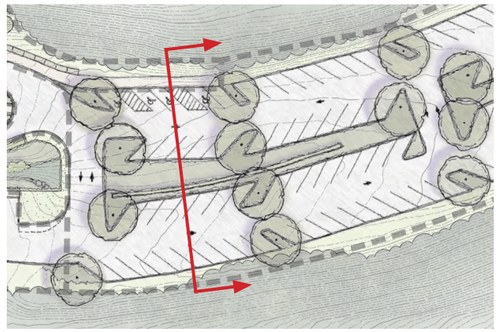
- Pavement is cracking and will eventually fail
- Pavement is pitched/sloped so water collects in center and directed to drains
- Opportunity to manage a significant amount of storm runoff

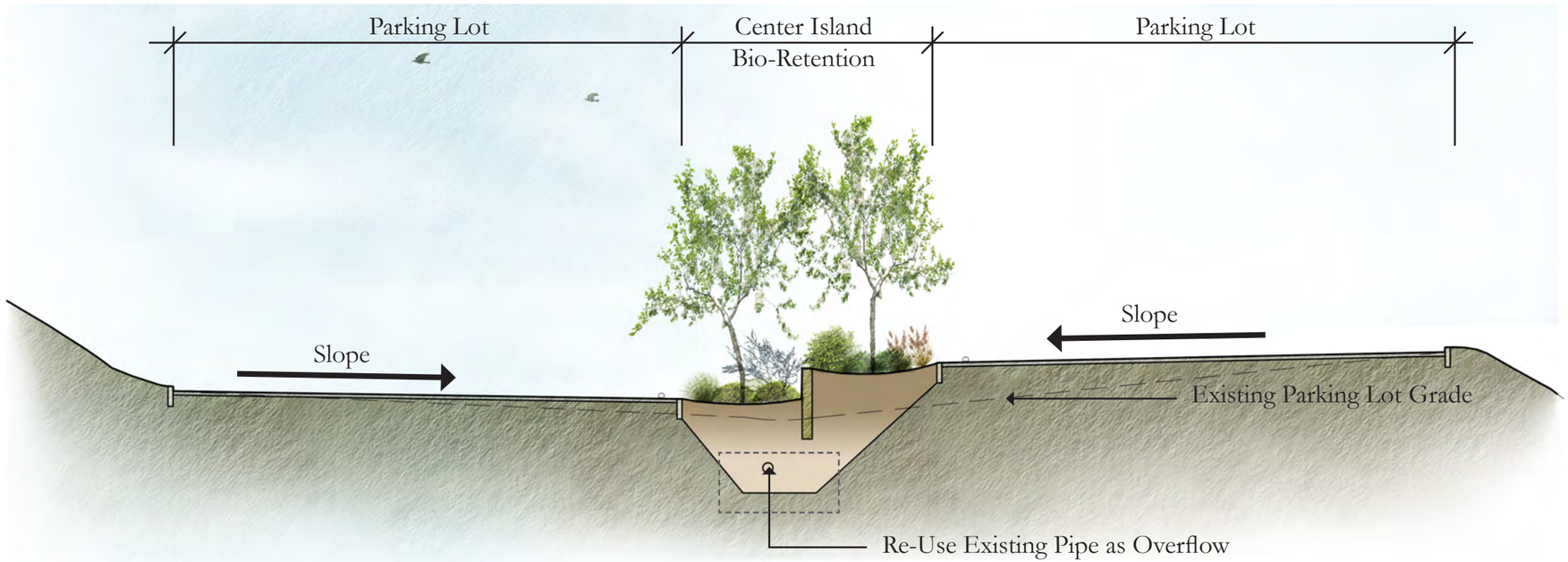
Proposed Improvements

- Repave parking lot and paint angled spaces, to create more space in center
- Create bioretention facility (plants and soil) that captures and filters runoff
- Existing drains preserved as overflow
- Planting adds beauty/color and breaks-up large expanse of pavement
- Opportunity to showcase how to manage runoff effectively and beautifully
- There is the possibility of extending the parking lot into the eastern grass area

