BH2M

Civil Engineering | Surveying

March 11, 2024

Amanda Lessard, Planning Director
Town of Windham
8 School Road
Windham, ME 04062

RE: Major Site Plan Application Submission
Natural Wonders Daycare
Pope Road

Dear Amanda,

Please find the attached three (3) sets of the following information in support of the submission of a sketch plan application as described above:

Attachment 1 - Site Plan Application, Checklist, & Application Fee ($4,300)
Attachment 2 - Figures (Tax, USGS, FEMA, Beginning with Habitat and Soils)
Attachment 3 - Parcel Deed (Book 27581, Page 213)
Attachment 4 - Purchase & Sale Agreement
Attachment 5 - Town Manager Letter - Approved Use
Attachment 6 - Preliminary Soils Evaluation Report - Harris Septic Solutions
Attachment 7 - Wetland and Stream Delineation Results - Stantec
Attachment 8 - Abutter List
Attachment 9 - Technical Capacity – BH2M
Attachment 10 - Letter of Good Standing
Attachment 11 - Preliminary Cost Estimate - BH2M
Attachment 12 - Traffic Estimate
Attachment 13 - Lighting Specifications – Visual Light
Attachment 14 - Stormwater Report (3 copies)
Attachment 15 - Architectural Plans - Taselpointe Architecture (Reduced)
Attachment 16 - Boundary Survey Plan - Survey, Inc. (Reduced)
Attachment 17 - Site Plan - BH2M - Full Size

The applicant, Windham School Age Children Association, Inc., President Donna Cobb, is looking to purchase a 2.5 acre parcel zoned Windham Center District along Pope Road (see Purchase & Sale Agreement attached). The applicant is looking to construct a daycare on the parcel to accommodate a staff of 12 to 16 employees as well as 64 kids. The facility will have one entrance from Pope Road as well as a looped drop off access road that accommodates 33 parking spaces.

A small pod of parking is also provided in front of the building to provide Fire Department access to two sides of the building. A drop off area has also been provided for parents along the front of the building.

The Town Council approved this parcel for a day care at their meeting on February 28, 2023 (see attached letter for more information).

The applicant hired Harris Septic Solutions to complete a preliminary soils evaluation (see attached report). The applicant also hired Stantec to complete a wetland delineation and stream determination on the parcel (see attached report for more information).

Attached are Architectural Plans for the day care provided by the project architect – Taselpointe Architecture.

This project will create approximately 28,916 sf. of new impervious area and 34,587 sf. of newly vegetated (grass) area (63,503 sf developed). Stormwater runoff from 87.28% of the proposed impervious area and 64.67% of the total developed area will be detained and treated in a grassed underdrained soil filter. Since the project will disturb over one acre, a Stormwater PBR is required from the Maine DEP (see attached Stormwater Report for more information).

The applicant held a sketch plan meeting with the planning board on December 11, 2023. Many of the items discussed with the Planning Board at that meeting have been incorporated into the design of this project as shown on the information included herein.

Our office has staked out the proposed building, parking and playground as discussed with Planning Board. Now that a formal application has been submitted, we are ready to setup a site walk with planning staff.

Please call me if you have any questions regarding this application or if any additional information is needed for this submission. We look forward to working with the Town on this project.

Sincerely,

Andrew S. Morrell, PE
Project Engineer

ATTACHMENT 1
Application & Checklist

Town of Windham
Planning Department:
8 School Road
Windham, Maine 04062
Tel: (207) 894-5960 ext. 2
Fax: (207) 892-1916 -
www.windhammaine.us

MAJOR SITE PLAN REVIEW APPLICATION

FEES FOR MAJOR SITE PLAN REVIEW	**APPLICATION FEE:** (No Bldg.) (W/Bldg.: $25/1,000 SF up to 5,000 SF) **REVIEW ESCROW: (GFA)** 2,000 SF - 5,000 SF = $2,000 5,000 SF - 15,000 SF = $3,000 15,000 SF - 35,000 SF = $4,000 Over 35,000 SF = $5,000 No Building = $2,000	☑ $1,3000.00 ☐ $_____ ☑ $ 2,000 ☐ $_____ ☐ $_____ ☐ $_____ ☐ $_____	**TOTAL AMOUNT PAID:** $ 4,300 DATE: _____ *Office Use:*				
☐ Amended Site Plan – (Each Revision)	AMENDED APPLICATION FEE: AMENDED REVIEW ESCROW:	☐ $350.00 ☐ $250.00					*Office Stamp:*

PROPERTY DESCRIPTION	Parcel Information:	Map(s):	43	Lot(s):	30 A-2	Zoning District(s):	WC	Size of the Parcel in SF:	108,907
	Total Disturbance. >1Ac	☑ Y	☐ N	Estimated. Building SF:	5,817	IF NO BUILDING; Estimated SF of Total Development:			
	Physical Address:	184 Pope Road				Watershed:	Pleasant River		
PROPERTY OWNER'S INFORMATION	Name:	Windhm School Age Children Association				Name of the Business:	Windham School Age Children Assoc. INC.		
	Phone:	N/A				Mailing Address:	P.O. Box 839, Windham, ME 04062		
	Fax or Cell:	N/A							
	Email:	N/A							
APPLICANT'S INFORMATION (*IF DIFFERENT FROM OWNER*)	Name:					Name of Business:			
	Phone					Mailing Address:			
	Fax or Cell								
	Email:								
APPLICANT'S AGENT INFORMATION	Name:	Andy Morrell				Name of Business:	BH2M		
	Phone:	(207)-839-2771				Mailing Address:	380B Main Street, Gorham, Maine, 04038		
	Fax or Cell:	N/A							
	Email:	amorrell@bh2m.com							

PROJECT INFORMATION

Existing Land Use ***(Use extra paper, if necessary)***:
Currently undeveloped woodlands

Provide a narrative description of the Proposed Project ***(Use extra paper, if necessary)***:
The applicant is proposing to construct a daycare for up to 64 children, as well as 12-16 staff members. (See plan for more info).

Provide a narrative description of construction constraints (wetlands, shoreland zone, flood plain, non-conformance, etc.):
Two streams converge onsite and there are wetlands associated with the streams. (See plan for more information).

MAJOR SITE PLAN REVIEW APPLICATION REQUIREMENTS

Section 120-811 of the Land Use Ordinance

The submission shall contain five (5) copies of the following information, including full plan sets. Along with one (1) electronic version of the entire submission, unless waiver of a submission requirement is granted, and one (1) complete plan set.

The Major Plan document/map:

A) Plan size: 24" X 36"
B) Plan Scale: No greater 1":100'
C) Title block: Applicant's name, project name, and address

- Name of the preparer of plans with professional information
- Parcel's tax map identification (map and lot) and street address, if available

- Complete application submission deadline: three (3) weeks (21-days) before the desired Planning Board meeting.
  - Five copies of the application and plans
  - Application Payment and Review Escrow
- A pre-submission meeting with the Town staff is required.
- Contact information:

Windham Planning Department (207) 894-5960, ext. 2
Steve Puleo, Town Planner sjpuleo@windhammaine.us
Amanda Lessard, Planning Director allessard@windhammaine.us

APPLICANT/PLANNER'S CHECKLIST FOR MAJOR SITE PLAN REVIEW

SUBMITTALS THAT THE TOWN PLANNER DEEMS SUFFICIENTLY LACKING IN CONTENT WILL NOT BE SCHEDULED FOR PLANNING BOARD REVIEW.

The following checklist includes items generally required for development by the Town of Windham's LAND USE ORDINANCE, Sections 120-811, 120-812, 120-813 & 120-814. Due to projects specifics, the applicant is required to provide a complete and accurate set of plans, reports, and supporting documentation (as listed in the checklist below).

IT IS THE RESPONSIBILITY OF THE APPLICANT TO PRESENT A CLEAR UNDERSTANDING OF THE PROJECT.

Column #1.			Column #2.		
1. Final Plan -Major Site Plan: Submission Requirements	**Applicant**	**Staff**	**Plan Requirements – Existing Conditions (Continued):**	**Applicant**	**Staff**
A. Completed Major Site Plan Application form	☑	☐	vii. Zoning classification(s), including overlay and/or subdistricts, of the property and the location of zoning district boundaries if the property is located in 2 or more districts or abuts a different district	☑	☐
B. Evidence of Payment of application & escrow fees	☑	☐	viii. Bearings and lengths of all property lines of the property to be developed, and the stamp of the surveyor that performed the survey	☑	☐
C. Written information – submitted in a **bounded and tabbed** report			ix. Existing topography of the site at 2-foot contour intervals.	☑	☐
1. A narrative describing the proposed use or activity.	☑	☐	x. Location and size of any existing sewer and water mains, culverts and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property and on abutting streets or land that may serve the development.	☑	☐
2. Name, address, & phone number of record owner, and applicant if different (see Agent Autorotation form).	☑	☐	xi. Location, names, and present widths of existing public and/or private streets and rights-of-way within or adjacent to the proposed development.	☑	☐
3. Names and addresses of all abutting property owners	☑	☐	xii. Location, dimensions, and ground floor elevation of all existing buildings.	☑	☐
4. Documentation demonstrating right, title, or interest in the property	☑	☐	xiii. Location and dimensions of existing driveways, parking and loading areas, walkways, and sidewalks on or adjacent to the site.	☑	☐
5. Copies of existing proposed covenants or deed restrictions.	☑	☐	xiv. Location of intersecting roads or driveways within 200 feet of the site.	☑	☐
6. Copies of existing or proposed easements on the property.	☑	☐	xv. Location of the following		
7. Name, registration number, and seal of the licensed professional who prepared the plan, if applicable.	☑	☐	a. Open drainage courses	☑	☐
8. Evidence of applicant's technical capability to carry out the project.	☑	☐	b. Wetlands	☑	☐
			c. Stone walls	☑	☐
9. Assessment of the adequacy of any existing sewer and water mains, culverts and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property.	☐	☐	d. Graveyards	☑	☐

