

Juniper Ridge Landfill Project Overview Meetings

Meeting #2

Site Visual, Traffic, Natural
Resources, and Odor

November 21, 2024



Project Overview Meeting Schedule

Nov. 7 6 P.M.	City of Old Town	Town Hall	Project History, Overview, and Permitting Requirements
Nov. 21 6 P.M.	Town of Alton	Town Hall	Visual, Traffic, Natural Resources, Odor
Dec. 4 6 P.M.	City of Old Town	Town Hall	Geology, Hydrogeology, Leachate Management, and PFAS treatment
Dec. 17 6 P.M.	City of Old Town	Town Hall	Phase II Expansion Design, Operations, Noise, and Seagulls

Traffic

Traffic Study by Gorrill Palmer

- Traffic data collected by the state
- Crash data collected by the state
- Vehicle counts during peak hours
- Truck counts from Casella and Sargent
- Site access
- Sight distance
- Turning radius for trucks entering JRL
- Computer model of intersections

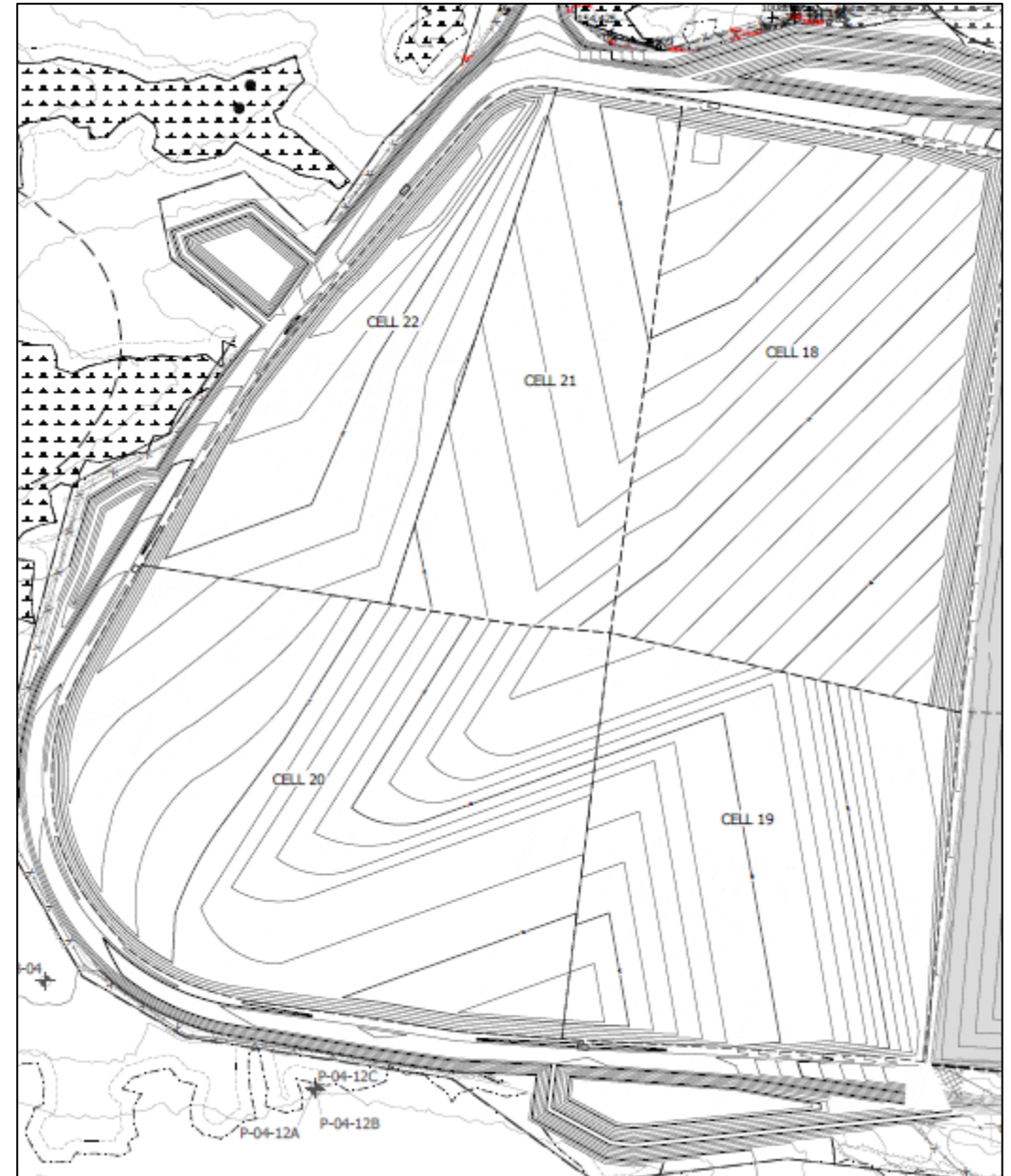


Traffic - conclusions

- Current road capacity is adequate
- No High Crash Locations
- Don't need turning lanes
- Sight distance meets or exceeds requirements
- JRL is less than 0.3% of the traffic on Rt. 16 (4,297 vehicles/day on Rt. 16)