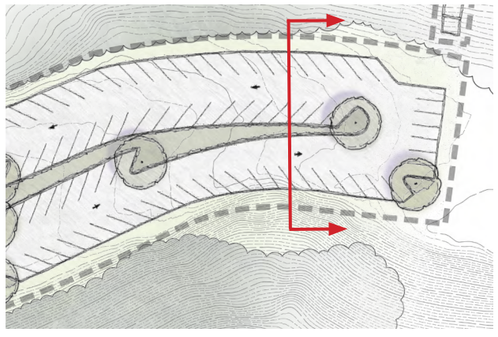
11B | Parking Lot Replacement

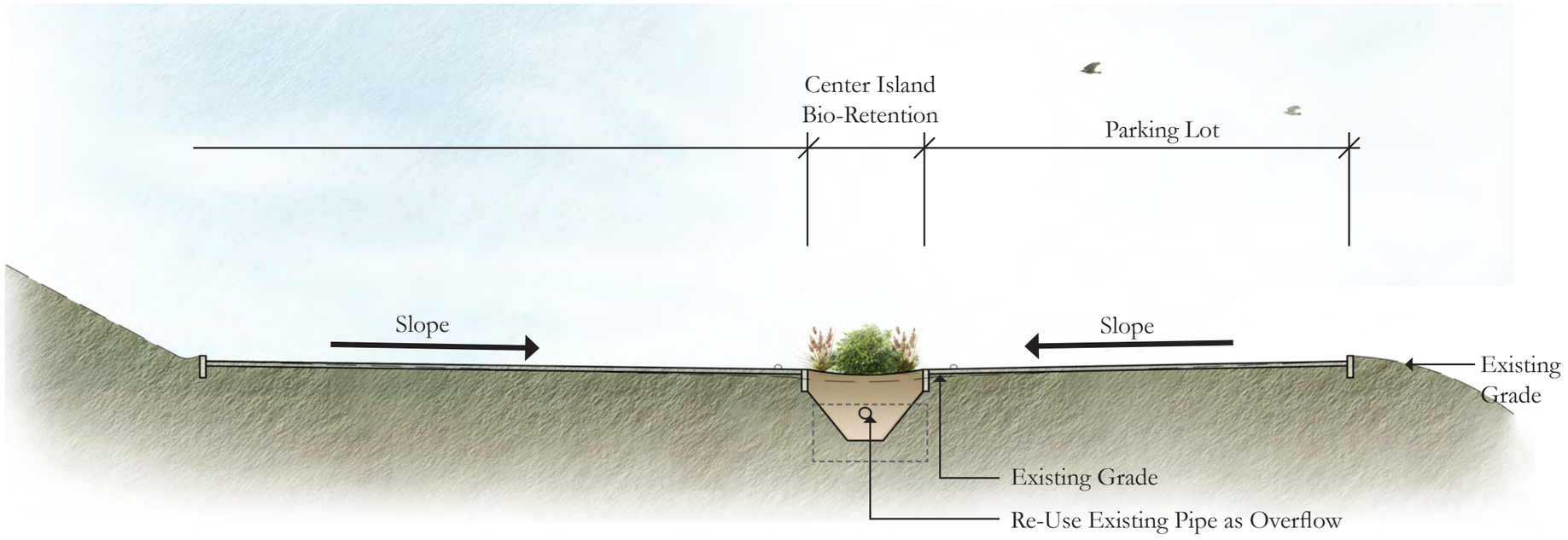
Section E





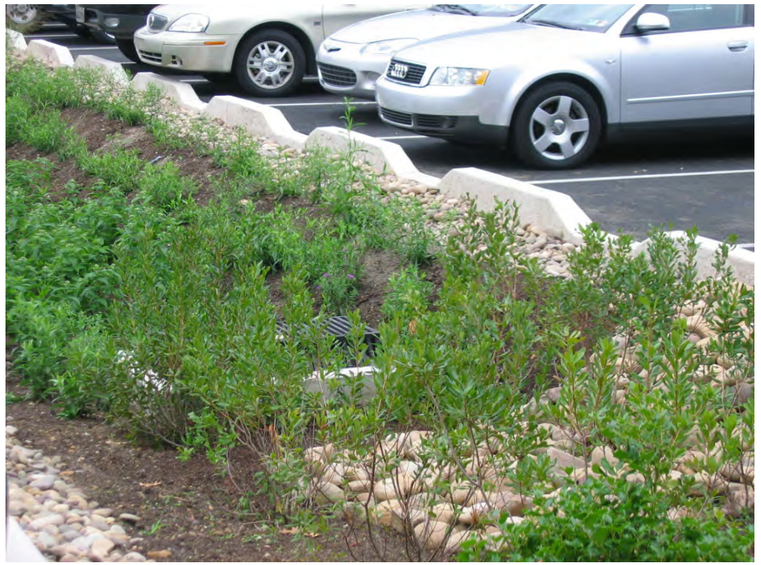
Section F





11B | Parking Lot Replacement

Stormwater Precedents



11B | Parking Lot Replacement

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Removals / Clearing	$2.50	SF	18,000	$45,000.00
	Site Preparation / Grading	$1.50	SF	18,000	$27,000.00
Site Improvements					
	Standard Curb	$50.00	LF	3,081	$154,050
	Gabion Wall	$50.00	SF	500	$25,000
	Mill and Top Asphalt	$20.00	SY	4,240	$84,800.00
	New Asphalt	$50.00	SY	1,920	$96,000.00
	River Rock	$8.00	SF	6,500	$52,000
	Sub-surface R-Tanks / Drainage / Pipes / Connections	$152,000.00	LS	1	$152,000.00
Planting					
	Lawn - Seed	$2.50	SF	6,500	$16,250.00
	Lawn - Soil @ 6" Depth	$45.00	CY	120	$5,400.00
	Planting - Soil @ 12" Depth	$65.00	CY	290	$18,850.00
	Trees - Canopy	$600.00	EA	16	$9,600.00
	Planting - Material	$4.50	SF	7,824	$35,208.00
	Planting - Labor	$8.00	SF	7,824	$62,592.00