Continued from Column #1. (Page 2)			Continued from Column #2. (Page 2)		
10. Estimated demands for water and sewage disposal.	☑	☐	e. Fences	☑	☐
			f. Stands of trees or treeline, and	☑	☐
			g. Other important or unique natural areas and site features, including but not limited to, floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources.	☑	☐
11. Provisions for handling all solid wastes, including hazardous and special wastes.	☐	☐	xvi. Direction of existing surface water drainage across the site	☑	☐
12. Detail sheets of proposed light fixtures.	☑	☐	xvii. Location, front view, dimensions, & lighting of exsiting signs.	☑	☐
13. Listing of proposed trees or shrubs to be used for landscaping	☑	☐			
14. Estimate weekday AM and PM and Saturday peak hours and daily traffic to be generated by the project.	☑	☐	xviii. Location & dimensions of existing easements that encumber or benefit the site.	☑	☐
15. Description of important or unique natural areas and site features, including floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and	☑	☐	xix. Location of the nearest fire hydrant, dry hydrant, or other water supply.	☑	☐
16. If the project requires a stormwater permit from MaineDEP or if the Planning Board or if the Staff Review Committee determines that such information is required, submit the following.			**E. Plan Requirements - Proposed Development Activity**		
			i. Location and dimensions of all provisions for water supply and wastewater disposal, and evidence of their adequacy for the proposed use, including soils test pit data if on-site sewage disposal is proposed	☑	☐
a. stormwater calculations.	☑	☐	ii. Grading plan showing the proposed topography of the site at 2-foot contour intervals	☑	☐
b. erosion and sedimentation control measures.	☑	☐	iii. The direction of proposed surface water drainage across the site and from the site, with an assessment of impacts on downstream properties.	☑	☐
c. water quality and/or phosphorous export management provisions.	☑	☐	iv. Location and proposed screening of any on-site collection or storage facilities	☑	☐
17. If public water or sewerage will be utilized, provide a statement from the utility district regarding the adequacy of water supply in terms of quantity and pressure for both domestic and fire flows, and the capacity of the sewer system to accommodate additional wastewater.	☐	☐	v. Location, dimensions, and materials to be used in the construction of proposed driveways, parking, and loading areas, and walkways, and any changes in traffic flow onto or off-site	☑	☐
18. Financial Capacity			vi. Proposed landscaping and buffering	☑	☐
i. Estimated costs of development and itemize estimated major expenses.	☑	☐	vii. Location, dimensions, and ground floor elevation of all buildings or expansions	☑	☐
ii. Financing (submit one of the following)			viii. Location, front view, materials, and dimensions of proposed signs together with a method for securing sign	☐	☐
a. Letter of commitment to fund	☐	☐	ix. Location and type of exterior lighting. Photometric plan to demonstrate the coverage area of all lighting may be required by the Planning Board.	☑	☐
b. Self-financing	☐	☐	x. Location of all utilities, including fire protection systems	☑	☐
1. Annual corporate report	☐	☐	xi. Approval block: Provide space on the plan drawing for the following words, "Approved: Town of Windham Planning Board" along with space for signatures and date	☑	☐
2. Bank Statement	☐	☐	**2. Major Final Site Plan Requirements as Exhibits to the Application**		
c. Other			a. Narrative and/or plan describing how the proposed development plan relates to the sketch plan.	☑	☐
1. Cash equity commitment of 20% of the total cost of development	☐	☐	b. Stormwater drainage and erosion control program shows:		
2. Financial plan for remaining financing.	☐	☐	1. The existing and proposed method of handling stormwater runoff	☑	☐

Continued from Column #1. (Page 3)		
3. Letter from institution indicating intent to finance.	☐	☐
iii. If a registered corporation a Certificate of Good Standing from:		
- Secretary of State, or	☑	☐
- the statement signed by a corporate officer	☐	☐
19. Technical Capacity (address both).		
i. Prior experience relating to developments in the Town.	☐	☐
ii. Personnel resumes or documents showing experience and qualification of development designers	☑	☐
D. Plan Requirements – Existing Conditions		
i. Location Map adequate to locate project within the municipality	☑	☐
ii. Vicinity Plan. Drawn to a scale of not over 400 feet to the inch, and showing area within 250 feet of the property line, and shall show the following:	☐	☐
a. Approximate location of all property lines and acreage of the parcel(s).	☐	☐
b. Locations, widths, and names of existing, filed, or proposed streets, easements, or building footprints.	☐	☐
c. Location and designations of any public spaces.	☐	☐
d. Outline of the proposed site plan, together with its street system and an indication of the future probable street system of the remaining portion of the tract.	☐	☐
iii. North Arrow identifying Grid North; Magnetic North with the declination between Grid and Magnetic; and whether Magnetic or Grid bearings were used.	☑	☐
iv. Location of all required building setbacks, yards, and buffers.	☑	☐
v. Boundaries of all contiguous property under the total or partial control of the owner or applicant.	☑	☐
vi. Tax map and lot number of the parcel(s) on which the project is located	☑	☐

Continued from Column #2. (Page 3)		
2. The direction of the flow of the runoff, through the use of arrows and a description of the type of flow (e.g., sheet flow, concentrated flow, etc.)	☑	☐
3. Location, elevation, and size of all catch basins, dry wells, drainage ditches, swales, retention basins, and storm sewers	☑	☐
4. Engineering calculations were used to determine drainage requirements based on the 25-year, 24-hour storm frequency.	☑	☐
5. Methods of minimizing erosion and controlling sedimentation during and after construction.	☑	☐
c. A groundwater impact analysis prepared by a groundwater hydrologist for projects involving on-site water supply or sewage disposal facilities with a capacity of 2,000 gallons or more per day	☐	☐
d. Name, registration number, and seal of the Maine Licensed Professional Architect, Engineer, Surveyor, Landscape Architect, and/or similar professional who prepared the plan.	☑	☐
e. A utility plan showing, in addition to provisions for water supply and wastewater disposal, the location and nature of electrical, telephone, cable TV, and any other utility services to be installed on the site.	☑	☐
f. A planting schedule keyed to the site plan indicating the general varieties and sizes of trees, shrubs, and other vegetation to be planted on the site, as well as information of provisions that will be made to retain and protect existing trees, shrubs, and other vegetation.	☑	☐
g. Digital transfer of any site plan data to the town (GIS format)	☐	☐
h. A traffic impact study if the project expansion will generate 50 or more trips during the AM or PM peak hour, or if required by the Planning Board)	☐	☐
PDF\Electronic Submission.	☑	☐

The undersigned *hereby makes an application to the Town of Windham for approval of the proposed project and declares the foregoing to be true and accurate to the best of his/her knowledge.*

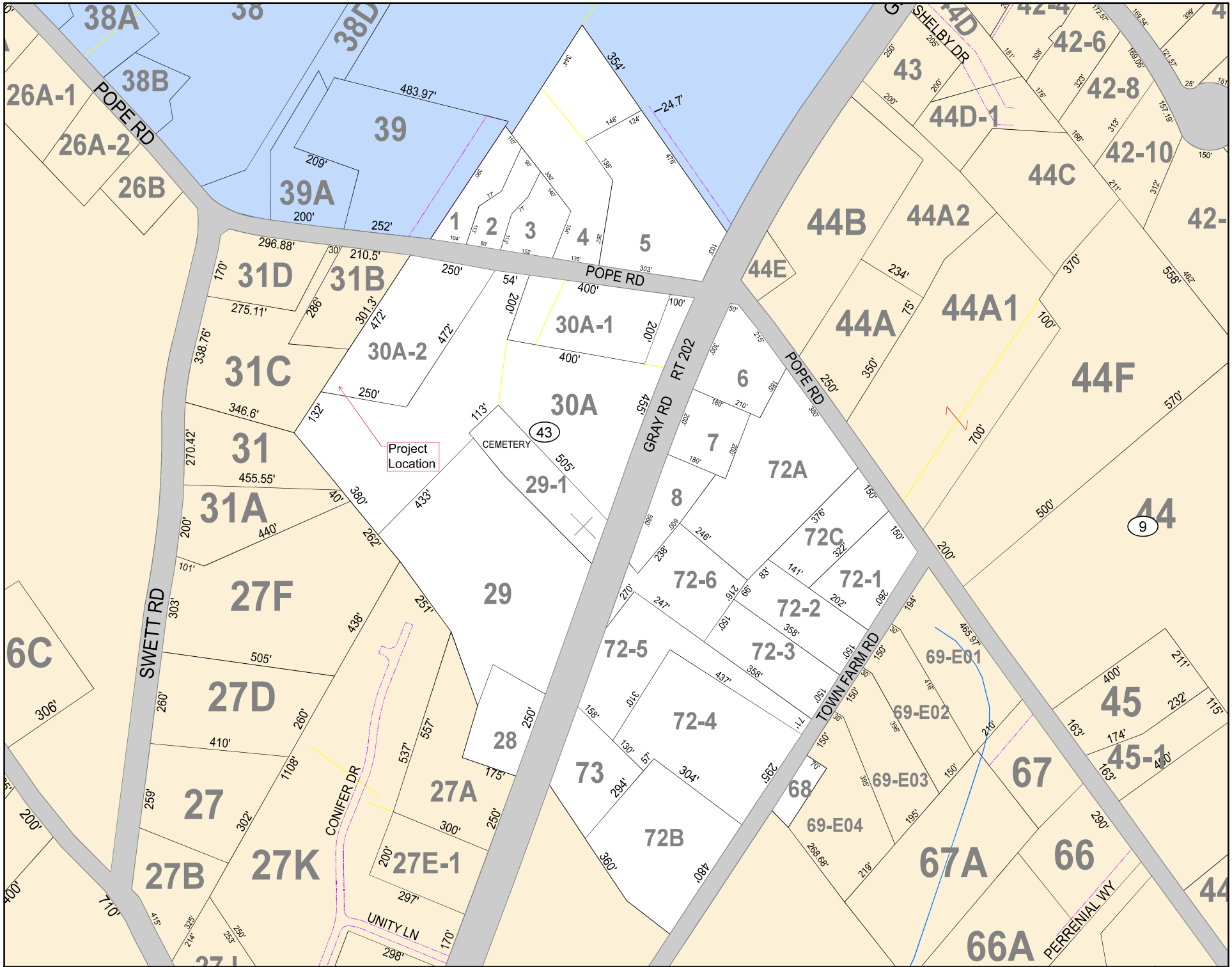
Donna G. Cobb 3/7/24

APPLICANT OR AGENT'S SIGNATURE DATE

Donna G. Cobb

PLEASE TYPE OR PRINT NAME

ATTACHMENT 2
Figures



THIS MAP IS FOR ASSESSMENT PURPOSES. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.

THE HORIZONTAL DATUM IS THE MAINE STATE PLANE COORDINATE SYSTEM, NAD 83.

ORIGINAL MAPPING BY JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

REVISED & REPRINTED BY

CAI Technologies

Precision Mapping. Geospatial Solutions.

11 Pleasant Street, Littleton, NH 03561

800.322.4540 • www.cai-tech.com

LEGEND

PARCEL NUMBER · · · · · · · · 12D

RECORD DIMENSION · · · · · · 100'

SUBDIVISION LOT NO. · · · · · · 2

COMMON OWNERSHIP · · · · · ·

STREAMS · · · · · · · · · · · ·

CEMETERY · · · · · · · · · · ·

CONDOMINIUM · · · · · · · · ·

FARMSTEAD · · · · · · · · · ·

OLD PROPERTY LINES · · · · ·

UTILITY LINES · · · · · · · · ·

ROW/EASEMENT · · · · · · · · ·

ROW/EASEMENT PWD · · · · · ·

SCALE: 1" = 100'

