



Town of Harvard

Harvard Park Woods

December 15TH, 2023

 BSC GROUP



TOWN OF HARVARD TEAM

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PROJECT TEAM BSC GROUP

Design Team

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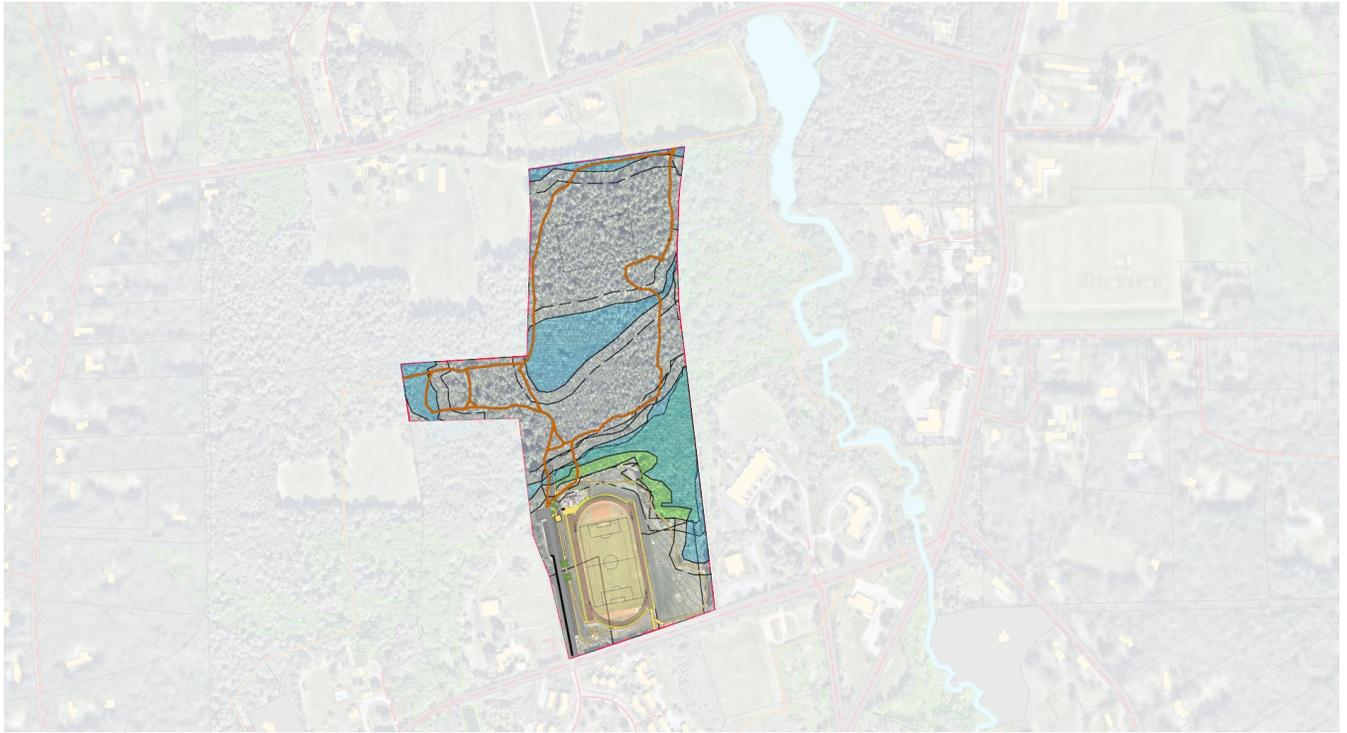
Matt Burne, PWS

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Project Overview



MassGIS Wetland



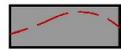
50 Ft Buffer



Paths



Wetlands Delineation Map 2022 December



Road

Background:

The Town of Harvard hired BSC Group in October 2023 to undertake this Harvard Woods Park Master Planning project. The work involved an initial site analysis based on publicly available sources, including MassGIS and the Town of Harvard GIS, along with reports supplied by the municipality, such as a recent wetland delineation report. Analysis of slopes and similar assessments were also carried out.

Project's Objectives

As defined by the client, the Town wanted to prepare concept plans showing development options for rectangular sports fields, softball, pickleball, pump track, access, and parking within Parcel No. 21.2.1.

At the project kick-off meeting, the Town also asked BSC to explore the use of the abutting Parcel 55.

Site walks:

October 31

Attendees:

- MARISA STEELE
- ANNE MCWATERS
- TIMOTHY BRAGAN
- Jef Fasser (BSC)
- Tomer Rabinowitz (BSC)

November 8

Attendees:

- MARISA STEELE
- ANNE MCWATERS
- Matt Burne (BSC)
- Tomer Rabinowitz (BSC)



Conceptual Planning:

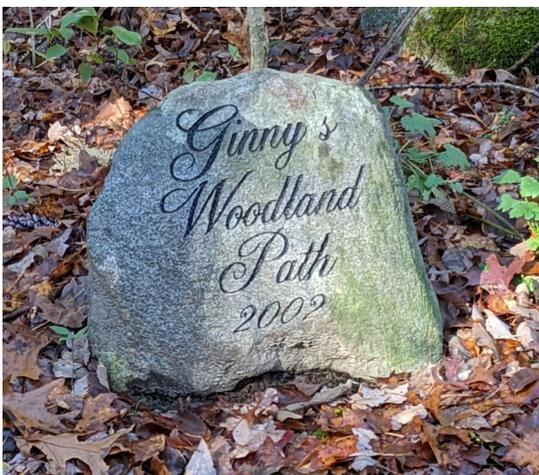
The following report categorizes the planning area into a few distinct sub-areas and suggests design concepts to support rectangular sports fields, consistent with the original request, as well as conceptual design alternatives to include additional recreational facilities that could also be implemented on-site. The report provides order-of-magnitude cost estimates for each alternative and presents various alternatives for parking and establishing access to the new recreation areas.

Site Description:

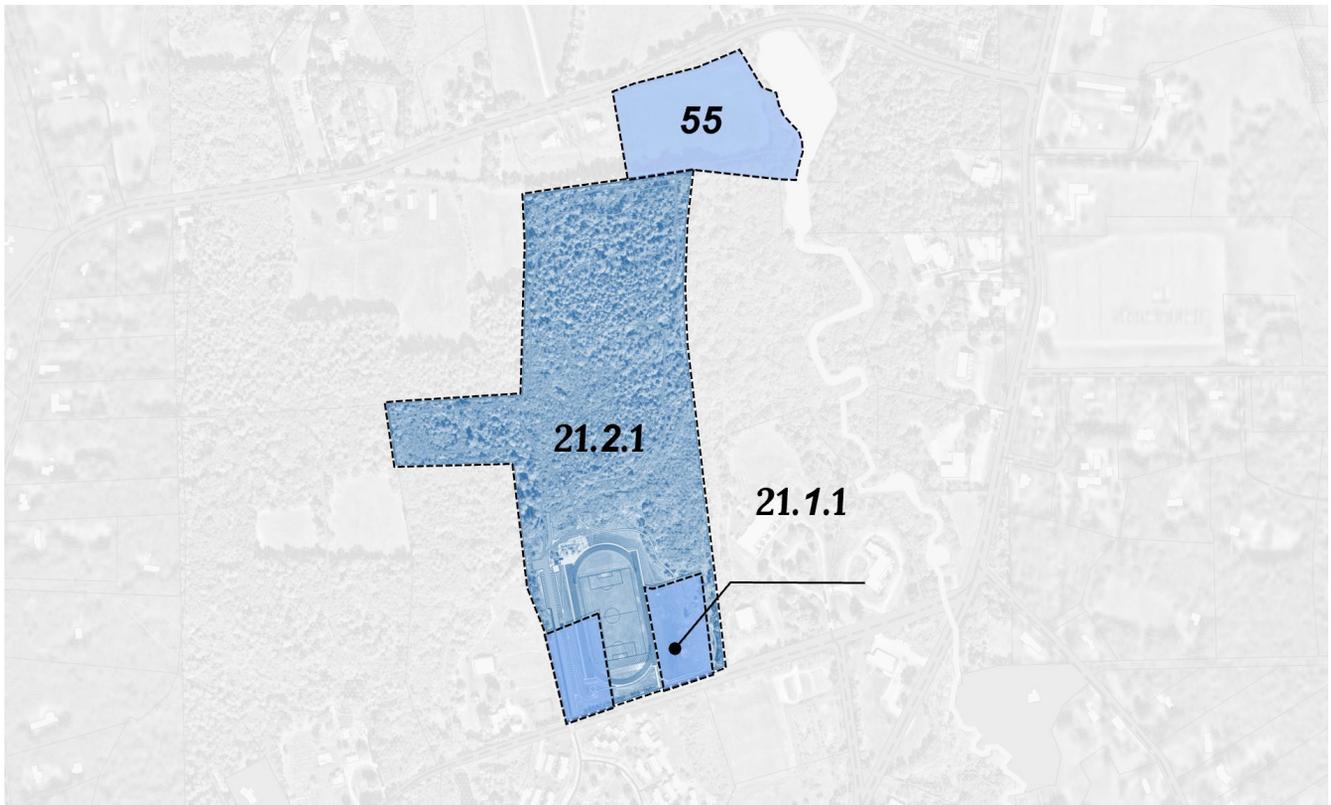
The area is mostly wooded. The forested area encompasses large wetland areas, as well as a stream channel running through the southern position of the site. The area abuts a fully developed track-and-field facility with a rectangular sport field, playground, storage building, and parking.

The primary use of the area consists of a loop trail winding through woods. Generally considered an easy route, the trail is welcoming to hikers, families, and leashed dogs. The trail is also used as a measured cross-country trail.

Along the trail there are memorial stones bearing names.



Parcel Information



Parcel Number	Property Address	Owner Name	Area (Acres)	Special features
21.1.1	Lancaster Cnty Rd	Town Of Harvard	1.75	<ul style="list-style-type: none"> • Under jurisdiction of Parks and Rec • Formal Trail for Cross Country events • Wooded Marsh/Swamp wetland areas • Interim Wellhead Protection Area (IWPA, state designation) • Potential Perennial stream (to verify)
21.2.1	Lancaster Cnty Rd	Town Of Harvard	30.34	
21.3.1	Lancaster Cnty Rd	Town Of Harvard	1.76	
55	Old Mill Rd	Town Of Harvard	6	<ul style="list-style-type: none"> • Under jurisdiction of Conservation Commission • Jurisdiction would need to be transferred, by Town Meeting vote, to Park and Rec to be used for active recreational purposes.