	Mulch @ 3" Depth	$30.00	CY	85	$2,550.00
Electrical					
	Replace Existing Light Fixtures	$10,000.00	EA	3	$30,000.00
	Conduit / Trenching / Wiring	$15,000.00	LS	1	$15,000.00
	SUBTOTAL				$831,300.00
			Design Contingency	15.00%	$124,695.00
			Engineering Fee	12.00%	$99,756.00
	TOTAL				**$1,055,751.00**

11B | Parking Lot Replacement

Stormwater Management Estimated Construction Costs

ASSUMPTIONS:

R-Tank Modules Selected	HD Double
Width (ft):	1.31
Length (ft):	2.35
Height (ft):	2.82
Volume (cf):	8.69
Capacity (cf):	8.25
Weight (lbs):	32.30
Void Ratio:	0.95
Geogrid Required:	Yes
Maintenance Port Spacing (ft):	50
Maintenance Row Required:	No
No. Inlet / Outlet Structures Needed:	1

DESCRIPTION	*UNITS*	*QUANTITY*	*NOTES*
STORAGE LENGTH	LF	450.00	
STORAGE WIDTH	LF	5.00	
STONE BASE DEPTH	FT	0.25	
STONE COVER DEPTH	FT	1.00	
STONE SURROUND WIDTH	FT	2.00	
SOIL COVER DEPTH	FT	2.00	
SOIL CUT FACTOR	-	1.00	
SOIL FILL FACTOR	-	1.00	
STONE UNIT WEIGHT	PCF	150	
STONE VOID RATIO	-	0.40	
SOIL VOID RATIO	-	0.10	

CALCULATED VALUES:

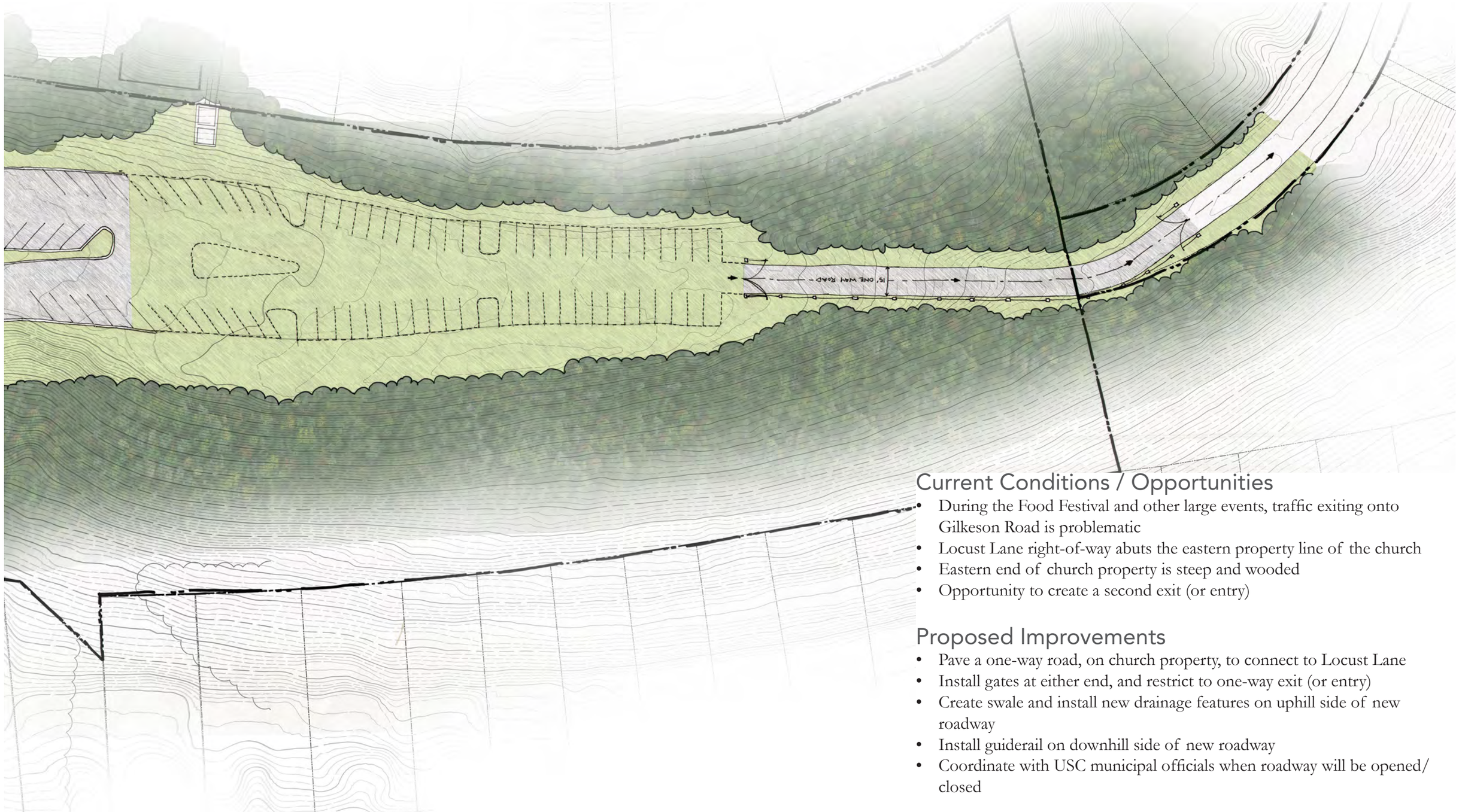
DESCRIPTION	*UNITS*	*QUANTITY*	*NOTES*
MODULAR STORAGE FOOTPRINT	SF	2,250	
EXCAVATION FOOTPRINT, BELOW GEOGRID	SF	3,164	
EXCAVATION FOOTPRINT, ABOVE GEOGRID		4,550	
STORAGE PERIMETER	LF	910.00	
TOTAL STORAGE, R-TANK	CF	6,031	
EXCAVATION DEPTH BELOW GEOGRID	FT	4.07	
EXCAVATION DEPTH ABOVE GEOGRID	FT	2.00	
EXCAVATION VOLUME BELOW GEOGRID, FACTORED	CY	478	
EXCAVATION VOLUME ABOVE GEOGRID, FACTORED	CY	687	
TOTAL EXCAVATION VOLUME, FACTORED	CY	1,165	
BASE AND COVER STONE NEEDED	CY	105	
SURROUND STONE NEEDED	CY	140	
SOIL BACKFILL NEEDED, FACTORED	CY	167	
STONE STORAGE	CF	98	
SOIL STORAGE	CF	17	
TOTAL ANTICIPATED STORAGE	CF	6,146	
EXCAVATION HAUL VOLUME, FACTORED	CY	998	
R-TANK GEOTEXTILE NEEDED	SY	1,489	
GEOGRID NEEDED FOR R-TANK	SY	557	
MAINTENANCE PORTS NEEDED	EA	1	