FEET 100 50 0 100 200 300

METERS 25 12.5 0 25 50 75

REVISED TO: APRIL 1, 2023

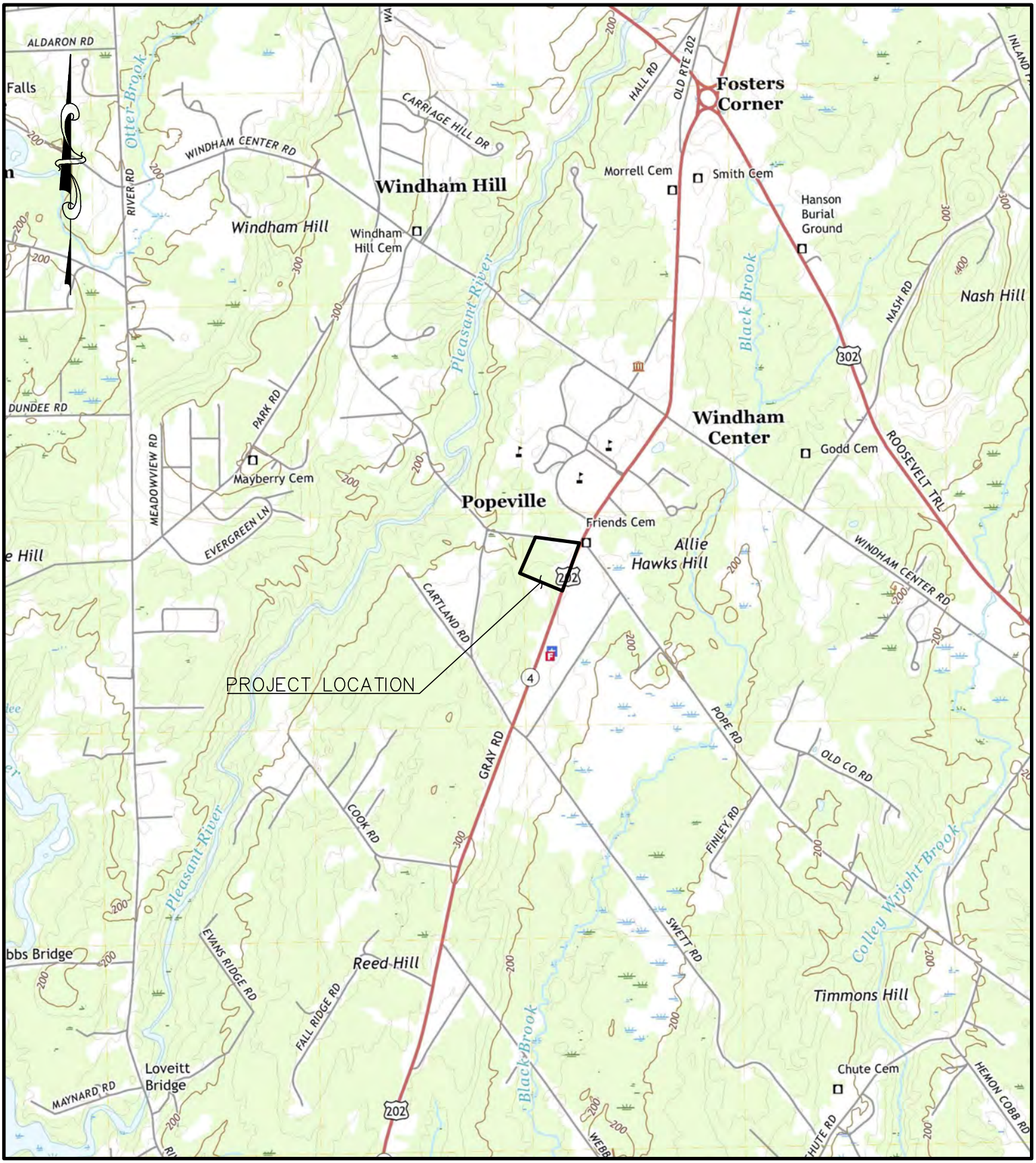
PROPERTY MAPS

WINDHAM

MAINE

INDEX DIAGRAM

MAP NO. 43

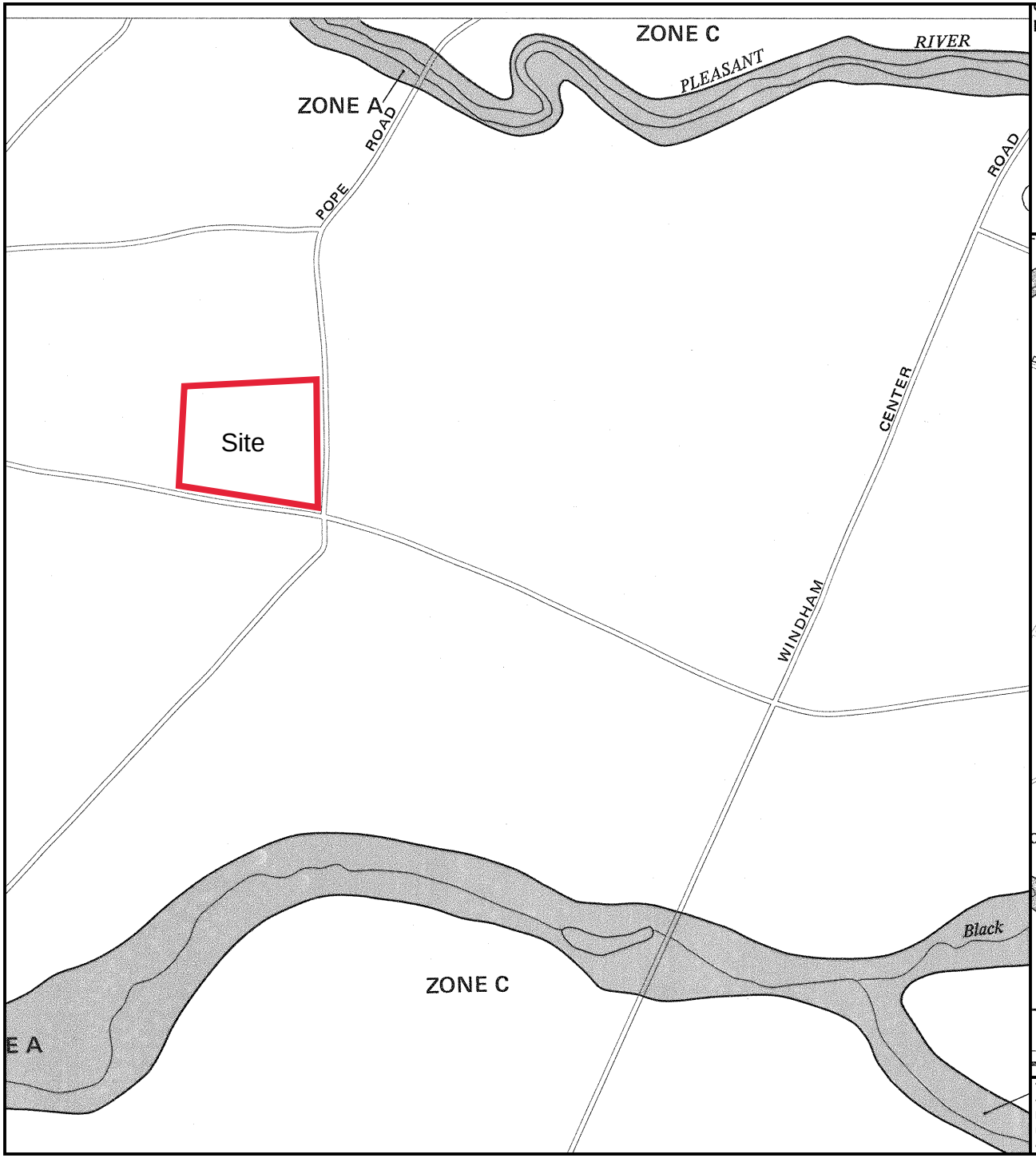


REFERENCES:
1. USGS QUADRANGLE NORTH WINDHAM, ME 2021

Scale: 1" = 2000'

2000' 0 2000' 4000'

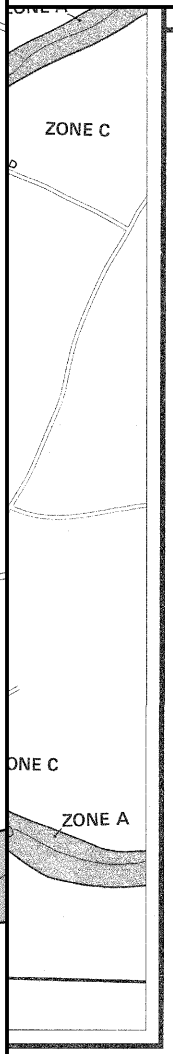
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
Fax (207) 839-8250



contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE

800 0 800 FEET



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

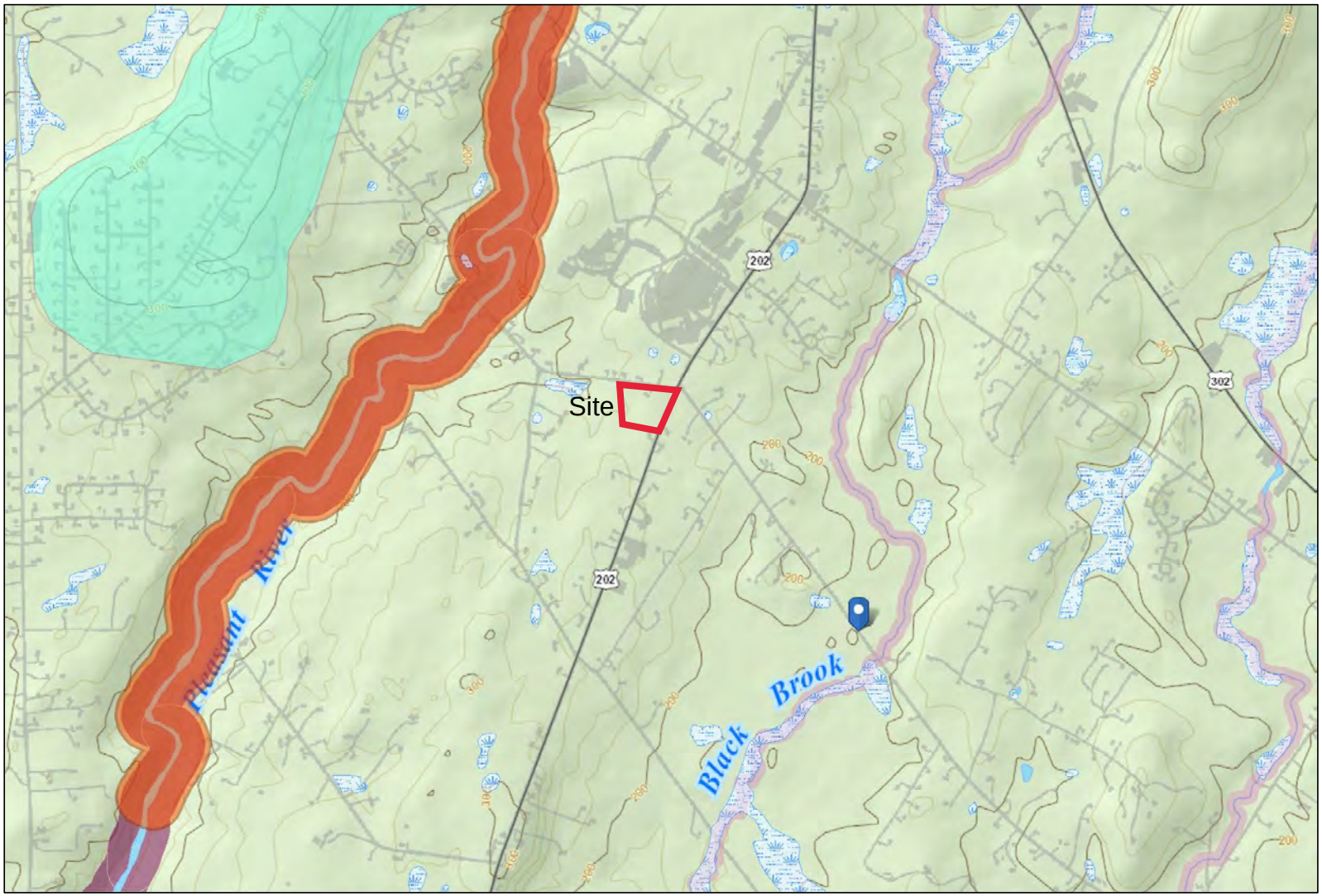
TOWN OF
WINDHAM, MAINE
CUMBERLAND COUNTY

PANEL 30 OF 35
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230189 0030 B

EFFECTIVE DATE:
SEPTEMBER 2, 1981

federal emergency management agency
federal insurance administration



BEGINNING WITH HABITAT

Legend

State of Maine

The Nature Conservancy

Maine Audubon

Maine Coast Heritage Trust
A Statewide Land Conservation Organization

MaineDOT

0 0.225 0.45 0.9 1.35 mi

N W E S

Supported in part by Maine Outdoor Heritage Fund lottery ticket sales

Map Prepared by Maine Department of Inland Fisheries & Wildlife
November 2023

Supported in part by Loon Conservation Plate funds

Map Scale: 1:2,620 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 20, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	C	2.6	13.1%
BuB	Lamoine silt loam, 3 to 8 percent slopes	C/D	5.6	28.6%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	C	8.6	43.9%
PbC	Paxton fine sandy loam, 8 to 15 percent slopes	C	0.1	0.4%
Sn	Scantic silt loam, 0 to 3 percent slopes	D	1.4	7.1%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	C	1.4	7.0%
Totals for Area of Interest			**19.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 3
Parcel Deed

Doc#: 6359 Bk:27581 Pg: 213

QUITCLAIM DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **MARILYN C. WORREY**, of Windham, County of Cumberland, State of Maine, releases to **BRUCE A. WORREY**, with a mailing address of 176 Pope Road, Windham, ME 04062 and **MARILYN C. WORREY** with a mailing address of 390 Gray Rd, Windham, ME 04068, as joint tenants all of her right, title and interest in that certain real property located in **Windham, Maine** more particularly described in Schedule A annexed hereto and incorporated by reference herein.