* no rare species

** no floodplains

Primary Uses Desired for the Project Area:

- Rectangular Sport Fields
- A Softball Field
- Walking Trails
- Cross-country Running Trail
- Parking Spaces
- Pickleball Courts
- Basketball Court(s)
- Site Furniture
- Lighting (middle section only)
- Bathroom building which will include mechanics for water pump and irrigation controls.
- Drilling of a well for water supply.
- Septic system or composting toilets for the bathrooms
- Irrigation systems for the fields.
- Vehicular parking, ADA accessible parking, security gates.
- Rain Gardens
- Protected of Wetland Areas
- More Diverse Woodlands

Future Detailed Design will Require:

- Detailed land survey for each planning zone to include property lines, wetland boundaries, topography, and existing features.
- Soil testing
- Geotechnical investigation in areas where walls may be needed
- Classification of the stream within the project area (ephemeral stream or perennial stream).
- Identification and classification of healthy/damaged trees within the project area.
- (Initial on-line research and site inspection, conducted by an ecologist from BSC GROUP, determined that the area does not harbor any rare species, nor does it contain floodplains.)



Recent wetland flagging

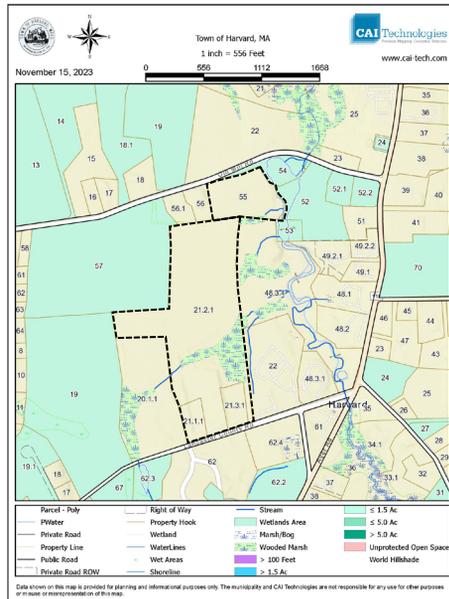


Current trail surface

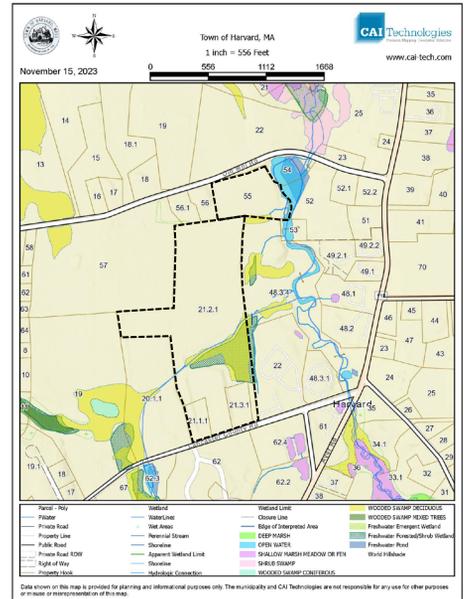


Developmental Limitations

Wetlands

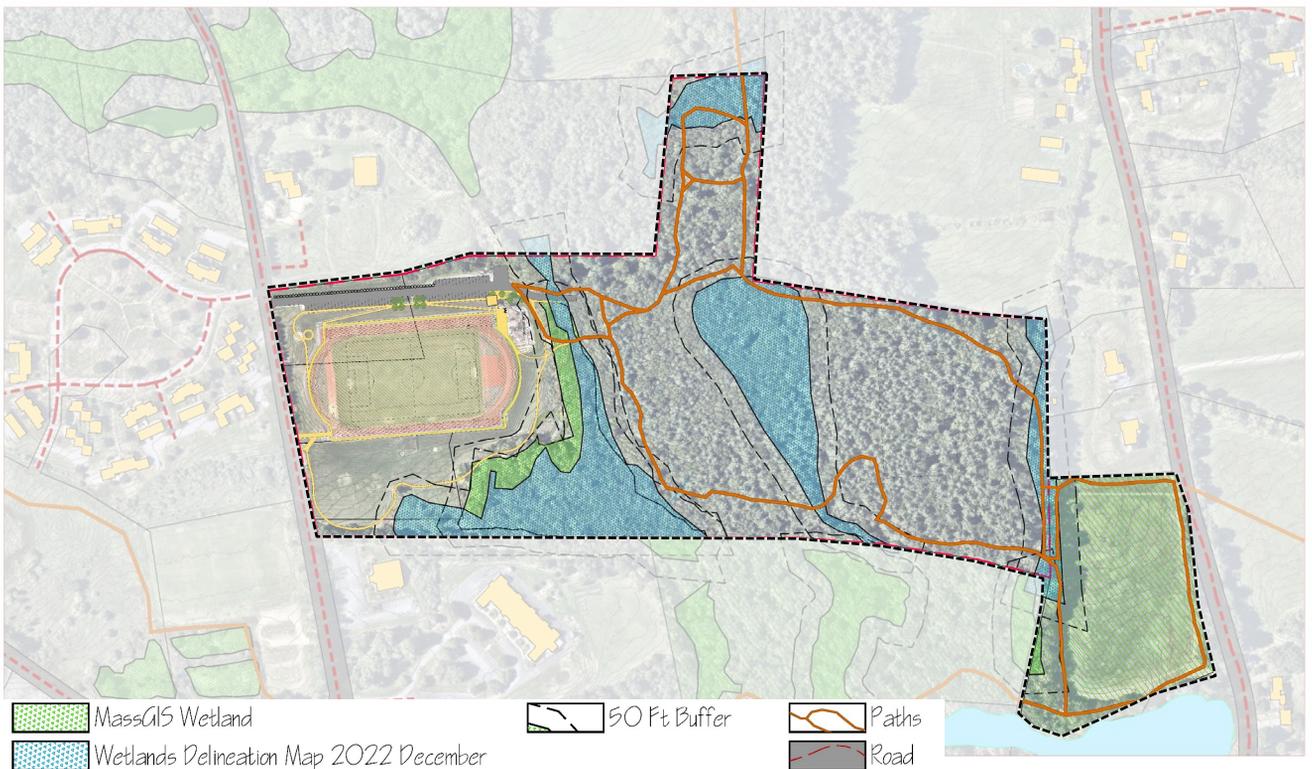


Wetland Protection

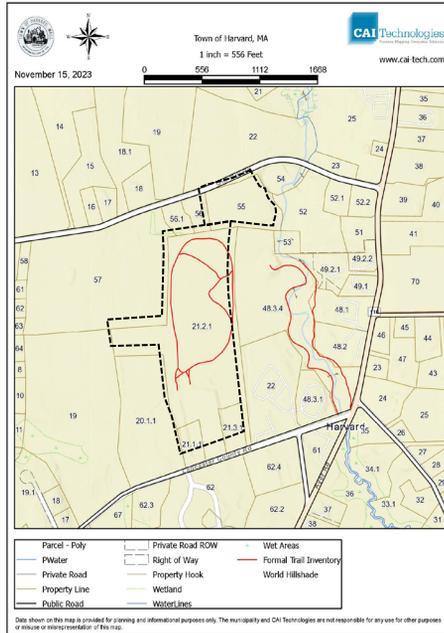
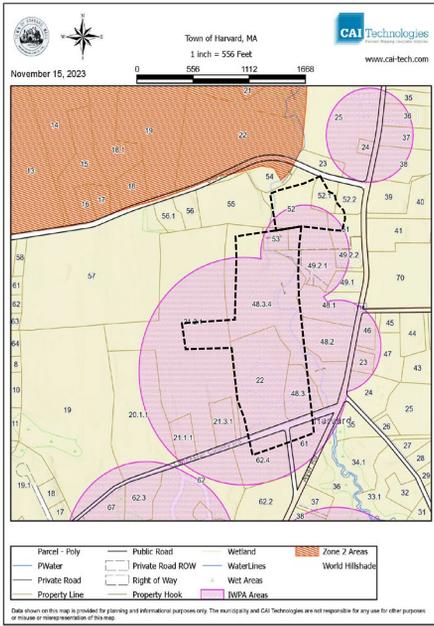


Wooded Marsh

- **Wetlands** - The wetland map above displays MassGIS designated wetlands, acknowledged to be less precise than on-site delineation which was added to the map below.
- **Harvard's Local Wetland Bylaw** applies and establishes a 50-foot no-build buffer around designated wetlands. If wetland mitigation is proposed, the Bylaw stipulates that, in most instances, the replication area must be 1.5 times larger than the original resource to be impacted, and soil materials from the impacted wetland location must be relocated to the prepared replication area.



Developmental Limitations

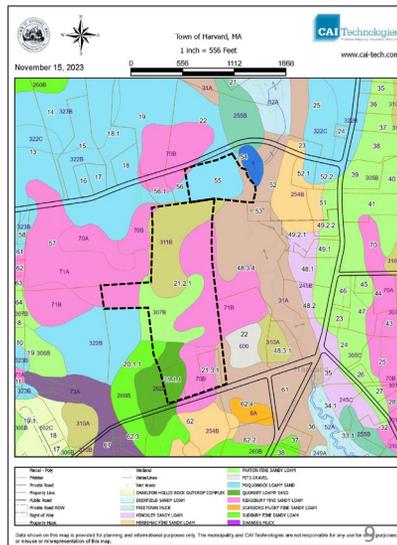
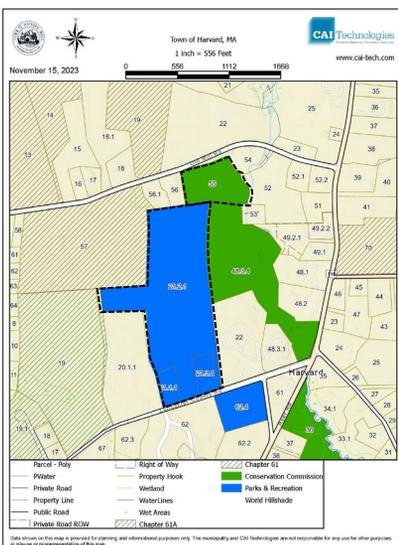


Interim Wellhead Protection Areas (IWPA)

Formal Trail Inventory

The maps on this page show Mass GIS designated site information

- **Interim Wellhead Protection Area (IWPA)** was adopted by the Massachusetts DEP as a primary, protected recharge area for PWS groundwater sources. At the time of this study it appears the recommended improvements would be allowed in the IWPA but P&R should consult with the Town's Water Dept. to confirm current regulations.
- **Formal Trail Inventory** - The marked trails are shown as recreational trails, and the trail in the Harvard Woods Park parcel is part of a longer Cross-Country Trail.
- **Protected Open Space** - The parcels in blue are under the jurisdiction of the Parks and Recreation Commission, the parcels in green are under the jurisdiction of the Conservation Commission.
- **Soils Map** - shows that the parcel consists of various grades of fine sandy loam, which pose no significant limitation to development of the proposed uses