R-TANK COSTS

DESCRIPTION	*UNITS*	*QUANTITY*	*UNIT COST*	*TOTAL COST*	*NOTES*
CUT OF EXCAVATED MATERIAL	CY	1,165	$ 4.96	$ 5,778.40	
FILL OF EXCAVATED MATERIAL	CY	167	$ 7.66	$ 1,276.67	
HAUL AND DISPOSAL OF MATERIAL	CY	998	$ 15.00	$ 14,975.00	
AASHTO #57 STONE	CY	245	$ 55.18	$ 13,519.10	
MODULAR SUBSURFACE STORAGE	CF	6,031	$ 15.00	$ 90,469.69	
GEOTEXTILE, SEPARATION FABRIC	SY	1,489	$ 2.04	$ 3,037.56	
GEOGRID, STRUCTURAL	SY	557	$ 8.50	$ 4,734.50	
MAINTENANCE PORTS	EA	1	$ 587.00	$ 587.00	
OUTLET STRUCTURES	EA	1	$ 7,894.00	$ 7,894.00	
ADDITIONAL MANHOLES, 0-15 FT DEEP	EA	2	$ 2,949.00	$ 5,898.00	
PIPE, 15" HDPE	LF	50	$ 55.00	$ 2,750.00	
PIPE TRENCHING - 6 FT DEEP X 3 FT WIDE	CY	33	$ 25.00	$ 833.33	
BACKFILL ABOVE PIPE ZONE	CY	26	$ 45.00	$ 1,187.50	
Total				$ 152,940.75	Total Cost per CF: $24.88

12 | Locust Lane Roadway

Site Plan



Current Conditions / Opportunities

- During the Food Festival and other large events, traffic exiting onto Gilkeson Road is problematic
- Locust Lane right-of-way abuts the eastern property line of the church
- Eastern end of church property is steep and wooded
- Opportunity to create a second exit (or entry)

Proposed Improvements

- Pave a one-way road, on church property, to connect to Locust Lane
- Install gates at either end, and restrict to one-way exit (or entry)
- Create swale and install new drainage features on uphill side of new roadway
- Install guiderail on downhill side of new roadway
- Coordinate with USC municipal officials when roadway will be opened/closed