WITNESS my hand and seal this 28th day of January, 2010.

WITNESS

Marilyn C. Worrey

STATE OF MAINE
CUMBERLAND, SS

January 28, 2010

Personally appeared before me the above-named **Marilyn C. Worrey** and acknowledged the foregoing to be her free act and deed.

~~Notary Public~~/Attorney at Law
Printed Name: Jonathan T. Harris
My commission expires: / /

Schedule A

Parcel One:

A certain lot or parcel of land situated in said Windham and bounded and described as follows:

Beginning at the point of intersection of the southwesterly side line of the Pope Road, so called, leading from Popeville, in said Windham, to Portland, with the northwesterly sideline of the Gray Road, so called; thence running northwesterly by said side line of said Pope Road, five hundred (500) feet to a point; thence running southwesterly in a straight line to the north easterly corner of the Friends Burial Ground; thence running South twenty-three degrees East (S. 23° 00' E) by the easterly line of said Friends Burial Ground, two hundred two (202) feet, more or less, to an angle in said line; thence running South twenty-eight degrees thirty minutes E (S 28° E) by the easterly line of said Friends Burial Ground, three hundred three (303) feet, more or less, to said northwesterly line of said Gray Road; thence running North thirty –six degrees thirty minutes E (n 36° 30' E) by said line of said Gray Road, three hundred fifty-seven and 54/100 (357. 54) feet, more or less, to an angle in said line of said Gray Road, and thence running North forty degrees twenty-five minutes east (N 40° 25' E) by said line of said Gray Road, two hundred ninety-seven and 42/100 (297.42) feet, more or less, to said Pope Road and to the point of beginning.

Being the same property described in a deed to Eugene A. Worrey Jr. and Marilyn C. Worrey from Percival A. Rogers dated April, 27, 1963, and recorded in the Cumberland County Registry of Deeds in Book 2748, Page 20.

Excepting therefrom the property described in a deed from Marilyn C. Worrey to Bruce A. Worrey dated May 1987, and recorded in the Cumberland County Registry of Deeds in book 7840, Page 93.

Parcel Two:

A certain lot or parcel of land with the buildings thereon in the Town if Windham bounded as follows:

Beginning at the point of intersection of the southwesterly line of the Pope Road, so called, leading from Popeville, in said Windham, to Portland, with the northwesterly line of the Gray Road; thence running northwesterly by said line of said Pope Road; eight hundred forty-four and three-tenths (844.3) feet, more or less, to an iron driven in the ground and to land now or formerly of Ernest Staples; thence running south 49° West along the line of land now or formerly of Ernest Staples, six hundred four (604) feet, more or less, to land now or formerly of Harrison Guptil; thence running south 81° East by the line of said land formerly of said Harrison Guptil, three hundred eighty (380) feet, more or less, to a pine stump; thence running North 61° East along an old fence line, four hundred thirty-three (433) feet to the westerly line of the Friends Burial Ground; thence running North 23° West seventy (70) feet, more or less, by the Westerly

line of said Friends Burial Ground, one hundred twelve (112) feet to the northeasterly corner of said Burial Ground; thence running South 23° East by the easterly line of said Friends Burial Ground, two hundred two (202) feet, more or less, to an angle in said line; thence running South 28° 30' East by the easterly line of said Friends Burial Ground three hundred three (303) feet, more or less, to said northwesterly line of Said Gray Road; thence running North 36° 30' East by line of said Gray Road, three hundred fifty-seven and fifty-four one hundredths (357.54) feet, more or less, to an angle in said line of said Gray Road; thence running North 40° 25' East by said line of Said Gray Road, two hundred ninety-seven and forth-two one hundredths(297.42) feet, to said Pope Road and the point of beginning.

Being a part of the property described in a Deed of Distribution from Marilyn C. Worrey, Personal Representative, to Marilyn C. Worrey dated October 25, 1993 recorded in the Cumberland County Registry of Deeds in Book 11050, Page 144. Note that this Deed of Distribution erroneously in the description the excepted parcel described below.

Excepting from Parcel Two property described in a deed from Percival A. Rogers to Eugene A. Worrey and Marilyn C. Worrey dated April 27, 1963 and recorded in the Cumberland County Registry of Deeds Book 2748, Page 20 (being parcel one above).

Received
Recorded Register of Deeds
Feb 08,2010 02:01:29P
Cumberland County
Pamela E. Lovles

ATTACHMENT 4
Purchase & Sale Agreement

PURCHASE AND SALE AGREEMENT - LAND ONLY

("days" means business days unless otherwise noted, see paragraph 20)

November 16, 2022
Offer Date

_____, _____ Effective Date
Effective Date is defined in Paragraph 20 of this Agreement.

1. PARTIES: This Agreement is made between **Donna Cobb, President SACC** ("Buyer") and **Bruce A. Worrey** ("Seller").

2. DESCRIPTION: Subject to the terms and conditions hereinafter set forth, Seller agrees to sell and Buyer agrees to buy ☐ all ☒ part of (if "part of" see para. 22 for explanation) the property situated in municipality of **Windham**, County of **Cumberland**, State of Maine, located at **390 Gray Road MAP 43/30A** and described in deed(s) recorded at said County's Registry of Deeds Book(s) **27581**, Page(s) **0213**.

3. PURCHASE PRICE/EARNEST MONEY: For such Deed and conveyance Buyer agrees to pay the total purchase price of [redacted]. Buyer ☐ has delivered; or ☒ will deliver to the Agency within **3** days of the Effective Date, a deposit of earnest money in the amount [redacted]. Buyer agrees that an additional deposit of earnest money in the amount of $**n/a** will be delivered **n/a**.
If Buyer fails to deliver the initial or additional deposit in compliance with the above terms Seller may terminate this Agreement. This right to terminate ends once Buyer has delivered said deposit (s). The remainder of the purchase price shall be paid by wire, certified, cashier's or trust account check upon delivery of the Deed.

This Purchase and Sale Agreement is subject to the following conditions:

4. ESCROW AGENT/ACCEPTANCE: **Maine Real Estate Experts** ("Agency") shall hold said earnest money and act as escrow agent until closing; this offer shall be valid until **November 18, 2022** (date) **5:00** ☐ AM ☒ PM; and, in the event of non-acceptance, this earnest money shall be returned promptly to Buyer.

5. TITLE AND CLOSING: A deed, conveying good and merchantable title in accordance with the Standards of Title adopted by the Maine Bar Association shall be delivered to Buyer and this transaction shall be closed and Buyer shall pay the balance due and execute all necessary papers on **DEC 30, 2022** (closing date) or before, if agreed in writing by both parties. If Seller is unable to convey in accordance with the provisions of this paragraph, then Seller shall have a reasonable time period, not to exceed 30 calendar days, from the time Seller is notified of the defect, unless otherwise agreed to in writing by both Buyer and Seller, to remedy the title. Seller hereby agrees to make a good-faith effort to cure any title defect during such period. If, at the later of the closing date set forth above or the expiration of such reasonable time period, Seller is unable to remedy the title, Buyer may close and accept the deed with the title defect or may terminate this Agreement in which case the parties shall be relieved of any further obligations hereunder and any earnest money shall be returned to the Buyer.

6. DEED: The property shall be conveyed by a **warranty** deed, and shall be free and clear of all encumbrances except covenants, conditions, easements and restrictions of record which do not materially and adversely affect the continued current use of the property.

7. POSSESSION: Possession of premises shall be given to Buyer immediately at closing unless otherwise agreed in writing.

8. RISK OF LOSS: Until the closing, the risk of loss or damage to said premises by fire or otherwise, is assumed by Seller. Buyer shall have the right to view the property within 24 hours prior to closing for the purpose of determining that the premises are in substantially the same condition as on the date of this Agreement.

9. PRORATIONS: The following items, where applicable, shall be prorated as of the date of closing: rent, association fees, (other) **n/a**. Real estate taxes shall be prorated as of the date of closing (based on municipality's fiscal year). Seller is responsible for any unpaid taxes for prior years. If the amount of said taxes is not known at the time of closing, they shall be apportioned on the basis of the taxes assessed for the preceding year with a reapportionment as soon as the new tax rate and valuation can be ascertained, which latter provision shall survive closing. Buyer and Seller will each pay their transfer tax as required by State of Maine.

10. DUE DILIGENCE: Buyer is encouraged to seek information from professionals regarding any specific issue or concern. Neither Seller nor Licensee makes any warranties regarding the condition, permitted use or value of Sellers' real property. This Agreement is subject to the following contingencies, with results being satisfactory to Buyer:

CONTINGENCY	YES	NO	FULL RESOLUTION	OBTAINED BY	TO BE PAID FOR BY
1. SURVEY	X		within 45 days	seller	seller
Purpose: lot lines agreed upon both buyer and seller showing 2.5 ac & 304 ft of road frontage					
2. SOILS TEST	X	X	within ~~45~~ days	buyer	buyer
Purpose: septic design					
3. SEPTIC SYSTEM DESIGN	X	X	within ~~45~~ days	buyer	buyer
Purpose: septic design					
4. LOCAL PERMITS	X	X	within ~~45~~ days	buyer	buyer
Purpose: daycare facility					
5. HAZARDOUS WASTE REPORTS		X	within ____ days		
Purpose:					
6. UTILITIES		X	within ____ days		
Purpose:					
7. WATER		X	within ____ days		
Purpose:					
8. SUB-DIVISION APPROVAL		X	within ____ days		
Purpose:					
9. DEP/LUPC/ACOE APPROVALS		X	within ____ days		
Purpose:					
10. ~~ZONING VARIANCE~~	X		within see below * days	buyer	buyer
Purpose: ~~to construct a daycare facility~~					
11. HABITAT REVIEW/ WATERFOWL		X	within ____ days		
Purpose:					
12. REGISTERED FARMLAND		X	within ____ days		
Purpose:					
13. MDOT DRIVEWAY/ ENTRANCE PERMIT		X	within ____ days		
Purpose:					
14. DEED RESTRICTION		X	within ____ days		
Purpose:					
15. TAX STATUS*		X	within ____ days		
Purpose:					
16. BUILD PACKAGE		X	within ____ days		
Purpose:					
17. OTHER		X	within ____ days		
Purpose:					

* If the land is enrolled in the Maine Tree Growth Tax program, Seller agrees to provide Buyer with the current Forest Management and Harvest Plan within 0 days. ☐ Yes ☒ No

Further specifications regarding any of the above: *** town approval for zoning usage as daycare facility**

Unless otherwise specified above, all of the above will be obtained and paid for by Buyer. Seller agrees to cooperate with Buyer and shall give Buyer and Buyer's agents and consultants reasonable access to the property in order to undertake the above investigations. Buyer agrees to take reasonable steps to return the property to its pre-inspection condition. If the result of any investigation or other condition specified herein is unsatisfactory to Buyer in Buyer's sole discretion, Buyer will declare the Agreement null and void by notifying Seller in writing within the specified number of days, and any earnest money shall be returned to Buyer. If the result of any investigation or other condition specified herein is unsatisfactory to Buyer, and Buyer wishes to pursue remedies other than voiding the Agreement, Buyer must do so to full resolution within the time period set forth above; otherwise this contingency is waived. If Buyer does not notify Seller that an investigation is unsatisfactory within the time period set forth above, or if any investigation under this paragraph is not performed or completed during the period specified in this paragraph, this contingency and the right to conduct an investigation are waived by Buyer. In the absence of inspection(s) mentioned above, Buyer is relying completely upon Buyer's own opinion as to the condition of the property.