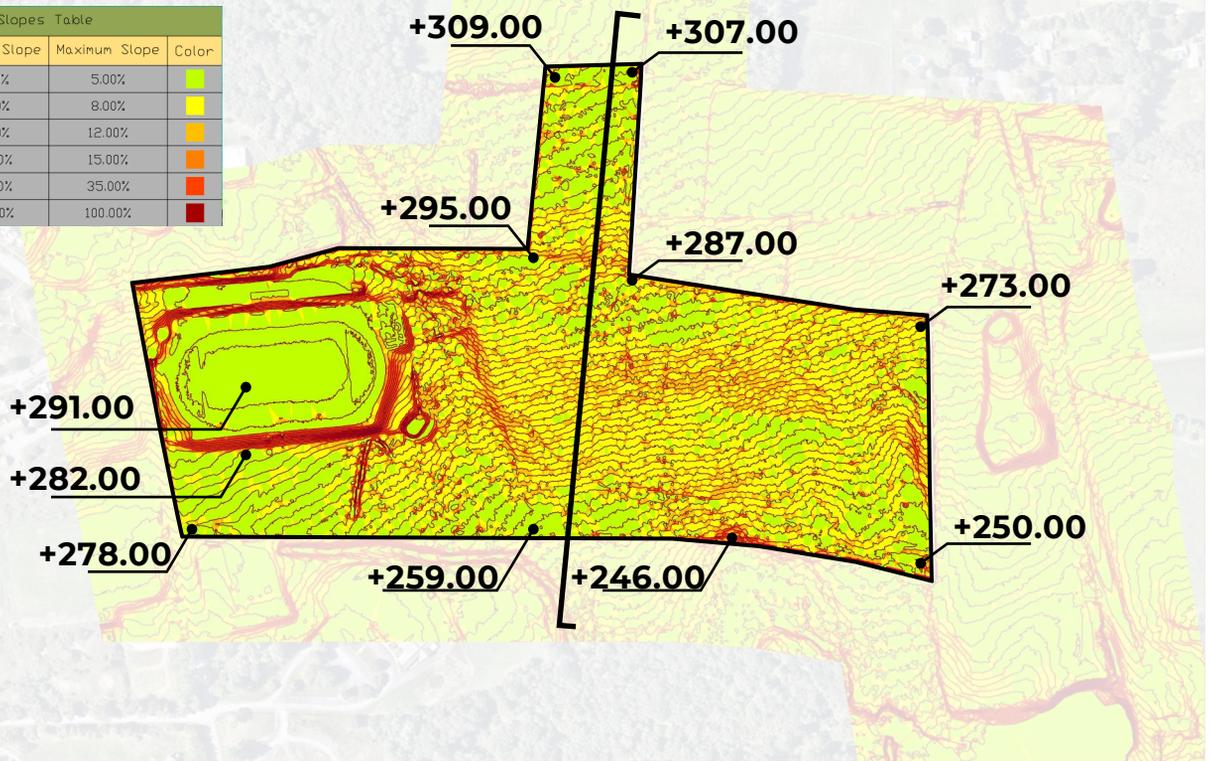


Protected Open Spaces

Soils Map

Slope Analysis

Slopes Table			
Number	Minimum Slope	Maximum Slope	Color
1	0.00%	5.00%	Light Green
2	5.00%	8.00%	Yellow
3	8.00%	12.00%	Orange
4	12.00%	15.00%	Dark Orange
5	15.00%	35.00%	Red
6	35.00%	100.00%	Dark Red



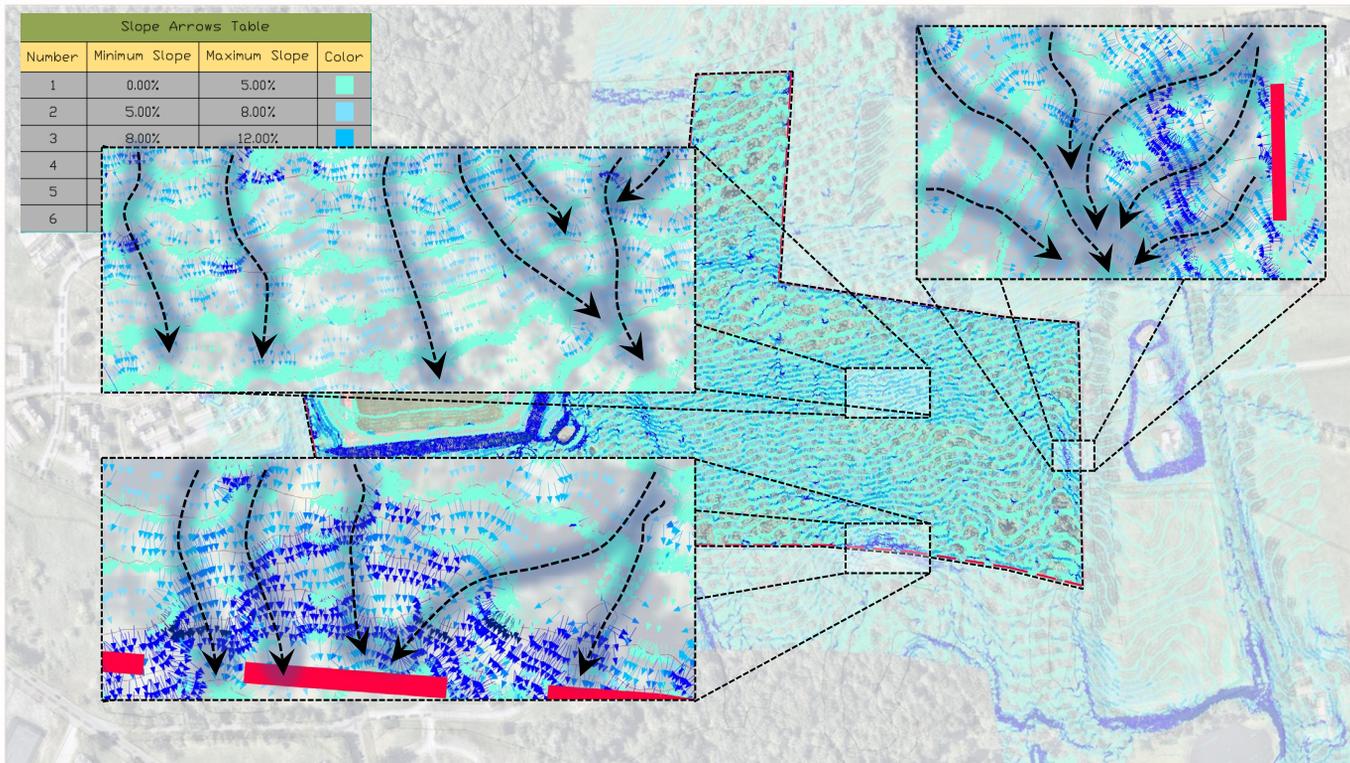
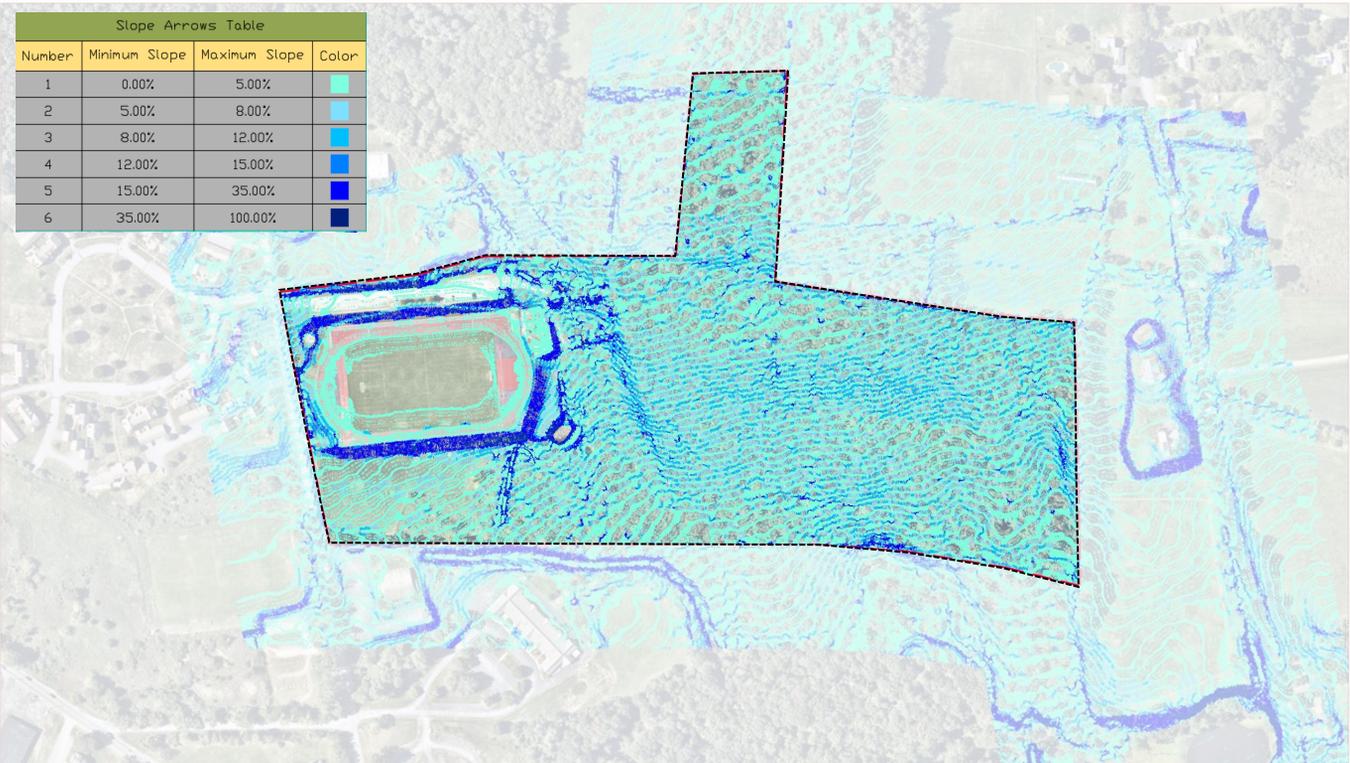
Cross Section showing grade change east to west

The walk along the trail on site is comfortable. The site is mostly flat and favorable for development. The slope analysis on the site reveals a moderate and consistent incline from east to west at a rate of approximately 5.5 percent.

Considering the program's demand for sports fields, necessitating nearly level terrain, the development of the site from end to end, especially where a soccer field is required, involves substantial earthwork. This includes grading to place a relatively level playing field over an areas with an 18-foot elevation difference.

To level the playfield areas, the goal is to balance cut and fill on site, with will involve excavating soil on the western side and filling soil on the eastern side. Final grading will ensure a crowned lawn surface with a slight grade for drainage, providing a secure and suitable playing surface that prioritizes player safety.