Traffic - conclusions

- Expect an increase during peak hours
 - (7-8 am and 3:30-4:30 pm)
 - 3 trucks and 1 non-truck during each hour
 - 5% increase
- Total trucks per day increases from 178 to 187 on average
- Landfill is expanding, but we develop one cell and fill it, then develop the next, so there is not much of an increase in the volumes coming to the landfill



Visual Impact

Visual Impact Study by Viewshed

- Determination of the Visual Study Area – 2000-foot radius required, looked at a 7-mile radius
- Research, inventory, and mapping of scenic resources
 - State Geographical Information Systems (GIS) databases, municipal Comprehensive Plans and documents, and online research
 - Parks, conservation lands, trails, scenic byways, elevated viewpoints and overlooks, water bodies, and historic resources
- Computer-based Viewshed Mapping Analysis
 - Digital Terrain Model (DTM) to represent topography
 - Digital Surface Model (DSM) to represent the expansion

Visual Impact Study by Viewshed (cont.)

- Fieldwork
 - Automobile, kayak, and on foot
 - Land, roads, and waterbodies that are considered public or allow for public access
- 3D modeling and photosimulation analysis
 - Create a digital landscape model
 - Digitally insert the model of the expansion into the landscape model
 - Simulate a perspective of the expansion

- Orono Bog
- Pushaw Lake
- Pushaw Stream
- Penobscot River
- Stillwater River
- Perch Pond (aka Mud Pond)
- Pickerel Pond
- Holland Pond
- Birch Stream
- Hirundo Wildlife Refuge
- Sunkhaze Meadows National Wildlife Refuge

- Caribou Bog Wildlife
- Alton Bog
- Management Area
- Maine Interconnected Trail System 84 (ITS 84, a snowmobile trail)
- Penobscot River at two public boat launches
- four dams
- Routes 16 and 43
- I-95
- ten structures and two historic districts listed on the National Register of Historic Places.