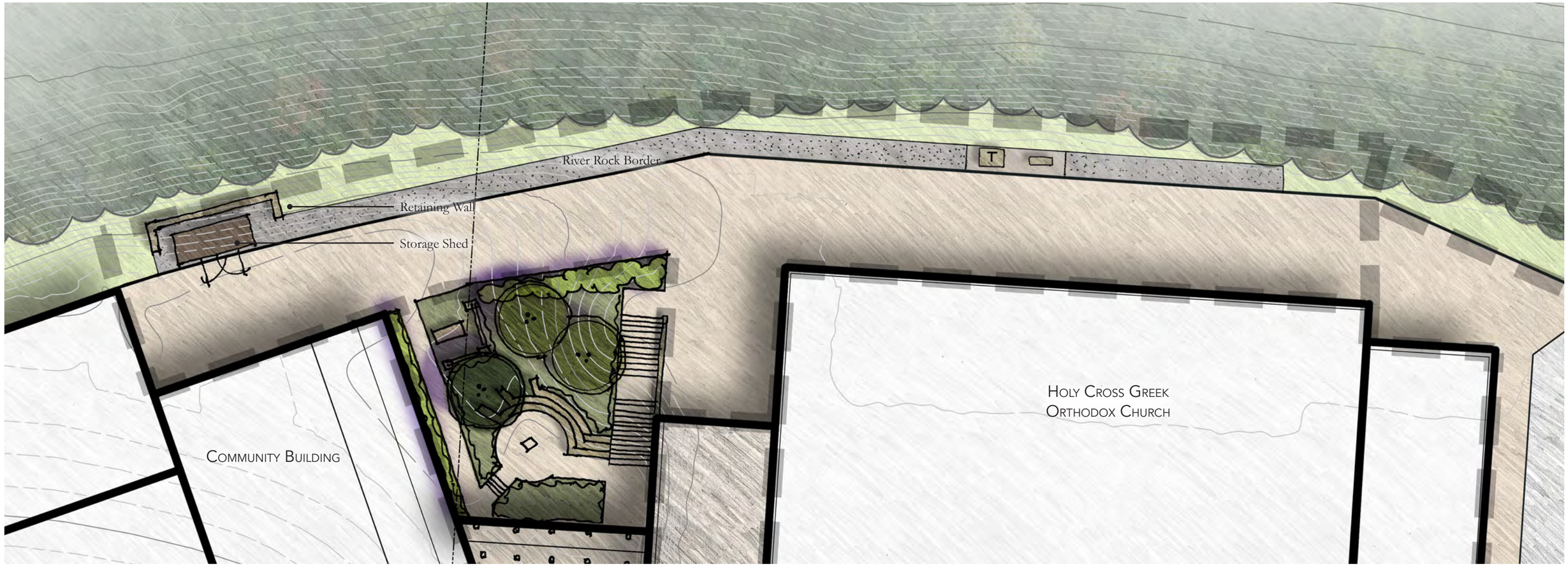
12 | Locust Lane Roadway

Estimated Construction Costs

		Unit Cost	Units	Quantity	Cost
Preparation					
	Removals / Clearing	$2.50	SF	10,000	$25,000.00
	Grading	$1.50	SF	10,000	$15,000.00
Site Improvements					
	Gates	$1,000.00	LS	2	$2,000
	Guide Rail	$35.00	LF	400	$14,000
	Asphalt Wedge Curb	$20.00	SY	720	$14,400.00
	New Asphalt	$50.00	SY	560	$28,000.00
	Drainage	$25,000.00	LS	1	$25,000
	River Rock Swale	$8.00	SF	2,500	$20,000
	E & S Blanket	$2.50	SF	2,500	$6,250.00
SUBTOTAL					$123,400.00
			Design Contingency	15.00%	$18,510.00
			Engineering Fee	12.00%	$14,808.00
TOTAL					**$156,718.00**

13 | Service Drive

Site Plan



Current Conditions / Opportunities

- Steep slope above erodes onto service drive.
- Not visible or used by parishioners.
- Existing storage shed is deteriorating and far away from service area.
- Lack of exterior storage space.