Hydrology Analysis



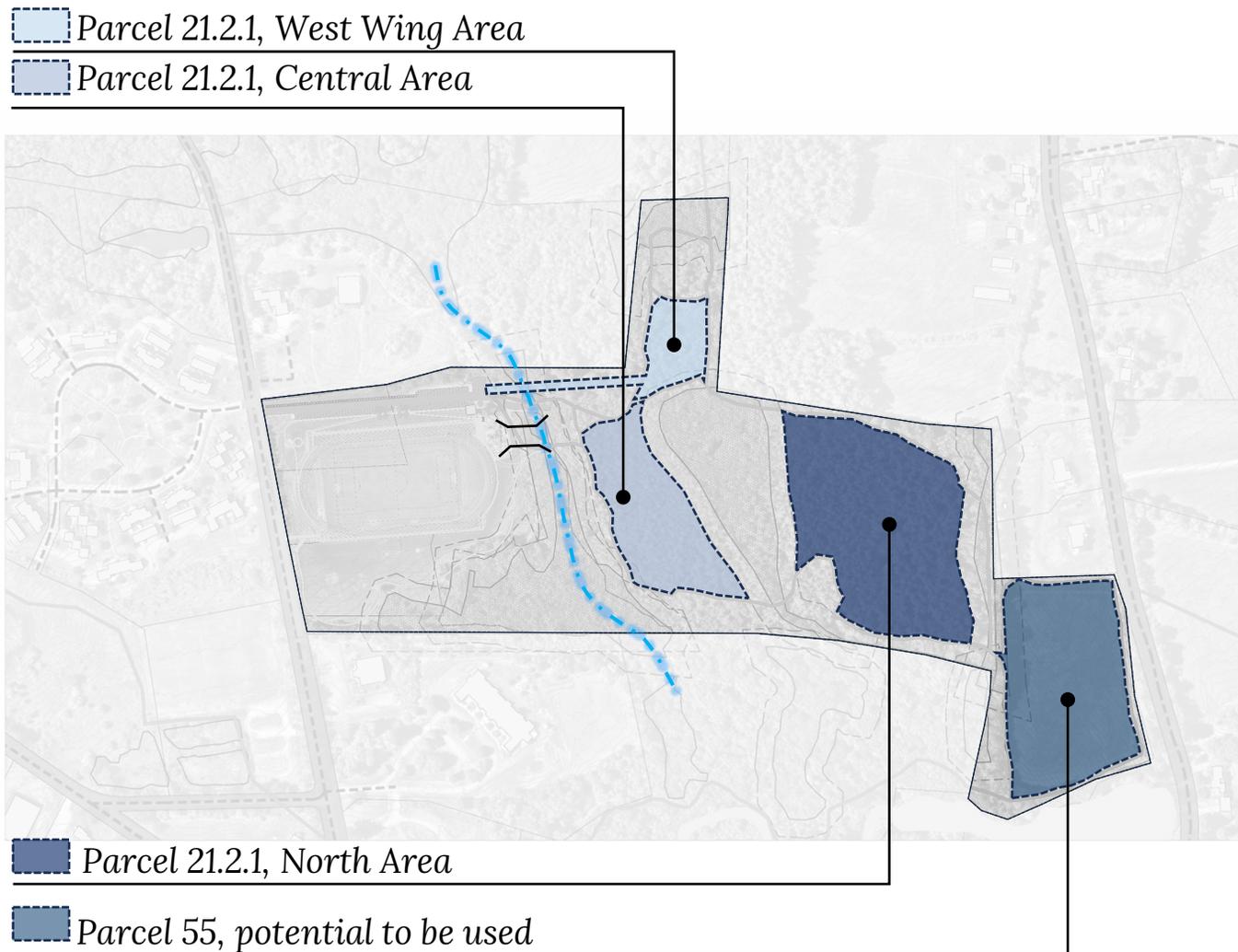
Concept Plan Options

Project's Objectives

As was stated earlier, the Town initiated this study to evaluate the feasibility of adding recreational facilities into the Harvard Woods Park site, and prepare concept plans showing development options for rectangular sports fields, softball, pickleball, basketball, pump track, access, and parking.

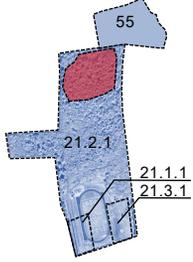
The site analysis identified three primary areas within the parcel that could support the desired uses, and these three areas are shown on the map below as the West, Central and North areas. These areas are outside wetlands, gently sloping, and large enough for desired uses.

During the initial site walk with the Town and BSC, the Town requested that this study also include Parcel 55, which is owned by the Town and currently under the jurisdiction of the Conservation Commission. It is a large, rectangular, relatively flat meadow area that easily lends itself for use for a rectangular sport field.



Location: Parcel 21.2.1, North Lot / **CONCEPT #1**

Key details and considerations :



The northern area, bordered by Wetlands (to the north and south) and the Cross-Country Trail (from the east and west), encompasses about 239,221 sq. ft (5.49 Acres) of undeveloped land.

This concept proposes a full-size soccer field, 6 Pickleball courts, children's swings in close proximity to Parcel 55, two basketball courts, and a 900 sq. ft single-story bathroom/utility building.

The design requires a crossing of jurisdictional wetlands.

Ancillary costs:

For development to proceed, preliminary work includes tree clearing and grading to level the surface uniformly while minimizing the need for retaining walls due to an 18 FT height difference from east to west.

Upon completion of grading and tree clearing, new trees will be planted to enhance the natural landscape, contributing to a sustainable and community-friendly recreational space

Key Elements:



Soccer Field

- Dimensions: 210 X 345
- Irrigation



Pickleball Courts

- 6 / 3 Courts
- Dimensions: 20 X 44 (+ Bounds zones)



Basketball Courts

- 1 Courts (instead of 3 Pickleball courts).
- Dimensions: 70 X 114 (+ Bounds zones)



Play Swings

- Swings located in proximity to Parcel 55 to allow convenient access from both parcels.



Small Structure for Bathrooms and Irrigation equipment

- Dimensions: 30 X 30 (900 sq. ft)
- Drinking/water bottle filling station
- An on-site water well/pump and septic system or composting toilets



Tree Clearing and New Plantings

- Estimated area: 183,084 sq. ft = ~4.2 Acres



Cross-Country Trail

- Extending the exiting layout





Potential development Basketball court



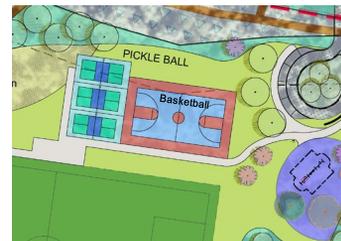
As an alternative, a different option is under consideration, featuring a basketball court in place of the initially proposed six pickleball courts. This alternative doesn't deviate significantly from the primary option and allows for a broader range of uses, as it still accommodates three pickleball courts alongside the basketball court. The shift in cost is minor.

HARVARD WOODS FEASIBILITY STUDY

Multi-Use Field with Pickleball

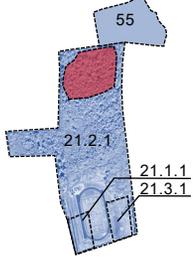
ORDER OF MAGNITUDE COST ESTIMATE

A. MAJOR ITEMS					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	4.11	\$60,000.00	\$246,882.92	
TEMPORARY CONSTRUCTION FENCING	l.f.	1,985	\$10.00	\$19,850.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$402,732.92	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	4,243	\$8.00	\$33,940.89	
ORDINARY FILL	c.y.	11,120	\$35.00	\$389,200.00	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADING	s.y.	18,518	\$30.00	\$555,550.00	
FINE GRADE AND COMPACTION	s.y.	18,518	\$20.00	\$370,366.67	
			Sub-Total	\$1,392,617.56	
Hardscape					
HOT MIX ASPHALT PAVING	s.y.	768	\$50.00	\$38,416.67	4" Bituminous paving, granular fill, excavation
PARK BENCH ON CONCRETE PAD	ea.	0	\$5,000.00	\$0.00	
			Sub-Total	\$38,416.67	
Site Improvements					
BUILDING (PRE-FAB)	ea.	1	\$300,000.00	\$300,000.00	Includes restrooms, pump room, irrigation equipment
GRAVEL ACCESS DRIVE	s.y.	1,522	\$30.00	\$45,660.00	
PLAYGROUND SWINGS	l.s.	1	\$198,000.00	\$198,000.00	
MULTIUSE FIELD	ea.	1	\$1,571,000.00	\$1,571,000.00	
WALKING PATH	s.y.	495	\$30.00	\$14,850.00	
PICKLEBALL COURT	ea.	6	\$85,000.00	\$510,000.00	
			Sub-Total	\$2,639,510.00	
Planting					
LAWN SEEDING	s.y.	17,750	\$3.00	\$53,250.00	Drought tolerant mix, no irrigation
DECIDUOUS TREES - 3.5" CAL.	ea.	58	\$1,300.00	\$75,400.00	
RAIN GARDEN	s.y.	984	\$40.00	\$39,346.67	
			Sub-Total	\$167,996.67	
Utilities					
ELECTRICAL SERVICE	l.s.	1	\$50,000.00	\$50,000.00	Budget Estimate
SEPTIC SYSTEM	l.s.	1	\$40,000.00	\$40,000.00	Budget Estimate
WELL-WELL APPURTENANCES *	l.s.	1	\$30,000.00	\$30,000.00	Budget Estimate
STORMWATER MANAGEMENT	l.s.	1	\$50,000.00	\$50,000.00	
			Sub-Total	\$170,000.00	
			Total of All Items	\$4,811,273.81	
B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)					
			CONSTRUCTION STAKING	1%	\$48,112.74
			MOBILIZATION	3%	\$144,338.21
			MINOR ITEMS	10%	\$481,127.38
			1-YEAR ESCALATION	6%	\$288,676.43
			Total of Lump Sum Items		\$962,254.76
			SUB-TOTAL (A+B)		\$5,773,528.57
			CONSTRUCTION CONTINGENCY	20%	\$1,154,705.71
			FULL CONSTRUCTION GRAND TOTAL		\$6,928,234.28
			SAY		\$6,929,000.00
* drilling of well, pump, wiring, pipe, etc.					
C. ADD ALTERNATE					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
BASKETBALL IN LIEU OF 3 - PICKLEBALL	ea.	1	\$16,000.00	\$16,000.00	
SPORTS FIELD LIGHTING	l.s.	1	\$375,000.00	\$375,000.00	
COURT LIGHTING	ea.	6	\$15,000.00	\$90,000.00	



Location: Parcel 21.2.1, North Lot / **CONCEPT #2**

Key details and considerations :



The northern area, bordered by Wetlands (to the north and south) and the Cross-Country Trail (from the east and west), encompasses about 239,221 sq. ft (5.49 Acres) of undeveloped land.

This concept proposes a 250' softball field, 6 Pickleball courts, children's swings near Parcel 55, and a 900 sq. ft bathroom building. The design Requires a crossing of jurisdictional wetlands.



Ancillary costs:

For development to proceed, preliminary site work includes tree clearing and grading to level the surface uniformly, avoiding walls due to an 18 FT grade difference from east to west.

Upon completion of grading and tree clearing, new trees will be planted to enhance the natural landscape, contributing to a sustainable and community-friendly recreational space.