11. FINANCING: Buyer's obligation to close:

~~**Not Subject to Financing**~~

~~☐ is not subject to a financing contingency. Buyer has provided Seller with acceptable proof of the funds.~~

~~☐ is not subject to a financing contingency. Buyer shall provide proof of the funds acceptable to Seller within _____ days. If such proof is unacceptable to Seller, Seller may terminate this Agreement no later than _____ days from receipt. If proof of funds is not provided within such time period, Seller may terminate this Agreement which right shall end once such proof is received, however Seller retains the agreed upon time period to terminate if such proof is unacceptable. If Seller terminates in either case, the earnest money shall be returned to Buyer.~~

~~☐ Buyer's ability to purchase ☐ is ☐ is not subject to the sale of another property. See addendum ☐ Yes ☐ No.~~

Subject to Financing

☒ Buyer's obligation to close is subject to financing as follows:

a. Buyer's obligation to close is subject to Buyer obtaining a **conventional** loan of [redacted] % of the purchase price, at an interest rate not to exceed **market** % and amortized over a period of **30** years. Buyer is under a good faith obligation to seek and obtain financing on these terms. If such financing is not available to Buyer as of the closing date, Buyer is not obligated to close and may terminate this Agreement in which case the earnest money shall be returned to Buyer.

b. Buyer to provide Seller with letter from lender showing that Buyer has made application for loan specified in (a) and, subject to verification of information, is qualified for the loan requested within **3** days from the Effective Date of the Agreement. If Buyer fails to provide Seller with such letter within said time period, Seller may terminate this Agreement and the earnest money shall be returned to Buyer. This right to terminate ends once Buyer's letter is received.

c. Buyer hereby authorizes, instructs and directs its lender to communicate the status of the Buyer's loan application to Seller, Seller's licensee and Buyer's licensee.

d. After (b) is met, if the lender notifies Buyer that it is unable or unwilling to provide said financing, Buyer is obligated to provide Seller with written documentation of the loan denial within two days of receipt. After notifying Seller, Buyer shall have **5** days to provide Seller with a letter from another lender showing that Buyer has made application for loan specified in (a) and, subject to verification of information, is qualified for the loan requested. If Buyer fails to provide Seller with such letter within said time period, Seller may terminate this Agreement and the earnest money shall be returned to Buyer. This right to terminate ends once Buyer's letter is received.

e. Buyer agrees to pay no more than **0** points. Seller agrees to pay up to $**no other** toward Buyer's actual pre-paids, points and/or closing costs, but no more than allowable by Buyer's lender.

f. Buyer's ability to obtain financing ☐ is ☒ is not subject to the sale of another property. See addendum ☐ Yes ☒ No.

g. Buyer may choose to pay cash instead of obtaining financing. If so, Buyer shall notify Seller in writing including providing proof of funds and the Agreement shall no longer be subject to financing, and Seller's right to terminate pursuant to the provisions of this paragraph shall be void and Seller's obligations pursuant to 11e shall remain in full force and effect.

12. BROKERAGE DISCLOSURE: Buyer and Seller acknowledge they have been advised of the following relationships:

Nancy Campbell/Michelle DiCenso (**017290**) of **Portside real estate group** (**1049**)
Licensee — MLS ID — Agency — MLS ID

is a ☒ Seller Agent ☐ Buyer Agent ☐ Disc Dual Agent ☐ Transaction Broker

Laurie Champagne (**003869**) of **Maine Real Estate Experts** (**3262**)
Licensee — MLS ID — Agency — MLS ID

is a ☐ Seller Agent ☒ Buyer Agent ☐ Disc Dual Agent ☐ Transaction Broker

If this transaction involves Disclosed Dual Agency, the Buyer and Seller acknowledge the limited fiduciary duties of the agents and hereby consent to this arrangement. In addition, the Buyer and Seller acknowledge prior receipt and signing of a Disclosed Dual Agency Consent Agreement.

13. PROPERTY DISCLOSURE FORM: Buyer acknowledges receipt of Property Disclosure Form.

14. DEFAULT/RETURN OF EARNEST MONEY: Buyer's failure to fulfill any of Buyer's obligations hereunder shall constitute a default and Seller may employ all legal and equitable remedies, including without limitation, termination of this Agreement and forfeiture by Buyer of the earnest money. Seller's failure to fulfill any of Seller's obligations hereunder shall constitute a default and Buyer may employ all legal and equitable remedies, including without limitation, termination of this Agreement and return to Buyer of the earnest money. Agency acting as escrow agent has the option to require written releases from both parties prior to disbursing the earnest money to either Buyer or Seller. In the event that the Agency is made a party to any lawsuit by virtue of acting as escrow agent, Agency shall be entitled to recover reasonable attorney's fees and costs which shall be assessed as court costs in favor of the prevailing party.

15. MEDIATION: Earnest money or other disputes within the jurisdictional limit of small claims court will be handled in that forum. All other disputes or claims arising out of or relating to this Agreement or the property addressed in this Agreement (other than requests for injunctive relief) shall be submitted to mediation in accordance with generally accepted mediation practices. Buyer and Seller are bound to mediate in good faith and to each pay half of the mediation fees. If a party fails to submit a dispute or claim to mediation prior to initiating litigation (other than requests for injunctive relief), then that party will be liable for the other party's legal fees in any subsequent litigation regarding that same matter in which the party who failed to first submit the dispute or claim to mediation loses in that subsequent litigation. This clause shall survive the closing of the transaction.

16. PRIOR STATEMENTS: Any representations, statements and agreements are not valid unless contained herein. This Agreement completely expresses the obligations of the parties and may only be amended in writing, signed by both parties.

17. HEIRS/ASSIGNS: This Agreement shall extend to and be obligatory upon heirs, personal representatives, successors, and assigns of the Seller and the assigns of the Buyer.

18. COUNTERPARTS: This Agreement may be signed on any number of identical counterparts, such as a faxed copy, with the same binding effect as if the signatures were on one instrument. Original, faxed or other electronically transmitted signatures are binding.

19. NOTICE: Any notice, communication or document delivery requirements hereunder may be satisfied by providing the required notice, communication or documentation to or from the parties or their Licensee. Only withdrawals of offers and withdrawals of counteroffers will be effective upon communication, verbally or in writing.

20. EFFECTIVE DATE/BUSINESS DAYS: This Agreement is a binding contract when the last party signing has caused a paper or electronic copy of the fully executed agreement to be delivered to the other party which shall be the Effective Date. Licensee is authorized to fill in the Effective Date on Page 1 hereof. Except as expressly set forth to the contrary, the use of the term "days" in this Agreement, including all addenda made a part hereof, shall mean business days defined as excluding Saturdays, Sundays and any observed Maine State/Federal holidays. Deadlines in this Agreement, including all addenda, expressed as "within x days" shall be counted from the Effective Date, unless another starting date is expressly set forth, beginning with the first day after the Effective Date, or such other established starting date, and ending at 5:00 p.m. Eastern Time on the last day counted. Unless expressly stated to the contrary, deadlines in this Agreement, including all addenda, expressed as a specific date shall end at 5:00 p.m. Eastern Time on such date.

21. CONFIDENTIALITY: Buyer and Seller authorize the disclosure of the information herein to the real estate licensees, attorneys, lenders, appraisers, inspectors, investigators and others involved in the transaction necessary for the purpose of closing this transaction. Buyer and Seller authorize the lender and/or closing agent preparing the entire closing disclosure and/or settlement statement to release a copy of the closing disclosure and/or settlement statement to the parties and their licensees prior to, at and after the closing.

22. OTHER CONDITIONS: **no other**

23. GENERAL PROVISIONS:
   a. A copy of this Agreement is to be received by all parties and, by signature, receipt of a copy is hereby acknowledged. If not fully understood, contact an attorney. This is a Maine contract and shall be construed according to the laws of Maine.
   b. Seller acknowledges that State of Maine law requires buyers of property owned by non-resident sellers to withhold a prepayment of capital gains tax unless a waiver has been obtained by Seller from the State of Maine Revenue Services.
   c. Buyer and Seller acknowledge that under Maine law payment of property taxes is the legal responsibility of the person who owns the property on April 1, even if the property is sold before payment is due. If any part of the taxes is not paid when due, the lien will be filed in the name of the owner as of April 1 which could have a negative impact on their credit rating. Buyer and Seller shall agree at closing on their respective obligations regarding actual payment of taxes after closing. Buyer and Seller should make sure they understand their obligations agreed to at closing and what may happen if taxes are not paid as agreed.
   d. Buyer acknowledges that Maine law requires continuing interest in the property and any back up offers to be communicated by the listing agent to the Seller.
   e. Whenever this Agreement provides for earnest money to be returned or released, agency acting as escrow agent must comply with Maine Real Estate Commission rules which may require written notices or obtaining written releases from both parties.

24. ADDENDA: ☐ Yes ☒ No Explain: _____

25. ELECTRONIC SIGNATURES: Pursuant to the Maine Uniform Electronic Transactions Act and Digital Signature Act, the parties authorize and agree to the use of electronic signatures as a method of signing/initialing this Agreement, including all addenda. The parties hereby agree that either party may sign electronically by utilizing an electronic signature service.

Buyer's Mailing address is _____.

DocuSigned by:
Donna Cobb, President SACC
BUYER **Donna Cobb, President SACC** 11/16/2022 DATE

BUYER _____ DATE

_____ BUYER _____ DATE

_____ BUYER _____ DATE

Seller accepts the offer and agrees to deliver the above-described property at the price and upon the terms and conditions set forth and agrees to pay agency a commission for services as specified in the listing agreement.

Seller's Mailing address is _____.

SELLER **Bruce A. Worrey** _____ DATE

SELLER _____ DATE

_____ SELLER _____ DATE

_____ SELLER _____ DATE

COUNTER-OFFER

Seller agrees to sell on the terms and conditions as detailed herein with the following changes and/or conditions:
Seller and Buyer agree that Seller will pay to have lot surveyed prior to close.

The parties acknowledge that until signed by Buyer, Seller's signature constitutes only an offer to sell on the above terms and the offer will expire unless accepted by Buyer's signature with communication of such signature to Seller by (date) 11/19/2022 (time) 5:00 ☐ AM ☒ PM.

DocuSigned by:
SELLER bruce worrey 11/18/2022 DATE
826C26A3972545E...

SELLER _____ DATE

_____ SELLER _____ DATE

_____ SELLER _____ DATE

The Buyer hereby accepts the counter offer set forth above.