Proposed Improvements

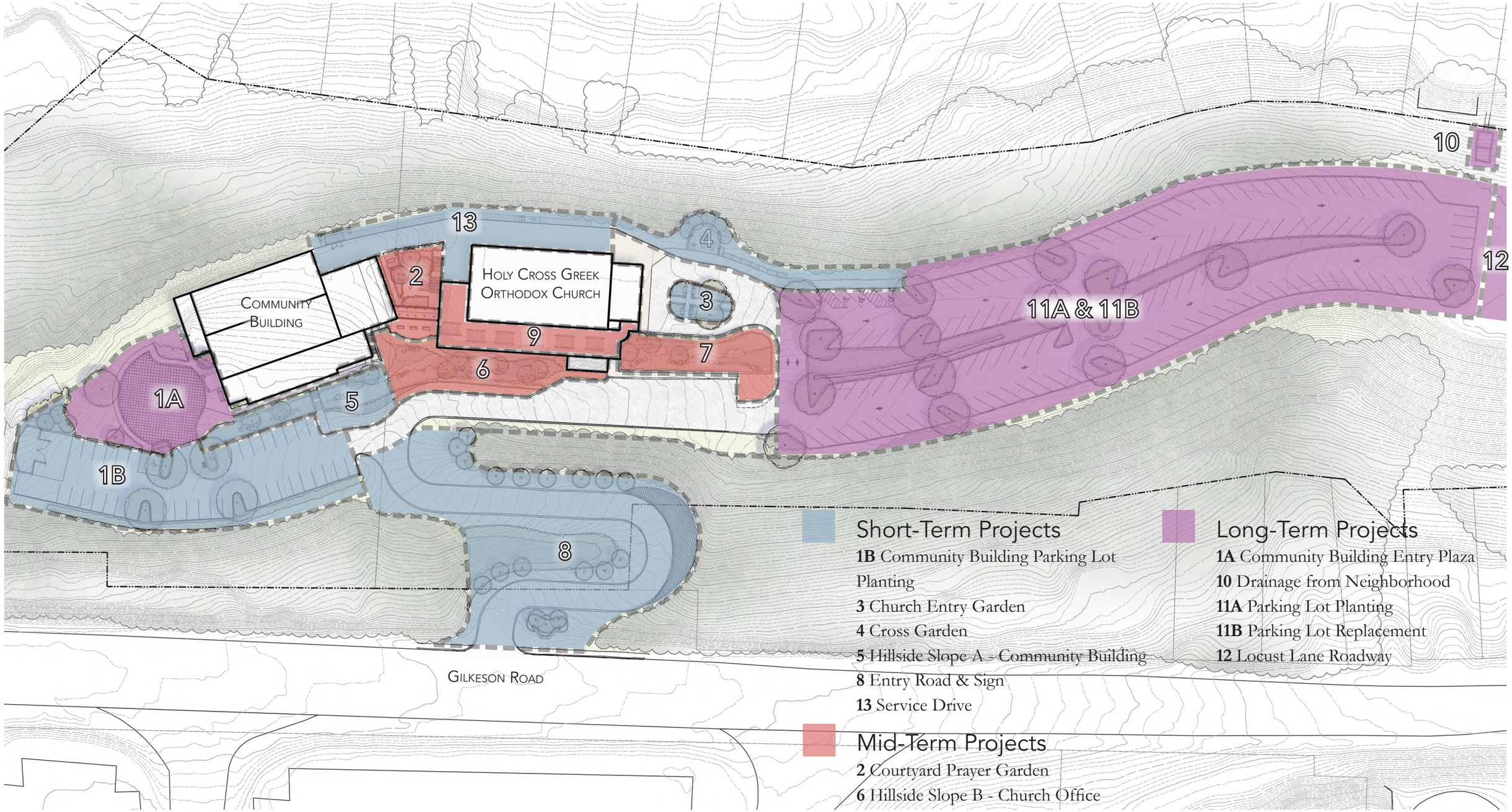
- Install stone/gravel on slope to prevent erosion and weeds.
- Small retaining wall required behind shed to create level area.
- Construct new shed adjacent to service area. Location is narrow, therefore shed should be approximately 8-ft deep and 12-ft long with multiple doors. Shed should be elevated a few inches above grade to allow air/water movement underneath.

13 | Service Drive

Estimated Construction Costs

	Unit Cost	Units	Quantity	Cost
Preparation				
Removals / Clearing	$2.50	SF	1,050	$2,625.00
Excavation	$1.50	SF	1,050	$1,575.00
Site Improvements				
River Rock	$8.00	SF	1,050	$8,400
French Drain / Connect to Sewer	$15.00	LF	100	$1,500.00
Block Wall	$50.00	SF	200	$10,000
Shed	$5,000.00	LS	1	$5,000.00
TOTAL				**$29,100.00**

Phasing / Priorities



Short-Term Projects

1B Community Building Parking Lot Planting
3 Church Entry Garden
4 Cross Garden
5 Hillside Slope A - Community Building
8 Entry Road & Sign
13 Service Drive

Mid-Term Projects

2 Courtyard Prayer Garden
6 Hillside Slope B - Church Office
7 Hillside Slope C - Church
9 Rooftop Terrace

Long-Term Projects

1A Community Building Entry Plaza
10 Drainage from Neighborhood
11A Parking Lot Planting
11B Parking Lot Replacement
12 Locust Lane Roadway