Key Elements:



Softball Field

- Dimensions: 250 ft
- Dugouts, team benches, scoreboards,
- Irrigation



Pickleball Courts

- 6 / 3 Courts
- Dimensions: 20 X 44 (+ Bounds zones)



Basketball Courts

- 1 Courts (instead of 3 Pickleball courts).
- Dimensions: 70 X 114 (+ Bounds zones)



Play Swings

- Swings located in proximity to Parcel 55

Small Structure for Bathrooms and Irrigation equipment

- Dimensions: 30 X 30 (900 sq. ft)
- Drinking/water bottle filling station
- Requires an on-site water well/pump and septic system



Tree Clearing and New Plantings

- Estimated area: 183084 sq. ft = ~4.2 Acres



Cross-Country Trail

- Extending the existing layout



**Potential development
Basketball court**

HARVARD WOODS FEASIBILITY STUDY

Softball Field w/Pickleball Courts

ORDER OF MAGNITUDE COST ESTIMATE

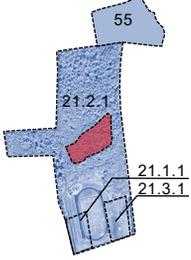
A. MAJOR ITEMS					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	1,742	\$5.00	\$8,710.00	
CLEARING AND GRUBING	a.c.	4.20	\$60,000.00	\$252,181.82	
TEMPORARY CONSTRUCTION FENCING	l.f.	1,723	\$10.00	\$17,230.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$404,121.82	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	1,705	\$8.00	\$13,643.11	
ORDINARY FILL	c.y.	1,000	\$35.00	\$35,000.00	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADING	s.y.	17,268	\$30.00	\$518,043.33	
FINE GRADE AND COMPACTION	s.y.	17,268	\$20.00	\$345,362.22	
			Sub-Total	\$955,608.67	
Hardscape					
HOT MIX ASPHALT PAVING	s.y.	7,812	\$50.00	390605.5556	4" Bituminous paving, granular fill, excavation
CONCRETE PAVING (4")	s.y.	0	\$80.00	0	4" Concrete
PARK BENCH ON CONCRETE PAD	ea.	0	\$5,000.00	0	
			Sub-Total	390605.5556	
Site Improvements					
BUILDING (PRE-FAB)	ea.	1	\$300,000.00	\$300,000.00	Includes restrooms, pump room, irrigation equipment
GRAVEL ACCESS DRIVE	s.y.	1,522	\$30.00	\$45,660.00	
PLAYGROUND SWINGS	l.s.	1	\$198,000.00	\$198,000.00	
SOFTBALL FIELD	ea.	1	\$1,310,000.00	\$1,310,000.00	
WALKING PATH	s.y.	709	\$30.00	\$21,276.67	
PICKLEBALL COURTS	ea.	6	\$85,000.00	\$510,000.00	
			Sub-Total	\$2,384,936.67	
Planting					
LAWN SEEDING	s.y.	9,456	\$3.00	\$28,368.00	Drought tolerant mix, no irrigation
MEADOW SEEDING	s.f.	0	\$2.00	\$0.00	Native seed
DECIDUOUS TREES - 3.5" CAL.	ea.	35	\$1,300.00	\$45,500.00	
EVERGREEN TREES - 6" HT.	ea.	0	\$1,500.00	\$0.00	
ORNAMENTAL TREES - 10-12" HT.	ea.	0	\$900.00	\$0.00	
RAIN GARDEN	s.y.	609	\$40.00	\$24,377.78	
			Sub-Total	\$98,245.78	
Utilities					
ELECTRICAL SERVICE	l.s.	1	\$50,000.00	\$50,000.00	Budget Estimate
SEPTIC SYSTEM	l.s.	1	\$40,000.00	\$40,000.00	Budget Estimate
WIRING (DISTRIBUTION CONTROL)	l.s.	0	\$50,000.00	\$0.00	
WELL-WELL APPURTENANCES *	l.s.	1	\$30,000.00	\$30,000.00	Budget Estimate
STORMWATER MANAGEMENT	l.s.	1	\$75,000.00	\$75,000.00	
			Sub-Total	\$195,000.00	
			Total of All Items	\$4,428,518.48	
B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS					
CONSTRUCTION STAKING		1%		\$44,285.18	
MOBILIZATION		3%		\$132,855.55	
MINOR ITEMS		10%		\$442,851.85	
1-YEAR ESCALATION		6%		\$265,711.11	
Total of Lump Sum Items				\$885,703.70	
			SUB-TOTAL (A+B)	\$5,314,222.18	
CONSTRUCTION CONTINGENCY		20%		\$1,062,844.44	
FULL CONSTRUCTION GRAND TOTAL				\$6,377,066.62	
SAY				\$6,378,000.00	
* drilling of well, pump, wiring, pipe, etc.					
C. ADD ALTERNATE					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
BASKETBALL IN LIEU OF 3 - PICKLEBALL	ea.	1	\$16,000.00	\$16,000.00	
SPORTS FIELD LIGHTING	l.s.	1	\$300,000.00	\$300,000.00	
COURT LIGHTING	ea.	4	\$15,000.00	\$60,000.00	

There is deliberation on an alternative option, which includes a basketball court instead of the initially suggested six pickleball courts. This alternative remains consistent with the primary choice and facilitates a more extensive range of uses, as it still includes three pickleball courts alongside the basketball court. The change in costs is minimal.



Location: Parcel 21.2.1, Central Lot / **CONCEPT #1**

Key details and considerations :



The Central lot, bordered by Wetlands (to the north and south) and the Cross-Country Trail (from the east and west, and south), encompasses about 106,838 sq. ft (2.45 Acres) of undeveloped land.

This concept proposes a 1,080 ft long Pump Track, bike racks, 6 pickleball courts, a 900 sq. ft single-story bathroom/utility structure, and 20 accessible parking spaces

Key Elements:

Pump-Track



- Dimensions: 1,080ft long (~96,800 sq. ft / 2.2 Acres)
- Possible sports lighting

Possible Materials

- Asphalt, concrete, dirt, or wood with asphalt identified as the optimal choice



Pickleball Courts

- 6 Courts.
- Dimensions: 20 X 44 (+ Bounds zones)



Small Structure for Bathrooms and Irrigation equipment

- Dimensions: 30 X 30 (900 sq. ft)
- Drinking/water bottle filling station
- Requires an on-site water well/pump and septic system



Tree Clearing and New Plantings

- Estimated area: 183,084 sq. ft = ~4.2 Acres





HARVARD WOODS FEASIBILITY STUDY

Pump Track w/Pickleball
ORDER OF MAGNITUDE COST ESTIMATE

A. MAJOR ITEMS					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRIP & STOCK PILE TOPSOIL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	0.10	\$60,000.00	\$5,895.32	
TEMPORARY CONSTRUCTION FENCING	l.f.	2,511	\$10.00	\$25,110.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$167,005.32	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	2,263	\$8.00	\$18,103.41	
ORDINARY FILL	c.y.	4,517	\$35.00	\$158,095.00	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADING	s.y.	6,753	\$30.00	\$202,603.33	
FINE GRADE AND COMPACTION	s.y.	6,753	\$20.00	\$135,068.89	
			Sub-Total	\$567,430.63	
Hardscape					
HOT MIX ASPHALT SIDEWALK	s.y.	1,727	\$50.00	\$86,355.56	4" Bituminous paving, granular fill, excavation
			Sub-Total	\$86,355.56	
Site Improvements					
BUILDING (PRE-FAB)	ea.	1	\$300,000.00	\$300,000.00	Includes restrooms, pump room, irrigation equipment
WALKING PATH	s.y.	229	\$30.00	\$6,880.00	
PICKLEBALL COURTS	ea.	6	\$85,000.00	\$510,000.00	
SITE FURNISHINGS	ea.	70	\$2,500.00	\$175,000.00	
PUMP TRACK	ea.	1	\$250,000.00	\$250,000.00	Budget Estimate
			Sub-Total	\$1,241,880.00	
Planting					
LAWN SEEDING	s.y.	5,026	\$3.00	\$15,079.00	Drought tolerant mix, no irrigation
DECIDUOUS TREES - 3.5" CAL.	ea.	66	\$1,300.00	\$85,800.00	
			Sub-Total	\$100,879.00	
Utilities					
ELECTRICAL SERVICE	l.s.	1	\$50,000.00	\$50,000.00	Budget Estimate
SEPTIC SYSTEM	l.s.	1	\$40,000.00	\$40,000.00	Budget Estimate
WELL-WELL APPURTENANCES *	l.s.	1	\$30,000.00	\$30,000.00	Budget Estimate
STORMWATER MANAGEMENT	l.s.	1	\$50,000.00	\$50,000.00	
			Sub-Total	\$170,000.00	
			Total of All Items	\$2,323,550.50	
B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)					
CONSTRUCTION STAKING		1%	\$23,235.51		
MOBILIZATION		3%	\$69,706.52		
MINOR ITEMS		10%	\$232,355.05		
1-YEAR ESCALATION		6%	\$139,413.03		
Total of Lump Sum Items			\$464,710.10		
SUB-TOTAL (A+B)			\$2,788,260.60		
CONSTRUCTION CONTINGENCY		20%	\$557,652.12		
FULL CONSTRUCTION GRAND TOTAL SAY			\$3,345,912.72		
			\$3,346,000.00		
* drilling of well, pump, wiring, pipe, etc.					
C. ADD ALTERNATE					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
PUMP TRACK - ASPHALT SURFACING	s.y.	400	\$50.00	\$20,000.00	
AREA LIGHTING	ea.	6	\$7,500.00	\$45,000.00	
COURT LIGHTING	ea.	8	\$15,000.00	\$120,000.00	

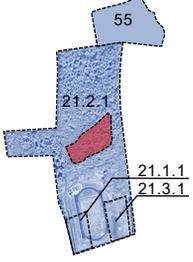


Building:
Includes bathrooms, a mechanical room for pump and irrigation equipment. Water filling station. No concession, and a small storage area.

Cost estimate, based on a pre-fab structure complete with all fixtures, site will need a concrete slab, electrical service, and ties to a new water well and septic field.

Location: Parcel 21.2.1, Central Lot / **CONCEPT #2**

Key details and considerations :



The Central lot, bordered by Wetlands (to the north and south) and the Cross-Country Trail (from the east and west, and south), encompasses about 106,838 sq. ft (2.45 Acres) of undeveloped land.

This concept proposes a 1,670 ft long Pump Track, bike racks, scoreboard, a 900 sq. ft single-story bathroom/utility structure, 20 accessible parking spaces, and the potential for lighting.



Worth Thinking About:

Considering the size of the site, it should be also considered to build various tracks, such as a standard Pump Track, a jump track, a children's track, and so forth.

Possible Materials:

Asphalt, concrete, dirt, or wood, with asphalt identified as the optimal choice.

Ancillary Costs:

For development to proceed, preliminary work includes tree clearing and minor grading to adapt the existing elevation to the pump-track alignment. The track should be laid out so that no retaining walls are needed. Upon completion of construction, new trees will be planted to enhance the natural landscape.