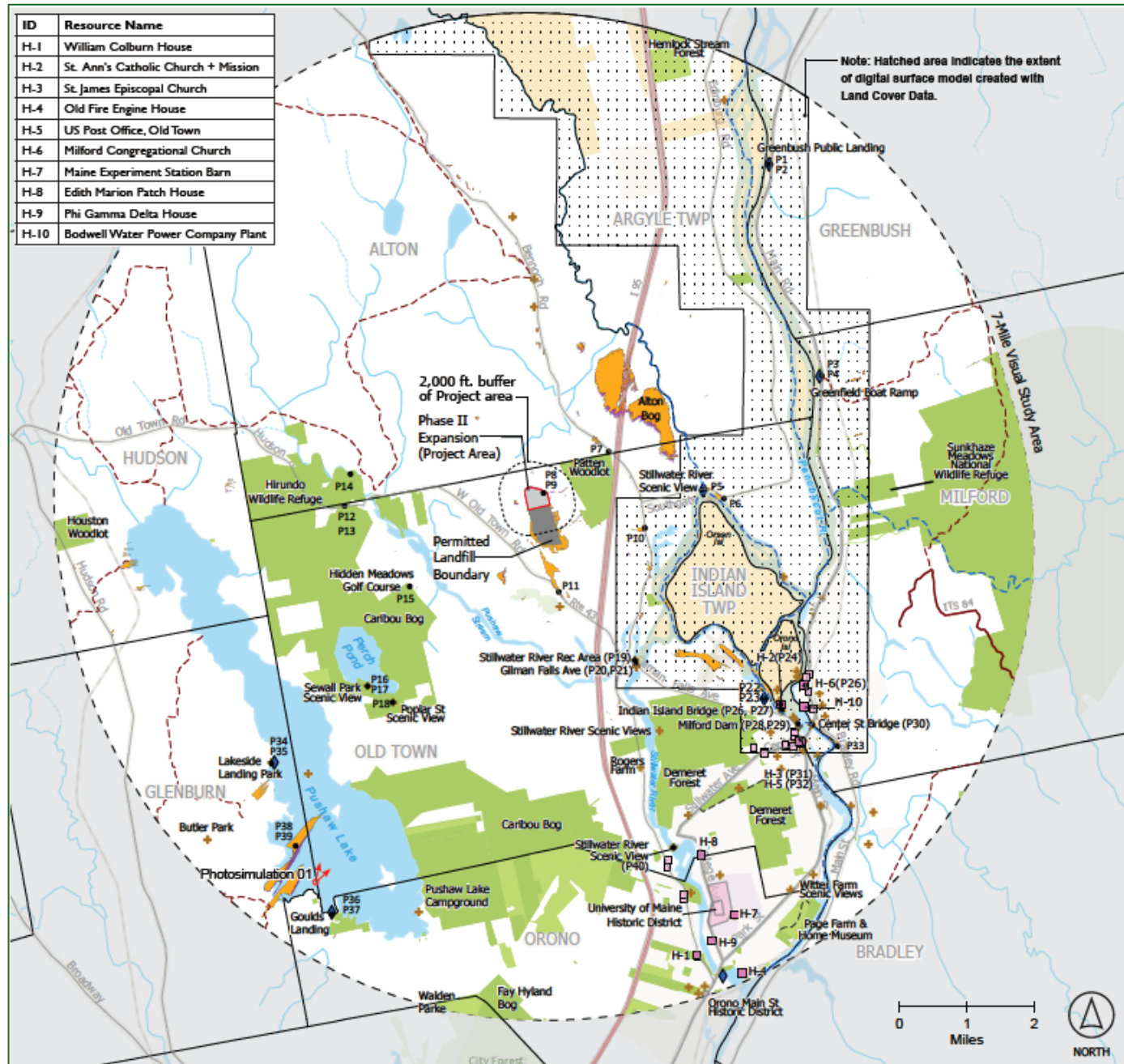
Visual Distance Zones

- **Foreground:** 0 to 1/2 mile - surface textures, details, and a full spectrum of color. Can see details of the landfill (vehicles and equipment, colors and textures)
- **Midground:** 1/2 mile to 3-5 miles - individual trees lose their identities and become forests; buildings are seen as simple geometric forms; roads and rivers become lines
- **Background:** greater than 3–5 miles - panoramic views give the greatest sense of the larger landscape. Distance and atmospheric haze obliterate surface textures, detailing, and form of objects. Objects in the background are highly visible only if they have a noticeable contrast in form or line, and when weather and lighting conditions are favorable

Conclusions - visibility from :

- 2% of the surface of Pushaw Lake at distances of 5.2 to 6.7 miles
- Penobscot River at two locations, one 3.7 miles and one 5.1 miles from the landfill
- Stillwater River from intermittent areas at distances of 2.3 to 3.5 miles from the landfill
- Northbound on Rt. 43 – arborvitae screen helps mitigate it
- Rt. 16
- I-95 at the Alton Bog – less than 10 seconds

ID	Resource Name
H-1	William Colburn House
H-2	St. Ann's Catholic Church + Mission
H-3	St. James Episcopal Church
H-4	Old Fire Engine House
H-5	US Post Office, Old Town
H-6	Milford Congregational Church
H-7	Maine Experiment Station Barn
H-8	Edith Marion Patch House
H-9	Phi Gamma Delta House
H-10	Bodwell Water Power Company Plant



MAP 03. Viewshed Analysis of Phase II Expansion & Permitted Landfill Based On Topography & Surface Data

LEGEND

□ Municipal Boundary

Project Data

--- Project Study Area (7 mi)

■ Project Area (Landfill Phase II Expansion)

■ Extent of Existing Juniper Ridge Landfill

● Study Area Photo Location

✂ Photosimulation Location

Lands & Conservation Areas

■ Public Conserved Land

■ Private Conserved Land

■ Tribal Territory

Historic Resources

■ Listed NRHP Structure (labeled H1-H10 and identified in Resource Table)

■ Eligible NRHP Structure

Other Resources

✚ Local Resource

◆ Boating Access Site

Roads and Trails

--- Water Trail

--- Interconnected Trail System (ITS)

--- Local Snowmobile Trail

Viewshed Analysis Based On Topography & Surface Data

■ Potential Visibility of Landfill Phase II Expansion

■ Potential Visibility of Permitted Landfill

MAP NOTES

Map shows the potential visibility of the landfill expansion and the current permitted landfill within the Visual Study Area based on the screening effects of topography and surface features (structures and vegetation).