BUYER _____ DATE

BUYER _____ DATE

_____ BUYER _____ DATE

_____ BUYER _____ DATE

EXTENSION

The closing date of this Agreement is extended until _____.
DATE

SELLER _____ DATE

SELLER _____ DATE

_____ SELLER _____ DATE

_____ SELLER _____ DATE

BUYER _____ DATE

BUYER _____ DATE

_____ BUYER _____ DATE

_____ BUYER _____ DATE

ATTACHMENT 5

Town Manager Letter – Approved Use

Town of Windham

Office of the Town Manager
8 School Road
Windham, ME 04062

Barry A. Tibbetts, Town Manager
batibbetts@windhammaine.us

207.892.1907 voice
207.892.1910 fax

VIA EMAIL - Donna Cobb, President, Windham-Raymond School Age Child Care

March 1, 2023

To Whom It May Concern:

The Town of Windham by way of this letter is confirming the parcel (2.5 +/- acres) located on Pope Road and close to several of the Windham schools is zoned for Day Care/Child Care Centers. The zoning allows for the Windham-Raymond School Age Child Care (SACC) to apply for building permits and eventually have a child care center business at this parcel's location.

The Town Council approved this district at their meeting February 28, 2023. Should you have any questions please do not hesitate to contact the Town Manager's office in Windham.

Sincerely,

Barry Tibbetts
Town Manager

ATTACHMENT 6

Preliminary Soils Evaluation Report – Harris Septic Solutions

HARRIS
SEPTIC SOLUTIONS

Preliminary Soils Evaluation Report

November 28, 2022

Property Owner/Address: Natural Wonders
PO Box 839
Windham, ME 04062

Subject Parcel: Off Pope Road (Map 43, portion on lot 30A)
(2.51 acres) Windham, Maine

Findings: On November 28, 2022 a soils evaluation was conducted at the above-mentioned parcel. Suitable soils were found within the property as well as adequate space to support a subsurface wastewater disposal system in accordance with the Maine State Plumbing Code.

Conclusion: Suitable conditions exist within the property for a subsurface wastewater disposal system. It should be noted that these findings are in accordance with the current Maine State Plumbing Code guidelines. Proposed use (daily design flows), changes in code, Town regulations, development ordinances, building size and placement as well as alterations in property and neighboring features can affect these findings. Steps should be taken to complete a "Subsurface Wastewater Disposal System Design" in order to secure the build ability of the site.

Please feel free to call with any questions you may have regarding this report.

Sincerely,

Norman "Bud" Harris, LSE#348

STATE OF MAINE
NORMAN P. HARRIS #348
LICENSED SITE EVALUATOR

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div of Environmental Health, 11 SHS
(207) 287-2070 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	WINDHAM
Street or Road	OFF POPE ROAD
Subdivision, Lot #	

OWNER/APPLICANT INFORMATION

Name (last, first, MI) NATURAL WONDERS ☐ Owner ■ Applicant

Mailing Address of Owner/Applicant	PO BOX 839 WINDHAM, ME 04062
Daytime Tel. #	

>> Caution: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged ( )

_____ L.P.I # _____
Local Plumbing Inspector Signature

☐ Owner ☐ Applicant ☐ State

The Subsurface Wastewater Disposal System *shall not* be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

Owner or Applicant Statement

I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit.

_____ _____
Signature of Owner or Applicant Date

Caution: Inspection Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

_____
(1st) Date Approved

_____ _____
Local Plumbing Inspector Signature (2nd) Date Approved

PERMIT INFORMATION

TYPE OF APPLICATION

■ 1. First Time System
☐ 2. Replacement System
Type Replaced: _____
Year Installed: _____
☐ 3. Expanded System
☐ a. <25% Expansion
☐ b. ≥25% Expansion
☐ 4. Experimental System
☐ 5. Seasonal Conversion

THIS APPLICATION REQUIRES

■ 1. No Rule Variance
☐ 2. First Time System Variance
☐ a. Local Plumbing Inspector Approval
☐ b. State & Local Plumbing Inspector Approval
☐ 3. Replacement System Variance
☐ a. Local Plumbing Inspector Approval
☐ b. State & Local Plumbing Inspector Approval
☐ 4. Minimum Lot Size Variance
☐ 5. Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENTS

1. ■ Complete Non-engineered System
2. ☐ Primitive System(graywater & alt toilet)
3. ☐ Alternative Toilet, specify: _____
4. ☐ Non-engineered Treatment Tank (only)
5. ☐ Holding Tank, _____ Gallons
6. ☐ Non-engineered Disposal Field (only)
7. ☐ Separated Laundry System
8. ☐ Complete Engineered System(2000gpd+)
9. ☐ Engineered Treatment Tank (only)
10. ☐ Engineered Disposal field (only)
11. ☐ Pre-treatment, specify: _____
12. ☐ Miscellaneous Components

SIZE OF PROPERTY

2.51 ☐ sq. ft. ■ acres

DISPOSAL SYSTEM TO SERVE

1. ☐ Single Family Dwelling Unit, No. of Bedrooms: ____
2. ☐ Multiple Family Dwelling, No of Units: _____
3. ■ Other: COMMERCIAL (SPECIFY)

Current Use ☐ Seasonal ☐ Year Round ■ Undeveloped

SHORELAND ZONING

☐ Yes ■ No

TYPE OF WATER SUPPLY

1. ☐ Drilled Well 2. ☐ Dug Well 3. ☐ Private
4. ■ Public 5. ☐ Other:

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. ■ Concrete
   a. ■ Regular
   b. ☐ Low Profile
2. ☐ Plastic
3. ☐ Other: _____

CAPACITY (2)1000 gallons

DISPOSAL FIELD TYPE & SIZE

1. ■ Stone Bed 2. Stone Trench
3. ☐ Proprietary Device
   a. ☐ cluster array c. ☐ Linear
   b. ☐ regular load d. ☐ H-20 loaded
4. ☐ Other: _____

SIZE: _____ ■ sq. ft. ☐ Lin. ft.

GARBAGE DISPOSAL UNIT

1. ■ No 3. ☐ Maybe
2. ☐ Yes >> Specify one below:
   a. ☐ multi-compartment tank
   b. ☐ _____ tanks in series
   c. ☐ increase tank capacity
   d. ☐ Filter on tank outlet

DESIGN FLOW

_____ gallons per day

BASED ON:
☐ Table 4A (dwelling unit(s))
■ Table 4C (other facilities)
SHOW CALCULATIONS - for other facilities -

CHILD DAYCARE

SOIL DATA & DESIGN CLASS

PROFILE CONDITION
5 / C

at Observation Hole # TP-1A
Depth 45 "
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING

1. ■ Medium - 2.6 sq.ft./gpd
2. ☐ Medium-Large - 3.3 sq.ft./gpd
3. ☐ Large - 4.0 sq.ft./gpd
4. ☐ Extra-Large - 5.0 sq.ft./gpd

EFFLUENT/EJECTOR PUMP

1. ☐ Not required
2. ■ May be required
3. ☐ Required

Specify only for engineered systems:
DOSE: _____ Gallons

☐ Section 4G (meter readings)
ATTACH WATER METER DATA

LATITUDE AND LONGITUDE

at center of disposal area
Lat. ___d ___m ___s
Lon. ___d ___m ___s
If g.p.s, state margin of error ____

DELEMINATED

STATE OF MAINE
NORMAN P. HARRIS
#348
LICENSED SITE EVALUATOR

SITE EVALUATOR STATEMENT

I Certify that on _____ (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed sytem is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

☐ REVISION #1 _____
☐ REVISION #2 _____
☐ REVISION #3 _____

Site Evaluator Signature	#348 SE #	11/28/22 Date

NORMAN "BUD" HARRIS (HARRIS SEPTIC SOLUTIONS, INC.) (207) 892-2435
harrisseptic@gmail.com

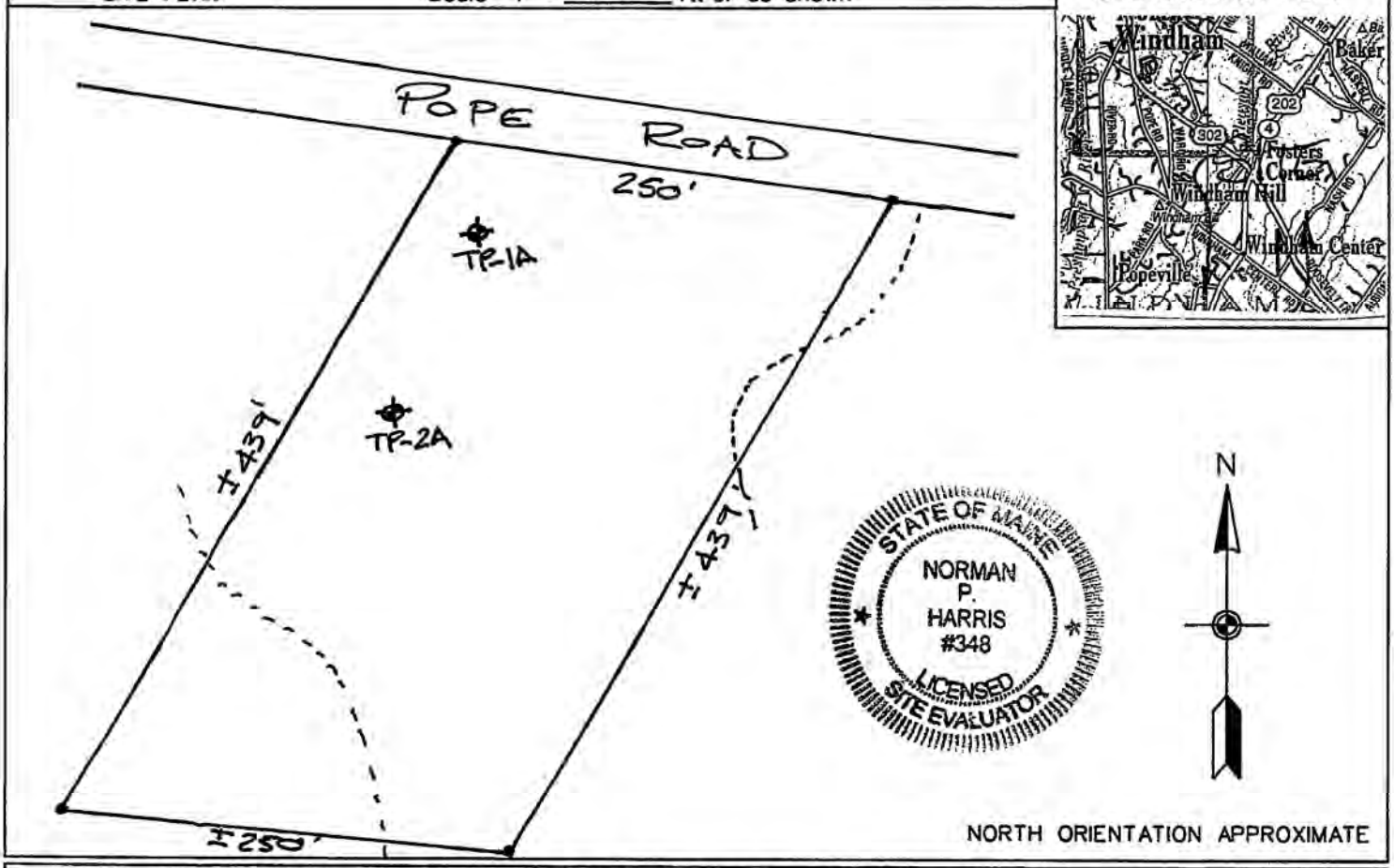
Note: Changes to or deviations from the design should be confirmed with the Site Evaluator.