Key Elements:



Pump-Track

- Dimensions: 1670 ft long (~96,800 sq. ft / 2.2 Acres)
- water fountain, sports lighting



Small Structure for Bathrooms and Irrigation equipment

- Dimensions: 30 X 30 (900 sq. ft)
- Drinking/water bottle filling station
- Requires an on-site water well/pump and septic system



Trees Clearing and New Plantings

- Estimated area: 183084 sq. ft = ~4.2 Acres



HARVARD WOODS FEASIBILITY STUDY

Pump Track

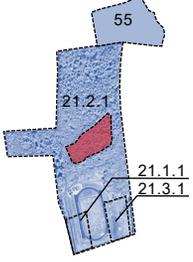
ORDER OF MAGNITUDE COST ESTIMATE

A. MAJOR ITEMS					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	0.10	\$60,000.00	\$5,895.32	
TEMPORARY CONSTRUCTION FENCING	l.f.	2,511	\$10.00	\$25,110.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$167,005.32	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	2,263	\$8.00	\$18,103.41	
ORDINARY FILL	c.y.	4,517	\$35.00	\$158,095.00	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADING	s.y.	7,261	\$30.00	\$217,830.00	
FINE GRADE AND COMPACTION	s.y.	7,261	\$20.00	\$145,220.00	
			Sub-Total	\$582,808.41	
Hardscape					
HOT MIX ASPHALT SIDEWALK	s.y.	1,043	\$50.00	\$52,155.56	4" Bituminous paving, granular fill, excavation
			Sub-Total	\$52,155.56	
Site Improvements					
BUILDING (PRE-FAB)	ea.	1	\$300,000.00	\$300,000.00	Includes restrooms, pump room, irrigation equipment
WALKING PATH	s.y.	229	\$30.00	\$6,880.00	
SITE FURNISHINGS	ea.	41	\$2,500.00	\$102,500.00	
PUMP TRACK	ea.	1	\$300,000.00	\$300,000.00	Budget Estimate
			Sub-Total	\$709,380.00	
Planting					
LAWN SEEDING	s.y.	6,218	\$3.00	\$18,653.67	Drought tolerant mix, no irrigation
DECIDUOUS TREES - 3.5" CAL.	ea.	51	\$1,300.00	\$66,300.00	
			Sub-Total	\$84,953.67	
Utilities					
ELECTRICAL SERVICE	l.s.	1	\$50,000.00	\$50,000.00	Budget Estimate
SEPTIC SYSTEM	l.s.	1	\$40,000.00	\$40,000.00	Budget Estimate
WELL-WELL APPURTENANCES *	l.s.	1	\$30,000.00	\$30,000.00	Budget Estimate
STORMWATER MANAGEMENT	l.s.	1	\$50,000.00	\$50,000.00	
			Sub-Total	\$170,000.00	
			Total of All Items	\$1,766,302.95	
B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)					
CONSTRUCTION STAKING		1%		\$17,663.03	
MOBILIZATION		3%		\$52,989.09	
MINOR ITEMS		10%		\$176,630.29	
1-YEAR ESCALATION		6%		\$105,978.18	
Total of Lump Sum Items				\$353,260.59	
SUB-TOTAL (A+B)				\$2,119,563.54	
CONSTRUCTION CONTINGENCY		20%		\$423,912.71	
FULL CONSTRUCTION GRAND TOTAL				\$2,543,476.24	
SAY				\$2,544,000.00	
* drilling of well, pump, wiring, pipe, etc.					
C. ADD ALTERNATE					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
PUMP TRACK - ASPHALT SURFACING	s.y.	2,623	\$50.00	\$131,150.00	
AREA LIGHTING	ea.	8	\$7,500.00	\$60,000.00	



Location: Parcel 21.2.1, Central Lot / **CONCEPT #3**

Key details and considerations :



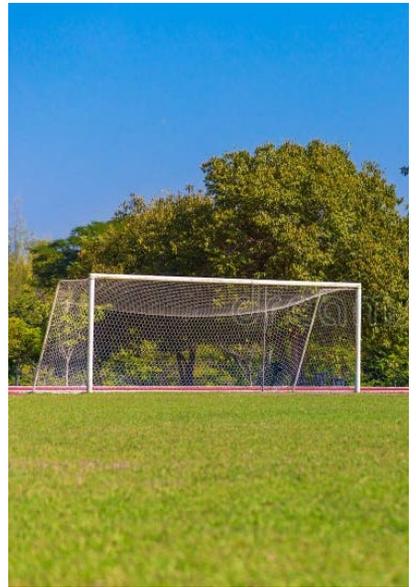
The Central lot, bordered by Wetlands (to the north and south) and the Cross-Country Trail (from the east and west, and south), encompasses about 106,838 sq. ft (2.45 Acres) of undeveloped land.

This concept proposes a small-size soccer field, a 900 sq. ft single-story bathroom/utility structure, and 20 accessible parking spaces.

Ancillary costs:

For development to proceed, preliminary earthwork includes tree clearing and grading to level the surface uniformly, due to a 16 FT height difference from east to west. A retaining wall will be needed on three sides due to the grade change and the need to stay out of the 50' wetland buffer.

Upon completion of grading and tree clearing, new trees will be planted to enhance the natural landscape.



Key Elements:

Soccer Field



- Dimensions: 180' X 270'
- Irrigation
- Potential for lighting

Small Structure for Bathrooms and Irrigation equipment



- Dimensions: 30 X 30 (900 sq. ft)
- Drinking/water bottle filling station
- Requires an on-site water well/pump and septic system

Tree Clearing and New Plantings



- Estimated area: 183,084 sq. ft = ~4.2 Acres



HARVARD WOODS FEASIBILITY STUDY

Multi-Use Field 2

ORDER OF MAGNITUDE COST ESTIMATE

A. MAJOR ITEMS

Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	0	\$60,000.00	\$5,895.32	
TEMPORARY CONSTRUCTION FENCING	l.f.	2,536	\$10.00	\$25,360.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$167,255.32	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	2,513	\$8.00	\$20,105.33	
ORDINARY FILL	c.y.	4,517	\$35.00	\$158,095.00	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADE	s.y.	6,800	\$30.00	\$203,996.67	
FINE GRADE AND COMPACTION	s.y.	6,800	\$20.00	\$135,997.78	
			Sub-Total	\$561,754.78	
Hardscape					
HOT MIX ASPHALT SIDEWALK	s.y.	1,216	\$50.00	\$60,794.44	4" Bituminous paving, granular fill, excavation
			Sub-Total	\$60,794.44	
Site Improvements					
BUILDING (PRE-FAB)	ea.	1	\$300,000.00	\$300,000.00	Includes restrooms, pump room, irrigation equipment
MULTIUSE FIELD	ea.	1	\$1,254,000.00	\$1,254,000.00	
WALKING PATH	s.y.	492	\$30.00	\$14,760.00	
RETAINING WALL	l.f.	574	\$350.00	\$200,900.00	
SITE FURNISHINGS	ea.	12	\$2,500.00	\$30,000.00	
			Sub-Total	\$1,799,660.00	
Planting					
LAWN SEEDING	s.y.	5,584	\$3.00	\$16,752.00	Drought tolerant mix, no irrigation
DECIDUOUS TREES - 3.5" CAL.	ea.	74	\$1,300.00	\$96,200.00	
			Sub-Total	\$112,952.00	
Utilities					
ELECTRICAL SERVICE	l.s.	1	\$50,000.00	\$50,000.00	Budget Estimate
SEPTIC SYSTEM	l.s.	1	\$40,000.00	\$40,000.00	Budget Estimate
WELL-WELL APPURTENANCES *	l.s.	1	\$30,000.00	\$30,000.00	Budget Estimate
STORMWATER MANAGEMENT	l.s.	1	\$50,000.00	\$50,000.00	Budget Estimate
			Sub-Total	\$170,000.00	
			Total of All Items	\$2,872,416.54	

B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)

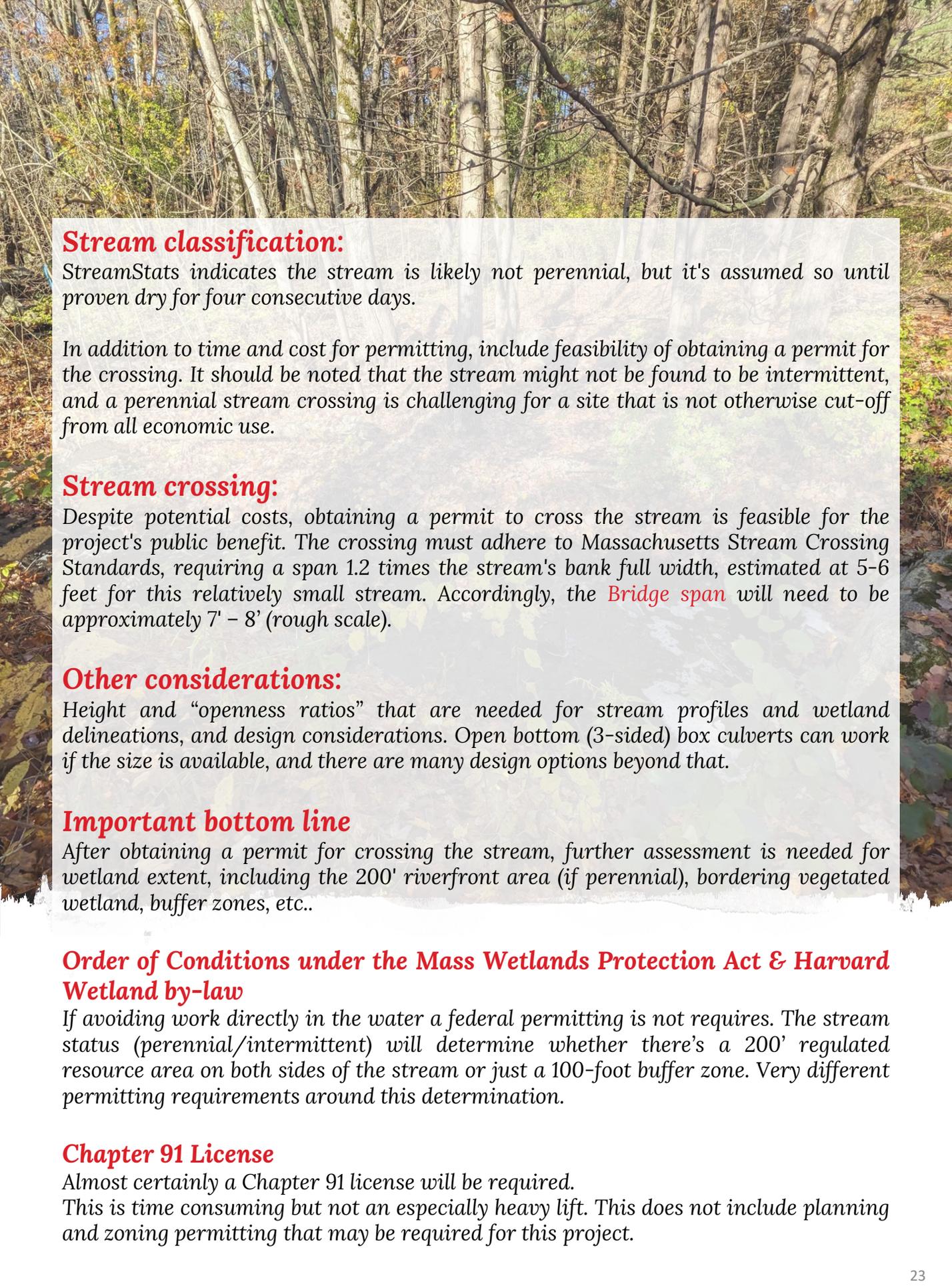
CONSTRUCTION STAKING	1%	\$28,724.17
MOBILIZATION	3%	\$86,172.50
MINOR ITEMS	10%	\$287,241.65
1-YEAR ESCALATION	6%	\$172,344.99
Total of Lump Sum Items		\$574,483.31
SUB-TOTAL (A+B)		\$3,446,899.85
CONSTRUCTION CONTINGENCY	20%	\$689,379.97
FULL CONSTRUCTION GRAND TOTAL		\$4,136,279.82
SAY		\$4,137,000.00

* drilling of well, pump, wiring, pipe, etc.