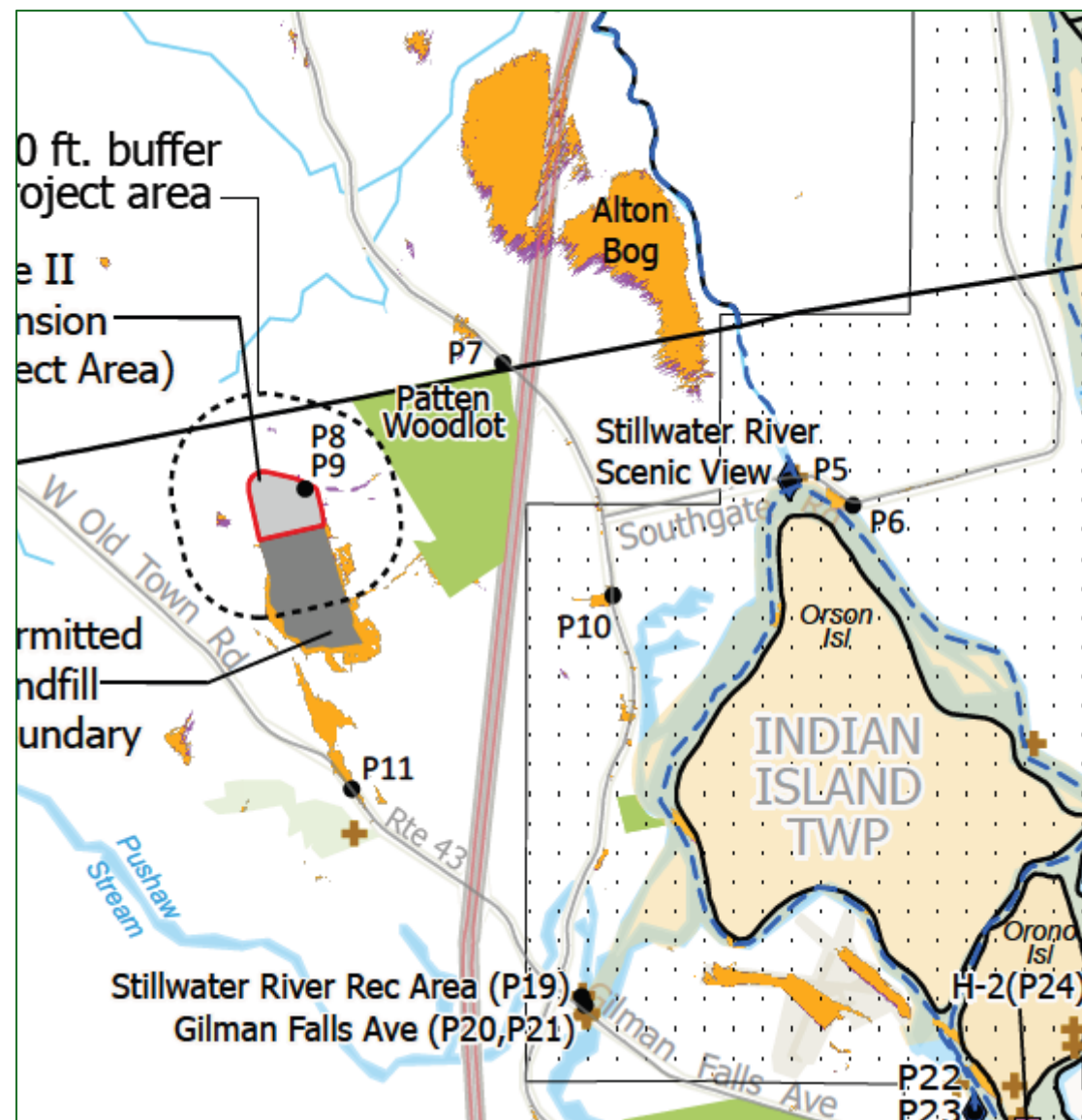
The analysis relies on a Digital Terrain Model (DTM) and a Digital Surface Model (DSM), processed at 3 ft. resolution from LiDAR data acquired from USGS. A portion of the DSM was developed using landcover data because LiDAR data was not available. This area is noted in a hatch on the map.