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div of Environmental Health, 11 SHS
(207) 287-5672 FAX (207) 287-3165

Town, City, Plantation: WINDHAM | Street, Road, Subdivision: OFF POPE ROAD | Owner's Name: NATURAL WONDERS

SITE PLAN Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP-1A ■ Test Pit ☐ Boring
2 " Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	VERY DARK BROWN	
10	LOAMY FINE SAND	FRIABLE	STRONG BROWN	
20	LOAMY VERY FINE SAND	SOMEWHAT FIRM TO FIRM	OLIVE BROWN	RESTRICTIVE
30				
40				
50				

Soil Classification	Slope	Limiting Factor	
Profile: 3 Condition: C	2-5 %	16"	☐ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole TP-2A ■ Test Pit ☐ Boring
1 " Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	LOAMY SAND	FRIABLE	DARK BROWN	
10	LOAMY FINE SAND	FRIABLE	MEDIUM BROWN	
20	SILTY FINE SAND	SOMEWHAT FIRM TO FIRM	OLIVE BROWN	RESTRICTIVE
30				
40				
50				

Soil Classification	Slope	Limiting Factor	
Profile: B Condition: D	2-5 %	14"	☐ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

☐ REVISION •1 ☐ REVISION •2 ☐ REVISION •3

Site Evaluator Signature | #348 SE • | 11/28/22 Date

NORMAN "BUD" HARRIS (HARRIS SEPTIC SOLUTIONS, INC.) (207) 892-2435 harrisseptic@gmail.com

ATTACHMENT 7

Wetland and Stream Determination – Stantec

Stantec

Memo

To:	Julia Trepanier – Project Manager Windham Raymond School Age Child Care	From:	Eric Whitney Stantec Consulting Inc.
Project/File:	195211595	Date:	June 6, 2023

Reference: Wetland and Stream Delineation Results
Pope Road, Windham, Maine

Dear Ms. Trepanier,

Stantec Consulting Inc. (Stantec) was contracted to conduct a wetland and stream delineation, and vernal pool survey within project site, located on a 2.5-acre property off Pope Road in Windham, Maine for permitting and design purposes. This brief technical memorandum summarizes the findings of the field surveys conducted within the project site as shown in Figure 1.

SITE DESCRIPTION

The survey effort consisted of mapping wetland resources, streams, and potential vernal pools (PVPs) within the site. Land cover conditions within the area are mostly forested, dominated by mixed conifer and deciduous species such as American Beech (*Fagus grandifolia*), Balsam Fir (*Abies balsamea*), and Eastern Hemlock (*Tsuga canadensis*). The project site shows evidence of past timber harvesting due to the presence of old logging roads and a landing. The surrounding area around the project site is generally developed as residential homes.

During the investigation, two wetland complexes (labeled W-1 and W-2) and one stream complex (labeled STR-1) were located. Survey efforts were limited to the subject property.

METHODS

Wetland and Watercourse Delineation

Wetland boundaries under federal and state jurisdiction were determined using the technical criteria described in the U.S. Army Corps of Engineers (Corps) *Wetlands Delineation Manual*[1] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regional Supplement (Version 2.0)*[2]. Data were collected on dominant vegetation, evidence of wetland hydrology, and hydric soil criteria. Wetland determination data forms were in wetland and upland areas, locations of

[1] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
[2] U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

where the data was gathered are labelled as sample points (SP-1 and SP-2). Representative photographs of wetland resources were taken and have been included in this report.

Concurrent with the wetland delineation, streams and other potential Waters of the United States were identified and located using a Trimble Handheld GPS receiver. These resources were identified using the regulatory criteria established by the Maine Department of Environmental Protection (MDEP) and the Corps. Data were recorded on apparent flow regime, substrate, bankfull widths, ordinary high-water mark widths, water depths, and vegetation.

Potential Vernal Pool Identification

Stantec surveyed for the presence of PVPs during the wetland delineations. Formal vernal pool surveys must be completed during the spring (e.g., April and May) when obligate vernal pool indicator species, such as wood frogs (*Lithobates sylvaticus*) or spotted salamanders (*Ambystoma maculatum*) may be present and breeding at the vernal pools. A vernal pool is a temporary to semi-permanent body of water occurring in a shallow depression that typically fills with water during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. Natural and artificially created PVPs are identified based on physical characteristics of the pools, such as the presence of standing water or water marks within a confined basin. For planning purposes, PVPs that are naturally occurring and meet the physical characteristics of a vernal pool under Chapter 335 of the Maine Natural Resources Protection Act (NRPA) are classified as potential Significant Vernal Pools (PSVP).

RESULTS

Wetland and Stream Delineation

The wetland and stream delineation site visit was completed on May 16th, 2023. As a result of the field delineations, two wetlands and one stream complex were identified within the project site. Both wetlands are classified as seasonally flooded, palustrine evergreen forested wetlands (PFO7E). Wetlands of Special Significance (WoSS) identified within the site include one wetland that is within 25 feet of streams.

One stream complex was located which contained two segments and generally flowed towards the east. The stream is classified as intermittent cobble-gravel/sand bottomed (R4SB3/4). The average width of the stream was 4’ to 5’ wide at apparent high watermarks.

Table 1 summarizes the delineated wetland classifications. See Attachment C for Wetland Delineation Determination forms. Representative photographs are included in Attachment A.

Table 1. Summary of Delineated Wetlands, Pope Road, Windham, Maine

Wetland Identifier	Wetland Classification[1]	Wetland of Special Significance
W-1	PFO	Yes, areas within 25’ of stream
W-2	PFO	No

[1] Wetland classification follows Cowardin et al. (1979):
PFO = Palustrine (freshwater) Forested
PEM = Palustrine (freshwater) Emergent
PSS = Palustrine (freshwater) Scrub-shrub

PFO/SS = Palustrine (freshwater) Forested/Scrub Shrub complex

Potential Vernal Pool Identification

There were no potential vernal pools identified within the project site.

REGULATIONS

Wetland and Watercourse Delineation

The Corps and MDEP regulate the wetlands and waterbodies (e.g., streams) identified within the project area. Under the provisions of Section 404 of the Clean Water Act, the Corps regulates dredging or filling within Waters of the United States, which include navigable waters and all their tributaries, adjacent wetlands, and other waters or wetlands where degradation or destruction could affect interstate or foreign commerce. The Corps has issued a General Permit (GP) for the State of Maine that merges the federal and state permit review process for many projects.

In Maine, wetlands and waterbodies, as well as other protected natural resources, are regulated under 38 M.R.S.A. §§ 480-A – 480-JJ, the Natural Resource Protection Act (NRPA). Projects that do not impact a wetland or projects that impact less than 4,300 square feet of wetland are usually exempt from NRPA Tier permitting requirements. This exemption does not apply if the impact is:

- in, on, or over a coastal wetland, great pond, river, stream, or brook;
- within 25 feet of those resources identified above, or is more than 25 feet and no erosion control is used;
- in a shoreland zone or a wetland protected by the shoreland zone;
- part of a wetland with more than 20,000 square feet of open water or emergent vegetation, except artificial impoundments;
- in a peatland;
- part of a larger project; or
- in Significant Wildlife Habitat.

Typically, projects with cumulative impacts to freshwater wetlands between 4,300 but less than 15,000 square feet are eligible for review under the Tier 1 process. The Tier 2 review process applies to alterations that affect between 15,000 and 43,560 square feet (1 acre) of freshwater wetlands. Cumulative freshwater wetland impacts that exceed 1 acre typically require a Tier 3 review. Impacts to WoSS, rivers, streams and brooks, great ponds, and Significant Wildlife Habitat typically require an Individual Permit.

Based on Stantec's findings, portions of one wetland area within the project site meet the characteristics to be considered WoSS. These include portions of wetlands within 25 feet of a stream.

Respectfully,

STANTEC CONSULTING SERVICES INC.

Eric Whitney

Eric Whitney L.S.E, L.S.S.
Environmental Scientist

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

eric.whitney@stantec.com

Attachment: Attachment A – Site Photos
Attachment B – Figure 1
Attachment C – Wetland Data Forms

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

Attachment A: Site Photos

Photo 1: Cleared landing area, facing south.

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

Photo 2: Project site road frontage along Pope Road.

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

Photo 3: Area of SP-01 sample point.

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

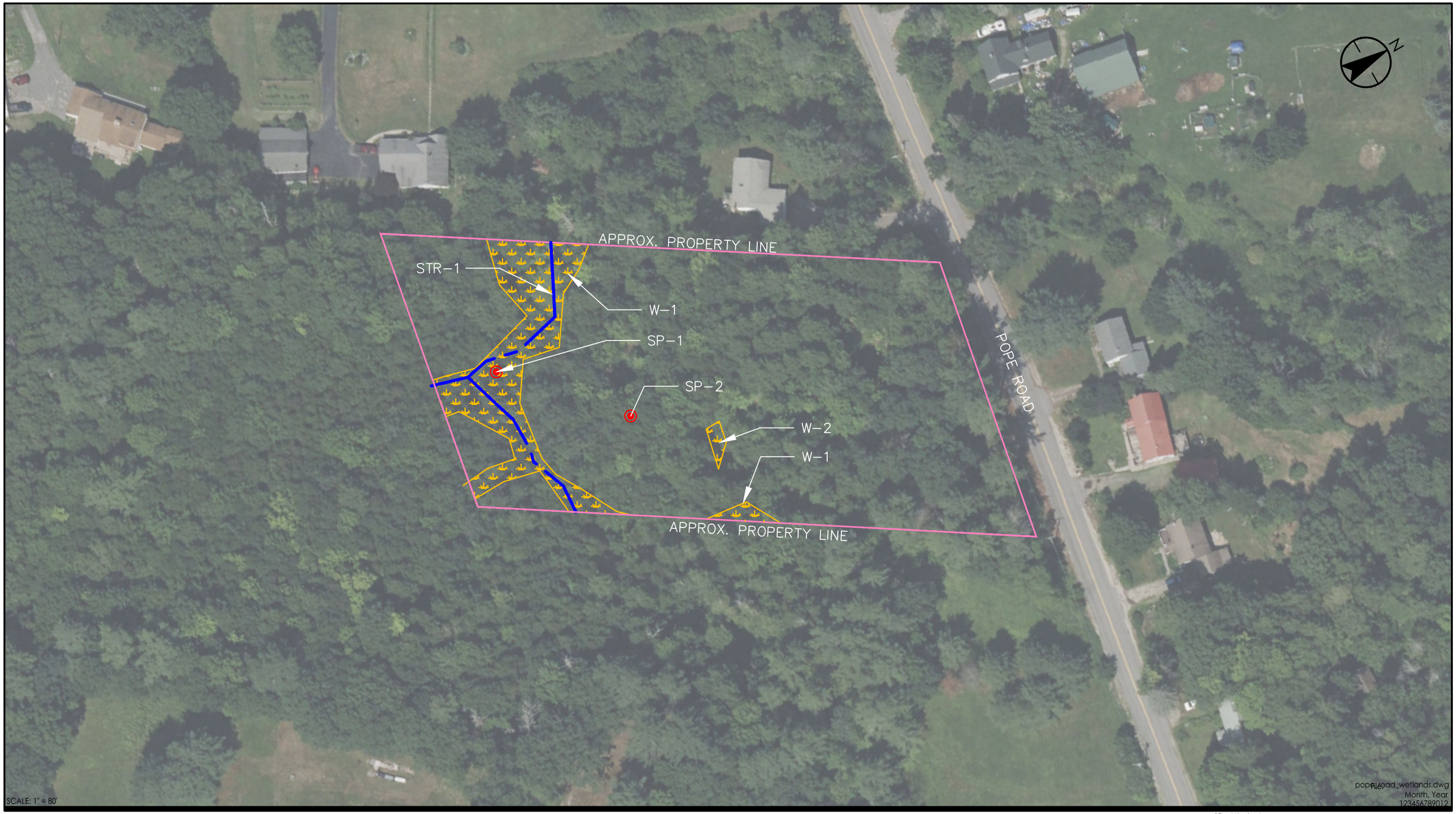
Photo 4: General area of SP-02 sample point.