C. ADD ALTERNATE

Item Description	Unit	Quantity	Unit Price	Cost	Notes
SPORTS FIELD LIGHTING	l.s.	1	\$350,000.00	\$350,000.00	





Stream classification:

StreamStats indicates the stream is likely not perennial, but it's assumed so until proven dry for four consecutive days.

In addition to time and cost for permitting, include feasibility of obtaining a permit for the crossing. It should be noted that the stream might not be found to be intermittent, and a perennial stream crossing is challenging for a site that is not otherwise cut-off from all economic use.

Stream crossing:

Despite potential costs, obtaining a permit to cross the stream is feasible for the project's public benefit. The crossing must adhere to Massachusetts Stream Crossing Standards, requiring a span 1.2 times the stream's bank full width, estimated at 5-6 feet for this relatively small stream. Accordingly, the **Bridge span** will need to be approximately 7' – 8' (rough scale).

Other considerations:

Height and “openness ratios” that are needed for stream profiles and wetland delineations, and design considerations. Open bottom (3-sided) box culverts can work if the size is available, and there are many design options beyond that.

Important bottom line

After obtaining a permit for crossing the stream, further assessment is needed for wetland extent, including the 200' riverfront area (if perennial), bordering vegetated wetland, buffer zones, etc..

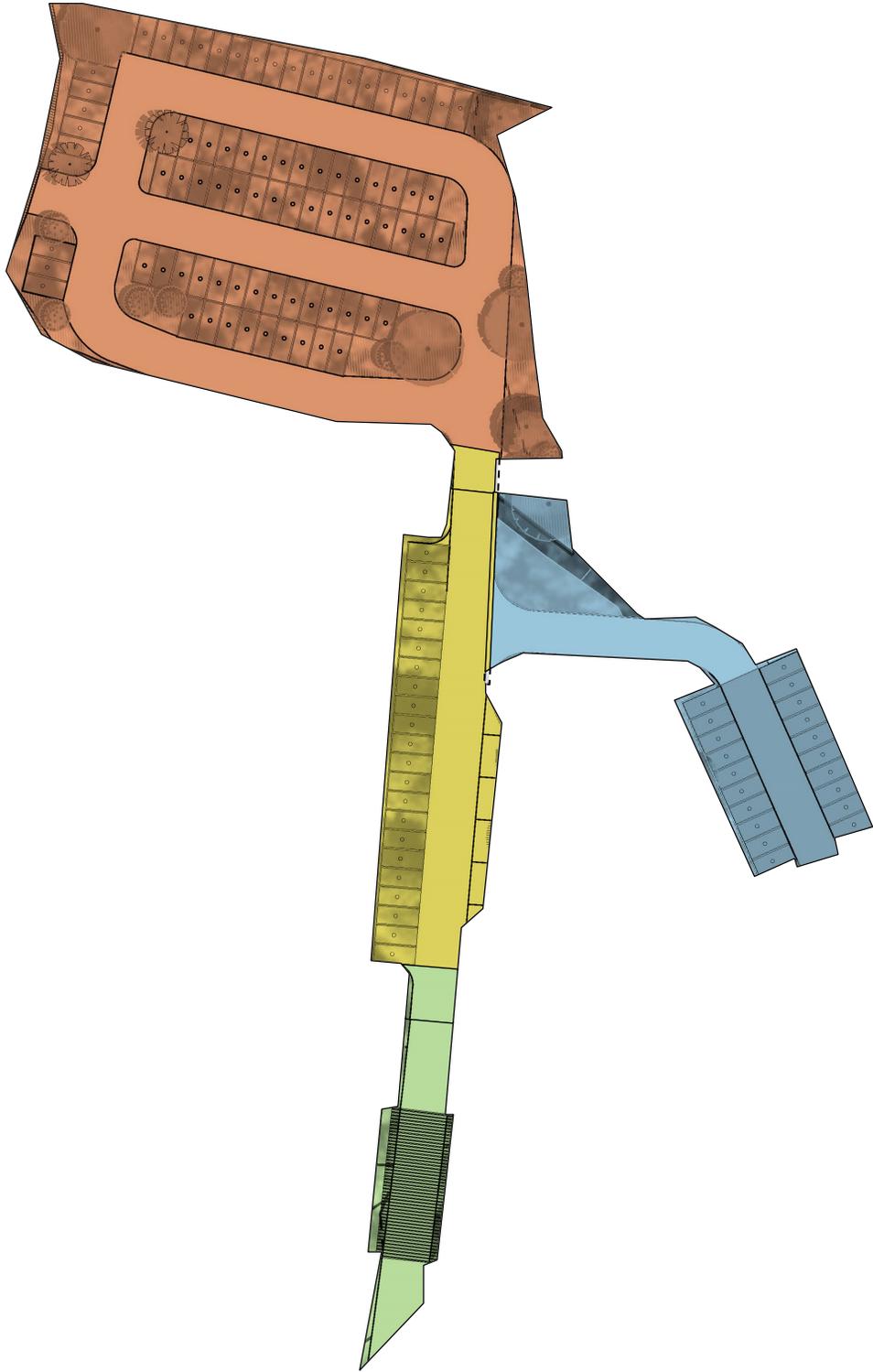
Order of Conditions under the Mass Wetlands Protection Act & Harvard Wetland by-law

If avoiding work directly in the water a federal permitting is not required. The stream status (perennial/intermittent) will determine whether there's a 200' regulated resource area on both sides of the stream or just a 100-foot buffer zone. Very different permitting requirements around this determination.

Chapter 91 License

Almost certainly a Chapter 91 license will be required. This is time consuming but not an especially heavy lift. This does not include planning and zoning permitting that may be required for this project.

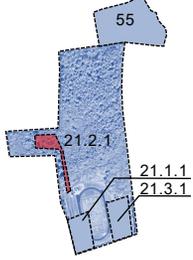
Parking - sub-sections



- (A) Main lot
- (B) On road
- (C) Accessible parking
- (D) Bridge / Access

Location: West wing parking/ **CONCEPT #1**

Key details and considerations :



In order to provide vehicular access to the sports facilities, the preference is to use the western wing of Parcel 21.2.1. The designated area, located between the Cross-Country Trail from all directions, requires road extension from the south and crossing the existing stream / channel. The Town will need to assess the channel's flow. To confirm the stream is not perennial, the Town will need to document a consecutive four-day non-flow condition in a non-drought period of the summer. The ecological consultant advises a bridge for the channel crossing instead of a constructed culvert.

Key Elements:

Parking Facilities



- Main lot: 79 parking spaces
- On road: 26 parking spaces
- Accessible: 20 parking spaces

Total: 125 parking spaces

Parking Surface and Accessibility:

- The parking surface will predominantly consist of gravel, with some dedicated paved areas to ensure compliance with ADA standards.
- Curb stops should be considered to signify parking stalls for organized parking



Bridge / Perennial stream crossing:

- The town should estimate the time to obtain a permit for crossing the perennial stream with a road / driveway from the south.



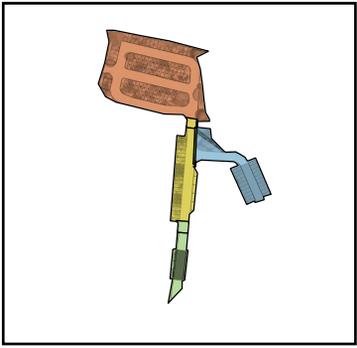


HARVARD WOODS FEASIBILITY STUDY

Parking Option 1

ORDER OF MAGNITUDE COST ESTIMATE

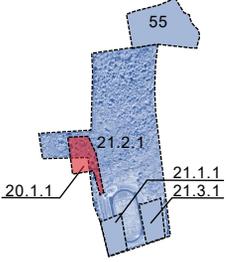
Item Description	Unit	Quantity	Unit Price	Cost	Notes
A. MAJOR ITEMS					
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	0.04	\$60,000.00	\$2,341.60	
TEMPORARY CONSTRUCTION FENCING	l.f.	1,954	\$10.00	\$19,540.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MSC. DEMOLITION	l.s.	1	\$25,000.00	\$25,000.00	
			Sub-Total	\$82,881.60	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	1,488	\$8.00	\$11,900.74	
GRAVEL BORROW	c.y.	240	\$55.00	\$13,200.00	
ROUGH GRADING	s.y.	6,337	\$30.00	\$190,110.00	
FINE GRADE AND COMPACTION	s.y.	6,337	\$20.00	\$126,740.00	
			Sub-Total	\$341,950.74	
Site Improvements					
GRAVEL PARKING	s.y.	6,337	\$30.00	\$190,120.00	
VEHICLE ENTRY GATE	ea.	1	\$15,000.00	\$15,000.00	
BRIDGE / CULVERT	ea.	1	\$400,000.00	\$400,000.00	Price is for bridge
			Sub-Total	\$605,120.00	
Planting					
DECIDUOUS TREES - 3.5" CAL.	e.a.	17	\$1,300.00	\$22,100.00	
WETLAND MITIGATION/REPLACEMENT	s.y.	1600	\$44.00	\$70,400.00	
			Sub-Total	\$92,500.00	
Utilities					
STORMWATER MANAGEMENT	l.s.	1	\$50,000.00	\$50,000.00	
			Sub-Total	\$50,000.00	
			Total of All Items	\$1,172,452.34	
B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)					
CONSTRUCTION STAKING			1%	\$11,724.52	
MOBILIZATION			3%	\$35,173.57	
MINOR ITEMS			10%	\$117,245.23	
1-YEAR ESCALATION			6%	\$70,347.14	
Total of Lump Sum Items				\$234,490.47	
			SUB-TOTAL (A+B)	\$1,406,942.81	
CONSTRUCTION CONTINGENCY			20%	\$281,388.56	
				FULL CONSTRUCTION GRAND TOTAL SAY	
				\$1,688,331.37	
				\$1,689,000.00	
C. ADD ALTERNATE					
Item Description	Unit	Quantity	Unit Price	Cost	Notes
PARKING LOT LIGHTING	ea.	15	\$7,500.00	\$112,500.00	



- (A) Main lot
- (B) On road
- (C) Accessible parking
- (D) Bridge / Access

Location: West wing parking/ **CONCEPT #2**

Key details and considerations :



Ownership Transfer Protocol:

In order to provide vehicular access to the sports facilities, the preference is to use the western wing of Parcel 21.2.1. In addition, this concept includes the transfer of ownership of a small portion of the land (~0.75 Acre) from the privately owned abutting Parcel 20.1.1 to the Town to provide additional acreage to increase available parking spaces.