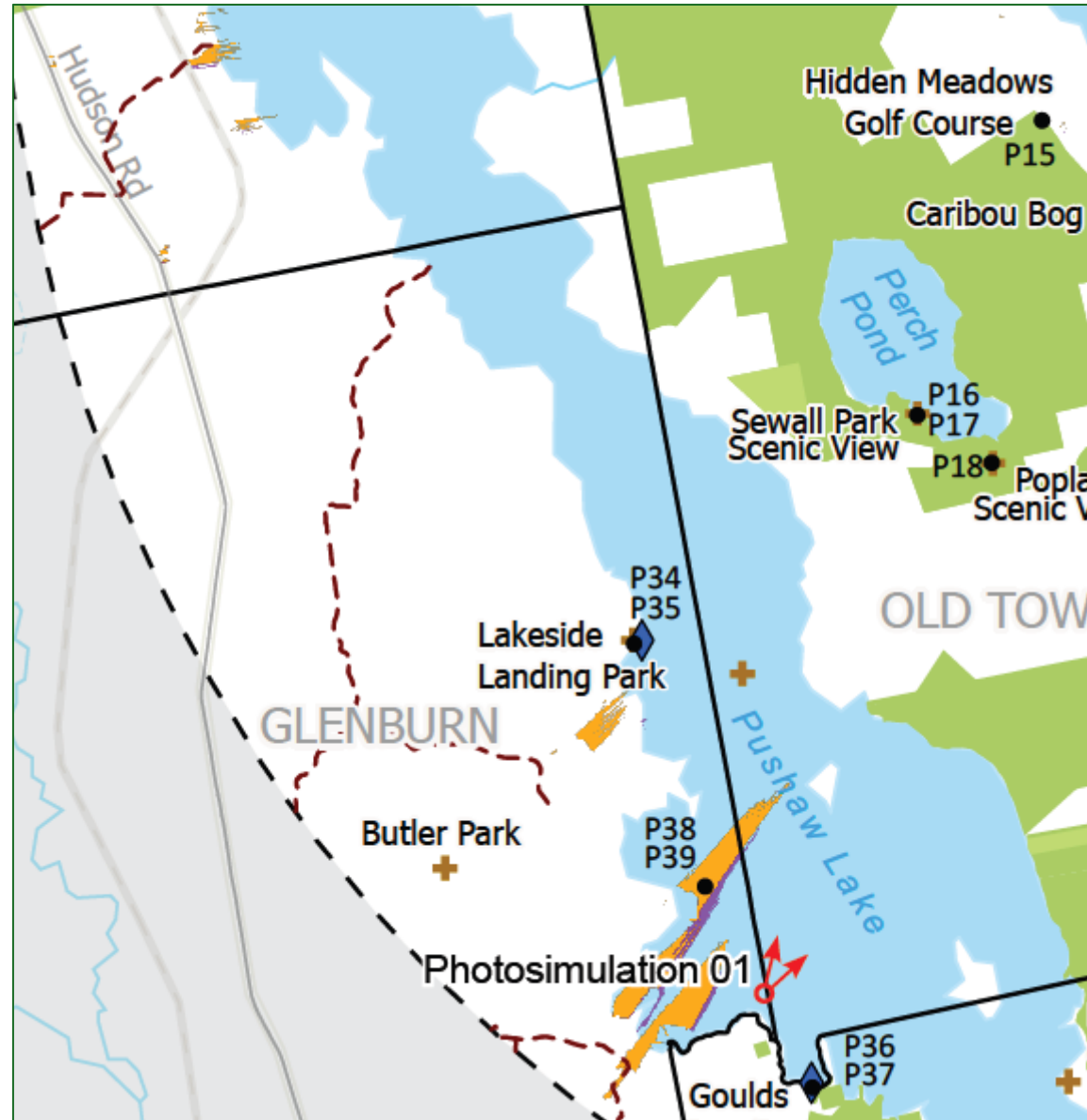
The viewshed represents where a viewer, with an eye level of 5.9ft, may see any portion of the landfill expansion area, accounting for the screening effects of both topography and surface features.

**JUNIPER
RIDGE
LANDFILL**

VIEWSHED

August 2024
Attachment 1
Page 3 of 3





4X Zoom

Juniper Ridge Landfill

Phase 2 Expansion





Natural Resources

Wetlands – Biodiversity Research Institute (BRI)

- Reviewed published data (state GIS)
- On-site survey of wetlands and potential vernal pools
 - Soils
 - Vegetation
 - Hydrology
- Second survey to see if potential vernal pools were significant
 - Look for egg masses, tadpoles, or larvae during amphibian breeding season
 - Wood frog
 - Spotted salamander
 - Blue-spotted salamander
 - Fairy shrimp



Wetlands – Biodiversity Research Institute (BRI) (cont.)

- Also look for other vernal pool species:
 - Blanding's turtle
 - Spotted turtle
 - Wood turtle
 - Ribbon snake
 - Ringed boghunter