Cost Reduction Possibilities

Example 1: Community Building Entrance Plaza

Donation

Volunteer

Grant

		Unit Cost	Units	Quantity	Cost	
Preparation						
	Removals / Clearing	$2.50	SF	7,614	$19,035.00	
	Site Preparation / Grading	$1.50	SF	7,614	$11,421.00	
Site Improvements						
	Standard / Mountable Concrete Curb / Planter Curb	$50.00	LF	62	$3,100	
	Veneer Wall	$100.00	SF	120	$12,000	
	4" Depth Permeable Paver (Includes Stone Base, Materials, Installation)	$28.00	SF	4,437	$124,236.00	
	4" Reinforced Concrete Paving	$12.50	SF	1,451	$18,137.50	
	Outlet Structure (Drainage)	$3,500.00	LS	1	$3,500.00	
Planting						
	Lawn - Seed	$0.60	SF	778	$466.80	
	Planting - Soil @ 12" Depth	$65.00	CY	78	$5,070.00	
	Trees - Canopy	$600.00	EA	1	$600.00	
	Trees - Understory	$500.00	EA	1	$500.00	**$159,292.00**
	Planting - Material	$4.50	SF	2,102	$9,459.00	
	Planting - Labor	$8.00	SF	2,102	$16,816.00	**$16,816.00**
	Mulch @ 3" Depth	$30.00	CY	30	$900.00	
Electrical						
	Light Fixtures - Poles Lights, Bollards, Indirect Lighting	$15,000.00	LS	1	$15,000.00	
Furnishings						
	Benches	$1,500.00	EA	1	$1,500.00	**$1,500.00**
	SUBTOTAL				$241,741.30	
			Design Contingency	20.00%	$48,348.26	
			Engineering Fee	12.00%	$29,008.96	
	TOTAL				**$319,098.52**	

Cost Reduction Possibilities

Example 2: Courtyard Prayer Garden

Donation

Volunteer

Grant

		Unit Cost	Units	Quantity	Cost	
Preparation						
	Removals / Cleaning	$2.50	SF	2,926	$7,315.00	
	Site Preparation / Grading	$1.50	SF	2,926	$4,389.00	
Site Improvements						
	Concrete Stairs	$150.00	LF	272	$40,800.00	
	Concrete Terraced Seat Walls	$500.00	CY	40	$20,000.00	
	Stair Handrail	$100.00	LF	60	$6,000.00	
	Decorative Railing	$200.00	LF	67	$13,400.00	
	4" Depth Paver	$28.00	SF	174	$4,872.00	
	4" Reinforced Concrete Paving	$12.50	SF	949	$11,862.50	
	Raise Drain	$2,500.00	LS	1	$2,500.00	
	Shrine / Icon	$2,000.00	LS	1	$2,000.00	**$40,272.00**
Planting						
	Planting - Soil @ 12" Depth	$65.00	CY	56	$3,640.00	
	Trees - Understory	$500.00	EA	3	$1,500.00	**$5,140.00**
	Planting - Material	$4.50	SF	1,511	$6,799.50	
	Planting - Labor	$8.00	SF	1,511	$12,088.00	**$12,088.00**
	Mulch @ 3" Depth	$30.00	CY	14	$420.00	
Electrical						
	Indirect Lighting	$15,000.00	LS	1	$15,000.00	
	New Electrical Wiring	$5,000.00	LS	1	$5,000.00	
Furnishings						
	Benches	$1,500.00	EA	4	$6,000.00	
	SUBTOTAL				$163,586.00	
			Design Contingency	15.00%	$24,537.90	
			Engineering Fee	12.00%	$19,630.32	
	TOTAL				**$207,754.22**	

Cost Reduction Possibilities

Purpose	*No.*	*Description*
BEAUTIFICATION PROJECTS *Improve visual quality of church property, provide gathering spaces for parishioners, gardens for prayer and socialization, improve functionality and useability*	1B	Community Center Parking Lot Planting
	2	Courtyard Prayer Garden
	3	Church Entry Garden
	4	Cross Garden
	9	Rooftop Terrace
	12	Locust Lane Roadway Extension
ECOLOGICAL IMPROVEMENT PROJECTS *Improve ecological health, promote diversity, control storm water, reduce flooding, reduce erosion, install native or naturalized plants, attract wildlife/pollonators/birds, reduce maintenance use of pesticides and power equipment*	1A	Community Center Entry Plaza
	5	Slope A - Community Center
	6	Slope B - Office Slope
	7	Slope C - Church Slope
	8	Entry Road and Sign
	10	Drainage from Neighborhood
	11A	Main Parking Lot Planting
	11B	Main Parking Lot Replacement