If additional parking is deemed necessary, P&R could consider approaching the owners of parcel 20.1.1 to ask if they would be willing to sell or donate land to the Town.

Like concept #1 this concept requires road extension from the south and crossing the existing stream/channel. The Town will need to assess the channel's flow. To confirm the stream is not perennial, the Town will need to document a consecutive four-day non-flow condition in a non-drought period of the summer. The ecological consultant advises a bridge for the channel crossing instead of a constructed culvert.

Key Elements:

Parking Facilities



- Main lot: 74 parking spaces
- 20.1.1 lot: 98 parking spaces
- On road: 22 parking spaces
- Accessible: 20 parking spaces

Total: 214 parking spaces

▪ Parking Surface and Accessibility:

The parking surface will predominantly consist of gravel.
Dedicated paved areas will ensure compliance with ADA standards.



Bridge / Perennial stream crossing

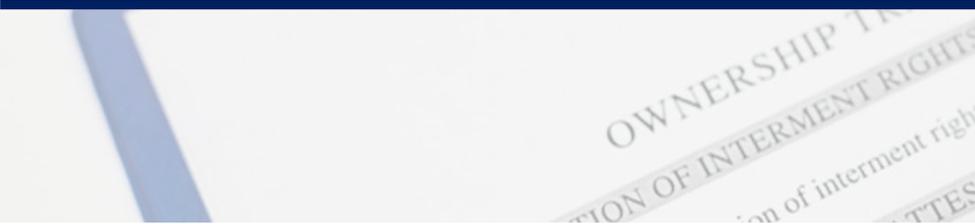
- The town should estimate the time to obtain a permit for crossing the perennial stream with a road / driveway from the south.

Land-Rights Transfer

- Parcel 20.1.1:

The Town of Harvard to contact the present owners.





HARVARD WOODS FEASIBILITY STUDY

Parking Option 2

ORDER OF MAGNITUDE COST ESTIMATE

A. MAJOR ITEMS

Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	0.04	\$60,000.00	\$2,361.60	
TEMPORARY CONSTRUCTION FENCING	l.f.	1,954	\$10.00	\$19,540.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$25,000.00	\$25,000.00	
			Sub-Total	\$82,881.60	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	2,147	\$8.00	\$17,178.52	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADING	s.y.	9,708	\$30.00	\$291,240.00	
FINE GRADE AND COMPACTION	s.y.	9,708	\$20.00	\$194,160.00	
			Sub-Total	\$546,138.52	
Site Improvements					
GRAVEL PARKING	s.y.	9,708	\$30.00	\$291,246.67	
VEHICLE ENTRY GATE	ea.	1	\$15,000.00	\$15,000.00	
BRIDGE / CULVERT	ea.	1	\$400,000.00	\$400,000.00	Price is for bridge
			Sub-Total	\$706,246.67	
Planting					
DECIDUOUS TREES - 3.5" CAL.	e.a.	28.00	\$1,300.00	\$36,400.00	
WETLAND MITIGATION/REPLACEMENT	s.y.	1600	\$44.00	\$70,400.00	
			Sub-Total	\$106,800.00	
Utilities					
STORMWATER MANAGEMENT	l.s.	1.00	\$50,000.00	\$50,000.00	
			Sub-Total	\$50,000.00	
			Total of All Items	\$1,492,066.78	

B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)

CONSTRUCTION STAKING	1%	\$14,920.67
MOBILIZATION	3%	\$44,762.00
MINOR ITEMS	10%	\$149,206.68
1-YEAR ESCALATION	6%	\$89,524.01
Total of Lump Sum Items		\$298,413.36

SUB-TOTAL (A+B) \$1,790,480.14

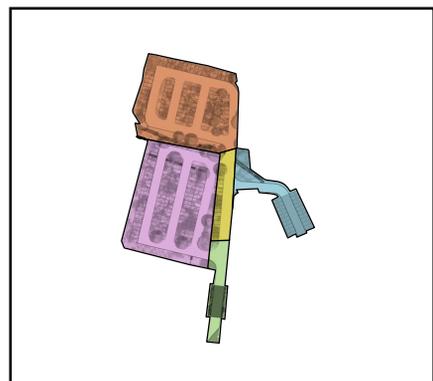
CONSTRUCTION CONTINGENCY 20% \$358,096.03

FULL CONSTRUCTION GRAND TOTAL \$2,148,576.17

SAY \$2,149,000.00

C. ADD ALTERNATE

Item Description	Unit	Quantity	Unit Price	Cost	Notes
PARKING LOT LIGHTING	ea.	27	\$7,500.00	\$202,500.00	

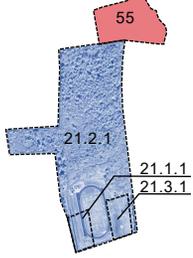


- (A) Main lot
- (B) On road
- (C) Accessible parking
- (D) Bridge / Access
- (E) 20.11 lot

Location: Parcel 55, Northwest of the original planning area

Key details and considerations :

Pending / Potential development



Ownership Transfer Protocol:

The use of this land involves transferring ownership of Parcel 55 from Town Of Harvard Conservation to the Parks and Recreation Department, aiming to enhance its utility for recreation. A Warrant Article would be need to be presented at the Town Meeting in the Spring of 2024 to ask attendees to vote to allow this parcel to be used for recreational purposes.

Should the town decide in favor of the ownership transfer, the proposed development for Parcel 55 encompasses the following key elements:

Key Elements:



Full-Size Soccer Field

- Dimensions: 210' X 345'

Parking Facilities

- 103 parking spaces, situated parallel to Old Mill Rd.
- Maintaining the existing tree screening buffer between Parcel 55 and the road (Old Mill Rd).
- Parking access from Old Mill Rd
- A Bus Roundabout/Loop at the end of the parking area
- Parking Surface and Accessibility:

The parking surface will predominantly consist of gravel with some dedicated paved areas to ensure compliance with ADA standards.

Rain Garden

Implementing a rain garden for stormwater management.

Formal Cross-Country Trail

Adjustments to the existing cross-country track to accommodate the new development and enhance the overall recreational layout.





HARVARD WOODS FEASIBILITY STUDY

Multi-Use Field with Parking
ORDER OF MAGNITUDE COST ESTIMATE

A. MAJOR ITEMS

Item Description	Unit	Quantity	Unit Price	Cost	Notes
Site Preparation					
STRAW WATTLE - EROSION CONTROL	l.f.	2,000	\$5.00	\$10,000.00	
CLEARING AND GRUBING	a.c.	0.46	\$60,000.00	\$27,548.21	
TEMPORARY CONSTRUCTION FENCING	l.f.	1,954	\$10.00	\$19,540.00	
TREE PROTECTION	l.f.	2,000	\$13.00	\$26,000.00	
MISC. DEMOLITION	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$183,088.21	
Earthwork					
STRIP & STOCK PILE TOPSOIL	c.y.	4,079	\$8.00	\$32,630.81	
ORDINARY FILL	c.y.	1,000	\$35.00	\$35,000.00	
GRAVEL BORROW	c.y.	792	\$55.00	\$43,560.00	
ROUGH GRADING	s.y.	4,488	\$30.00	\$134,646.67	
FINE GRADE AND COMPACTION	s.y.	4,488	\$20.00	\$89,764.44	
			Sub-Total	\$335,601.93	
Hardscape					
HOT MIX ASPHALT PAVING	s.y.	776	\$50.00	\$38,800.00	4" Bituminous paving, granular fill, excavation
			Sub-Total	\$38,800.00	
Site Improvements					
GRAVEL PARKING	s.y.	4,886	\$30.00	\$146,593.33	
WALKING PATH	s.y.	626	\$30.00	\$18,766.67	
VEHICLE ENTRY GATE	ea.	1	\$15,000.00	\$15,000.00	
MULTIUSE FIELD	ea.	1	\$1,571,000.00	\$1,571,000.00	
			Sub-Total	\$1,751,360.00	
Planting					
LAWN SEEDING	s.y.	3,712	\$3.00	\$11,136.67	Drought tolerant mix, no irrigation
DECIDUOUS TREES - 3.5" CAL.	e.a.	42	\$1,300.00	\$54,600.00	
RAIN GARDEN	s.y.	431	\$40.00	\$17,235.56	
			Sub-Total	\$82,972.22	
Utilities					
ELECTRICAL SERVICE	l.s.	1	\$40,000.00	\$40,000.00	Budget Estimate
WELL-WELL APPURTENANCES *	l.s.	1	\$30,000.00	\$30,000.00	Budget Estimate
STORMWATER MANAGEMENT	l.s.	1	\$100,000.00	\$100,000.00	
			Sub-Total	\$170,000.00	
			Total of All Items	\$2,561,822.36	

B. LUMP SUM ITEMS (% OF "MAJOR ITEMS" AS INDICATED)

CONSTRUCTION STAKING	1%	\$25,618.22
MOBILIZATION	3%	\$76,854.67
MINOR ITEMS	10%	\$256,182.24
ESCALATION	6%	\$153,709.34
Total of Lump Sum Items		\$512,364.47
SUB-TOTAL (A+B)		\$3,074,186.83
CONSTRUCTION CONTINGENCY	20%	\$614,837.37
FULL CONSTRUCTION GRAND TOTAL		\$3,689,024.19
SAY		\$3,690,000.00

* drilling of well, pump, wiring, pipe, etc.

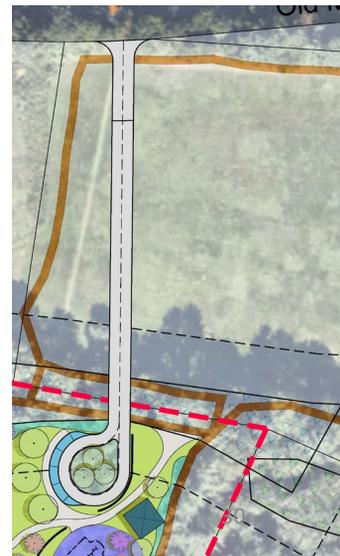
C. ADD ALTERNATE

Item Description	Unit	Quantity	Unit Price	Cost	Notes
PARKING LOT LIGHTING	ea.	11	\$7,500.00	\$82,500.00	
SPORTS FIELD LIGHTING	l.s.	1	\$375,000.00	\$375,000.00	

Emergency Access

If the jurisdiction of parcel 55 does not transfer to Parks and Rec, a gravel road will be installed to provide emergency access from Old Mill Road to the North Area.

Estimates cost:
\$22,680.00



THANK YOU!