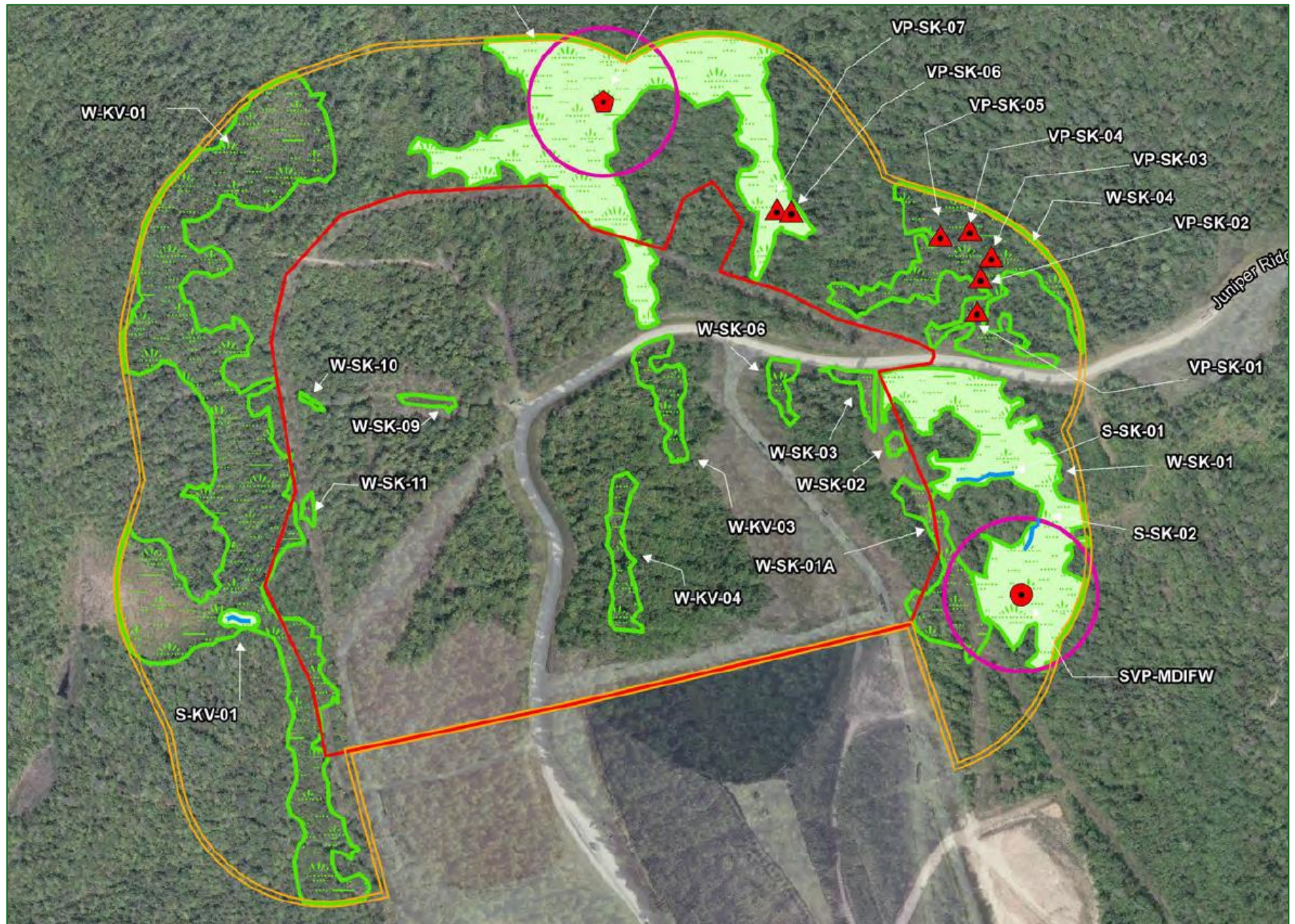












BRI Wetlands conclusions:

Wetland ID	Wetland Type ¹¹	Wetland of Special Significance	Acreage
W-SK-01	PFO/PEM	Yes, includes a significant vernal pool	5.9
W-SK-01A	PEM*	No	1.7
W-SK-02	PFO*	No	0.08
W-SK-03	PEM*	No	0.27
W-SK-04	PFO/PSS	No	4.17
W-SK-06	PFO*	No	0.30
W-SK-09	PEM*	No	0.13
W-SK-10	PEM*	No	0.03
W-SK-11	PEM*	No	0.06
W-KV-01	PFO/PSS/PEM	Those portions of wetland within 25' of a stream	14.64
W-KV-02	PFO/PSS	Yes, includes a significant vernal pool	9.61
W-KV-03	PEM*	No	0.82
W-KV-04	PEM*	No	0.82
Total			37.00

*Wetland is either the result of historic landuse (i.e., created within an old road) or impacted by historic ground disturbance.

Impact 3.75
acres of 72
acres being
developed,
or 5.2%



- Maine is 25 % wetlands overall
- Can't develop a landfill on:
 - Sandy soils
 - Areas shallow with shallow bedrock

Functions and Values

Evaluate the following:

- Groundwater Recharge/Discharge (no)
- Flood-flow Alteration (1)
- Fish and Shellfish Habitat (no)
- Sediment/Toxicant (all) Retention
- Nutrient Removal (all)
- Production Export (1)
- Sediment/Shoreline Stabilization (no)
- Wildlife Habitat (all)
- Recreation (no)
- Educational/Scientific Value (no)
- Uniqueness/Heritage (no)
- Visual Quality/Aesthetics (no)
- Endangered Species Habitat (no)

Wetlands Conclusions:

- Functions within the direct impact area will be impacted
- Functions provided by the larger wetland complex will remain

Rare, threatened, and
endangered species

Published information:

- ME Natural Areas Program
- ME Dept. of Inland Fisheries and Wildlife
- National Fish and Wildlife Service

Conclusions:

No rare botanical features

Bat Survey - Stantec



Bat Study by Stantec

- Northern Long-eared bat
- Tricolored bat
 - Can't cut trees during mating season if you have them

Site	Number of Nights with Significant Nightly MLE (<0.05) / Percent of Total Surveyed Nights							
	Target Species ¹		Non-Target Species					
	NLEB	Tricolored	Big Brown	Eastern Red	Hoary	Silver-haired	Eastern Small-footed	Little Brown
1	0 / 0%	0 / 0%	6 / 86%	6 / 86%	3 / 43%	7 / 100%	0 / 0%	0 / 0%
2	0 / 0%	0 / 0%	7 / 100%	5 / 71%	3 / 43%	5 / 71%	0 / 0%	0 / 0%
Project Total	0 / 0%	0 / 0%	13 / 93%	11 / 79%	3 / 43%	12 / 86%	0 / 0%	0 / 0%

Odor Control

How is odor controlled?

- Cover Waste
 - Daily cover
 - Temporary cap
 - Permanent Cap
- Active Landfill Gas (LFG) collection
 - Gas wells
 - Piping
 - Condensate management
- Renewable Natural Gas plant – flare off the “wrong gas”
- Thiopaq treatment of LFG
 - Patented treatment system, with a flare

Daily odor reduction activities

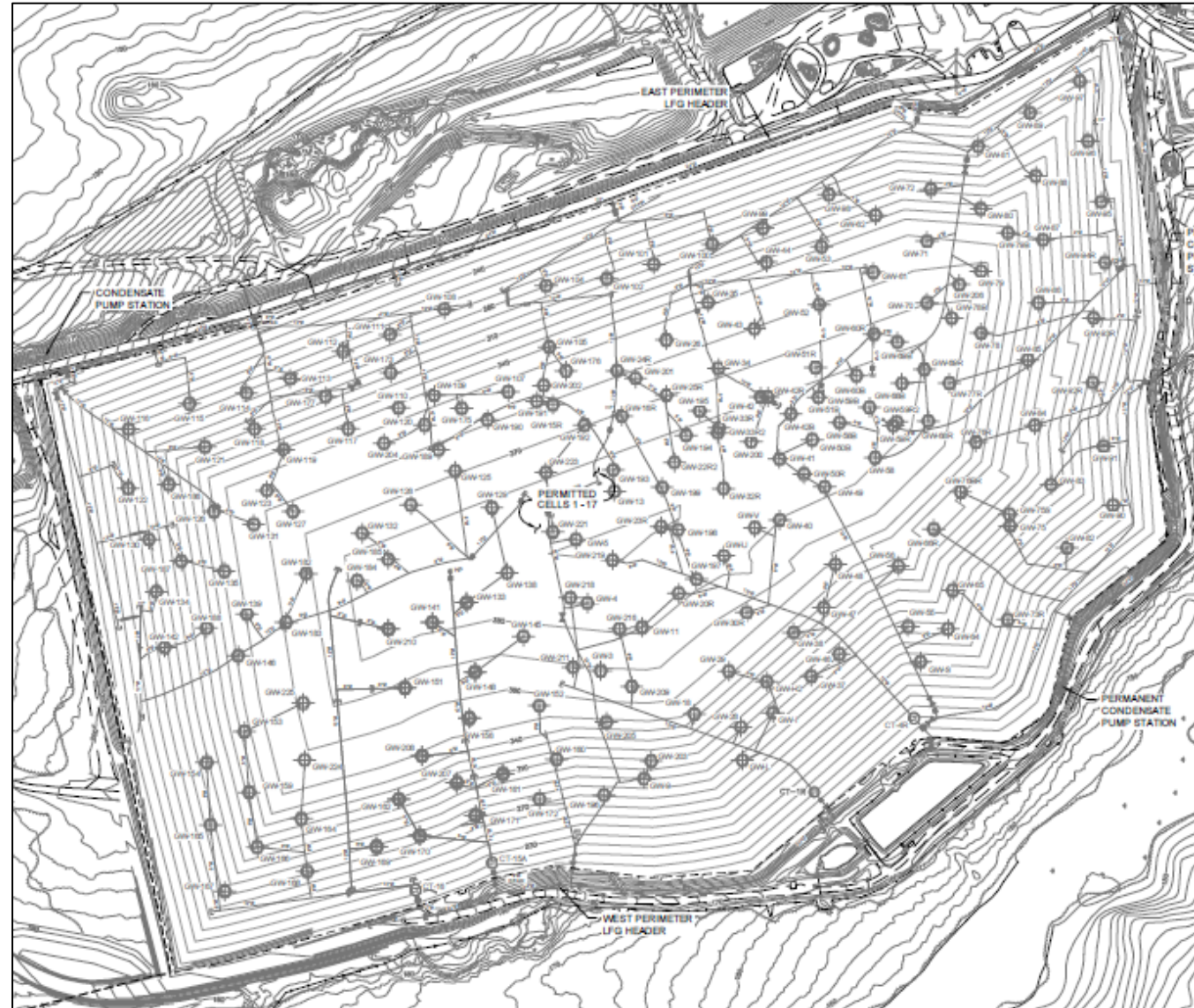
- Trucks are covered
- “No sheetrock allowed”
- Check for sheetrock
- Cover at the end of each day with CDD fines or soil or foam
- Have as little area open as practical
- Mix sludge immediately with bulking material
- Apply deodorizers and odor neutralizers

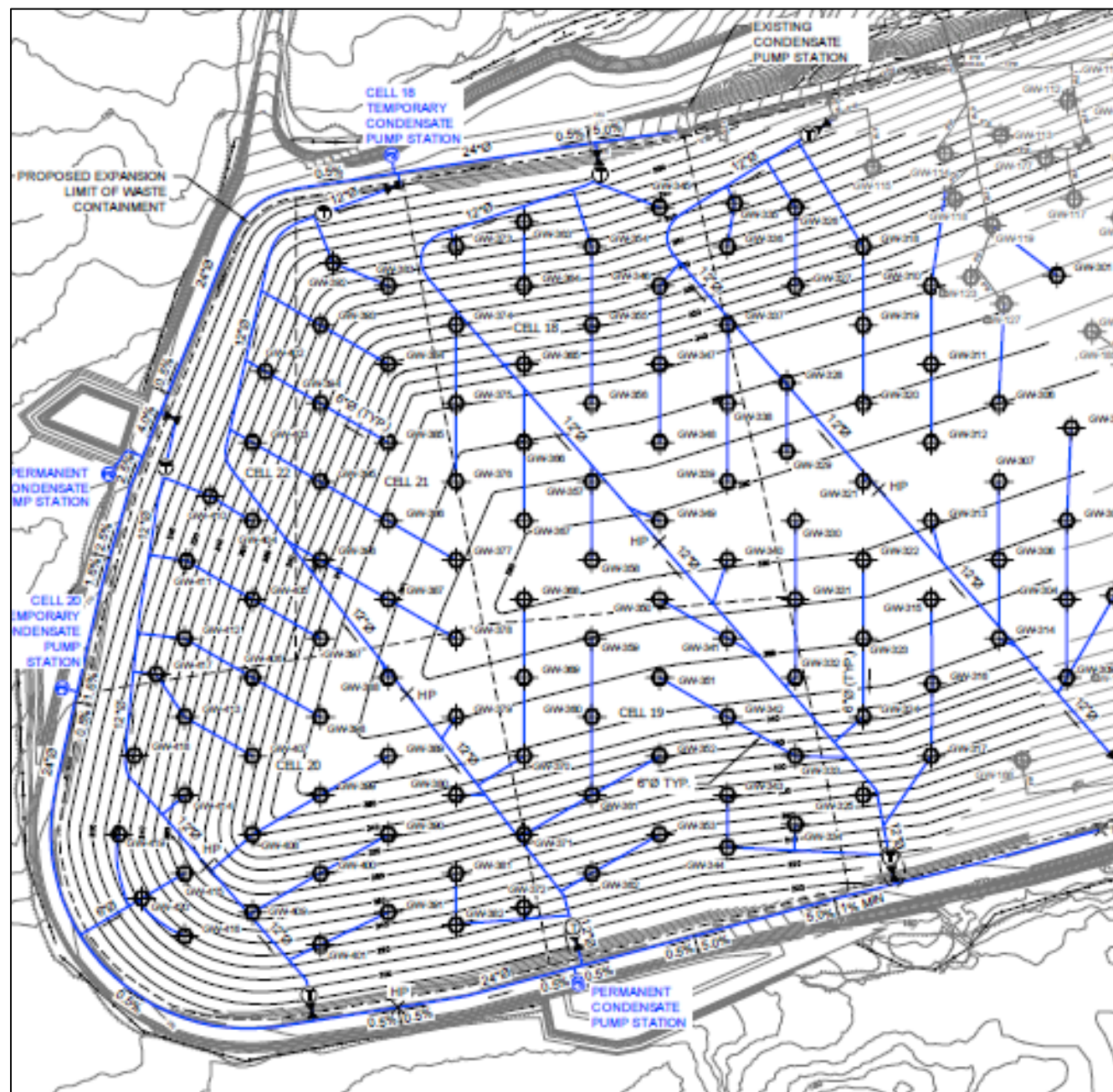
Active Landfill Gas (LFG) collection system

- Wells are installed in the waste - perforated PVC pipe, hole is capped with soil and bentonite
- Piping system to collect gas from each well
- Draw a vacuum on the wells
- Wells are “tuned” monthly to make sure they are functioning effectively



Overall gas collection system





Gas Monitoring

- Constant monitoring at 4 perimeter locations
- Each groundwater monitoring well monitored during tri-annual sampling
- Quarterly scans – will be 6 times per year

Odor \neq Toxicity

- Example we all know:
 - They add a scent to natural gas so you know if you have a leak – it's toxic with no odor
- Hydrogen Sulfide – the odor you smell from the landfill
 - Detect by smelling – 0.3 parts per billion (ppb)
 - Exposure limit is 1 part per million (ppm) averaged over an 8-hour shift
 - Permissible exposure limit is 20 ppm

Additional steps planned to reduce odor

- Reduce the area that is open and receiving waste each day



- There will always be some open waste, there's no way around that
- A certain amount of area is necessary to keep the trucks from running into each other



- Discontinue use of construction fines under the cap – use sand instead
- Tried the fines for 2 years so LF doesn't get filled with soil – have to stockpile the cover, so they end up getting wet and smelling



- Add odor control infrastructure to air vent on leachate tanks



Conduct Odor Study –

- Hire consultant to complete an odor analysis
 - Landfill
 - Surrounding area
 - Historical air quality sampling results
 - Odor complaint history
- Evaluate
- Field investigation
- Recommended actions

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Questions?