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

Photo 5: Intermittent stream segment S-01.

Reference: Wetland and Watercourse Delineation Results
Pope Road, Windham, Maine

Photo 6: Wetland complex associated with stream segment S-01 .



Stantec

2211 Congree Street Suite 380
Portland, Maine 04102
www.stantec.com

Legend

- DELINEATED WETLAND
- DELINEATED STREAM
- WETLAND SAMPLE POINT

Notes

1. PROPERTY BOUNDARY IS SHOWN APPROXIMATELY.
2. WETLAND AND STREAM DELINEATION WAS PERFORMED ON MAY 16, 2023 BY STANTEC CONSULTING.
3. AERIAL WAS DOWNLOADED FROM BING MAPS DATABASE.

Client/Project
Windham Raymond School Age Child Care
Pope Road
Windham, Maine

Figure No.
1.0

Title
Wetland and Stream Delineation

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Pope Road Site City/County: Windham Sampling Date: 5/16/2023

Applicant/Owner: Stantec Consulting State: ME Sampling Point: SP-1

Investigator(s): Eric Whitney Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope %: 3

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: Long: Datum:

Soil Map Unit Name: Unknown NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	X Water-Stained Leaves (B9)	Aquatic Fauna (B13)
X High Water Table (A2)	Marl Deposits (B15)	Hydrogen Sulfide Odor (C1)
X Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Presence of Reduced Iron (C4)
X Water Marks (B1)	Recent Iron Reduction in Tilled Soils (C6)	Thin Muck Surface (C7)
Sediment Deposits (B2)	Other (Explain in Remarks)	
Drift Deposits (B3)		
Algal Mat or Crust (B4)		
Iron Deposits (B5)		
Inundation Visible on Aerial Imagery (B7)		
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)	
Drainage Patterns (B10)	
X Moss Trim Lines (B16)	
Dry-Season Water Table (C2)	
Crayfish Burrows (C8)	
X Saturation Visible on Aerial Imagery (C9)	
Stunted or Stressed Plants (D1)	
Geomorphic Position (D2)	
Shallow Aquitard (D3)	
Microtopographic Relief (D4)	
FAC-Neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes X	No	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: SP-1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	30	Yes	FAC
2. *Fagus grandifolia*	30	Yes	FACU
3. *Acer rubrum*	20	Yes	FAC
4.			
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera morrowii*	40	Yes	FACU
2. *Fagus grandifolia*	10	No	FACU
3. *Tsuga canadensis*	10	No	FACU
4.			
5.			
6.			
7.			
	60	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Onoclea sensibilis*	30	Yes	FACW
2. *Osmundastrum cinnamomeum*	30	Yes	FACW
3. *Parathelypteris noveboracensis*	20	Yes	FAC
4. *Carex sp.*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	80	x 3 =	240
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	230 (A)		720 (B)

Prevalence Index = B/A = 3.13

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	80					Sandy	
8-20	10YR 6/1	80	7.5YR 5/6	20	C	M	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- X Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Pope Road Site City/County: Windham Sampling Date: 5/16/2023

Applicant/Owner: Stantec Consulting State: ME Sampling Point: SP-2

Investigator(s): Eric Whitney Section, Township, Range:

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope %: 6

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: Long: Datum:

Soil Map Unit Name: Unknown NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: SP-2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	60	Yes	FACU
2. *Acer rubrum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Fagus grandifolia*	30	Yes	FACU
2. *Pinus strobus*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	40	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Convallaria majalis*	10	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	100	x 4 =	400
UPL species	10	x 5 =	50
Column Totals:	130 (A)		510 (B)

Prevalence Index = B/A = 3.92

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100					Loamy/Clayey	
10-24	10YR 4/3	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Stones

Depth (inches): 24

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

ATTACHMENT 8
Abutter List

Abutters List - Land of Windham School Age Children Assoc. (Tax Map 43 Block 30 Lot A-2)

Name	Address	Map	Lot	Book	Page
Bruce Worrey	390 Gray Rd	43	30-A	39433	297
George and Janice Hillman	190 Pope Rd	9	31-B	13110	57
Isabelle and Lloyd Gilman	125 Swett Rd	9	31-C	24743	282
Armand Polito Jr	185 Pope Rd	43	1	8821	237
Shane Myers & Mac McKenna	183 Pope Rd	43	2	38759	87
Ben and Jennifer Paulus	181 Pope Rd	43	3	38076	214
Gayle Shaw and Sara Treat	187 Pope Rd	12	39	14352	203

ATTACHMENT 9
Technical Capacity

BH2M

Berry, Huff, McDonald, Milligan Inc.

COMPANY OVERVIEW

Founded in 1978 in Gorham, Maine to provide quality civil-site engineering and surveying services. Over the past 44 years BH2M has worked on over 6,500 projects for our diverse client base, which consists of Municipal and Private Sector clients.

BH2M has developed a reputation for a strong committment to excellence in all portions of a project.

The staff structure at BH2M is unique in that all the engineers and project managers are partners within the company. This has been a successful formula that has resultsed in many long standing relationships with our clients. Each project at BH2M is overseen by a senior principal within the company to assure the highest level of quality of work and performance.

SERVICES

- Site Development Design
- Subdivision Design
- Stormwater Management Analysis & Design
- Utility Design
- Roadway Design
- Development Permitting
- Construction Administration & Services
- Full Service Survey Department

380B Main Street Gorham, Maine 04038 (207) 839-2771

BH2M

Berry, Huff, McDonald, Milligan Inc.

ANDREW S. MORRELL

Andy has worked for BH2M for over 20 years and has over 24 years of experience in both the public and private sector in Maine.

Site Development, Subdivisions and the design of supporting Stormwater Management Systems are Andy's expertise.

The following is a list of recent projects worked on by Andy:

- Maine Optometry, Gorham
- Natalee Place Condominiums, Gorham
- Dance Studio of Maine, Gorham
- Harrasekcett Ridge Condominiums, Freeport
- Gorham Rail Trail, Gorham
- Grand Trail Place II Subdivision, Wells
- Sebago Brewing Destination Brewery, Gorham
- Saco River Dentistry, Buxton
- Church Street Station Condominiums, Old Orchard Beach
- Precious Hidden Estates Subdivision, Saco
- Acres of Wildlife Campground, Standish
- Cargill Lot Beach & Ice Fishing Access Facility, Standish

Andrew S. Morrell P.E.
Professional Engineer
P.E. #13285

EDUCATION

B.S. Civil Engineering
State University of New York
Buffalo, NY

PROFESSIONAL BACKGROUND

Project Engineer
BH2M - Gorham, Maine
August 2001 - 2007
April 2010 - Present

Project Engineer
DeLuca-Hoffman Associates
South Portland, Maine
August 2007 - March 2010

Project Engineer
Diversified Civil Engineering
Westford, MA
May 1999 - August 2001

STORMWATER EXPERIENCE

24 years experience performing stormwater management design and calculations

380B Main Street Gorham, Maine 04038 (207) 839-2771

ATTACHMENT 10
Letter of Good Standing

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Wed Mar 06 2024 10:02:35. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
WINDHAM SCHOOL AGE CHILDCARE ASSOCIATION INC.	19990292ND	NON-PROFIT CORPORATION (UNDER TITLE 13-B)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
01/25/1999	N/A	MAINE

Other Names	(A=Assumed ; F=Former)
NATURAL WONDERS ASSOCIATION, INC.	F
WINDHAM SCHOOL AGE CHILD CARE ASSOCIATION, INC.	F

Principal Home Office Address

Physical	Mailing

Clerk/Registered Agent

Physical	Mailing
SUSAN DEXTER 45 PLUMMER DRIVE RAYMOND, ME 04071	SUSAN DEXTER 45 PLUMMER DRIVE RAYMOND, ME 04071

New Search

Click on a link to obtain additional information.

List of Filings View list of filings

Obtain additional information:

ATTACHMENT 11

Preliminary Cost Estimate – BH2M

ENGINEER'S ESTIMATE OF
PROBABLE CONSTRUCTION COSTS - SKETCH PLAN
NATURAL WONDERS DAYCARE

Site Preparation	Quantity	Unit	Unit Cost	Total Cost
Grubbing & Clearing	1.6	ACRE	$ 10,000	$ 16,000
Erosion Control	1	LS	$ 5,000	$ 5,000
Subtotal				**$ 21,000**

Underground Electric Utilities	Quantity	Unit	Unit Cost	Total Cost
Transformer Pad	1	EA	$ 2,500	$ 2,500
Underground Elec/Tel./Cable	100	LF	$ 40	$ 4,000
Subtotal				**$ 6,500**

Roadway	Quantity	Unit	Unit Cost	Total Cost
Subbase Gravel	1,280	CY	$ 28	$ 35,840
Base Gravel	215	CY	$ 41	$ 8,815
Hot Bituminous Binder Pavement	265	TONS	$ 125	$ 33,125
Hot Bituminous Surface Pavement	120	TONS	$ 150	$ 18,000
Curbing	435	LF	$ 30	$ 13,050
Subtotal				**$ 108,830**

Storm Drain System	Quantity	Unit	Unit Cost	Total Cost
Vegetated Soil Filter Field	1	LS	$ 60,000.00	$ 60,000.00
Subtotal				**$ 60,000.00**

Miscellaneous	Quantity	Unit	Unit Cost	Total Cost
Loam and Seed	500	CY	$ 35	$ 17,500
Fence	200	LF	$ 30	$ 6,000.00
Dumpster	1	LS	$ 5,000	$ 5,000
Lighting	1	LS	$ 10,000	$ 10,000
Septic System	1	LS	$ 20,000	$ 20,000
Water Service	235	LF	$ 50	$ 11,750
Signage	1	LS	$ 1,500	$ 1,500
Subtotal				**$ 71,750**

TOTAL CONSTRUCTION COST	**$ 268,080**
15% CONTINGENCY	**$ 40,212**
TOTAL CONSTRUCTION COST WITH CONTINGENCY	**$ 308,292**

Asumed Pavement Section:

Pavement Section	
18	(Subbase Gravel)
3	(Base Gravel)
2.75	(Binder Pavement)
1.25	(Surface Pavement)
Pavement Area =	22,979

Notes:

1. In providing this Estimate, the Client understands that BH2M has no control over the cost or availability of labor, equipment or materials, or over market conditions at the time of bidding
2. This estimate is based upon a concept plan dated August 2023 with latest revisions thru 12/4/2023. This is an approximate estimate based on a sketch plan only. Once the design is complete, a more detailed estimate can be provided.

ATTACHMENT 12
Traffic Estimate

BH2M

Civil Engineering | Surveying

Traffic Summary
Natural Wonders Daycare

Trip Generation and Distribution

Trip generation was determined for the proposed site based on data provided by the ITE Trip Generation Report, 9th Edition.

For Land Use Code 565 – Daycare Center, the AM peak period rate is 12.18 trips per 1,000 sf of floor area (KSF), the PM peak period rate is 12.34 trips per ksf, and the Weekday Daily Traffic rate is 74.06 trips per KSF.

The proposed building for this site is 5,817 sf. We have assumed the entire building footprint will be used for this calculation.

The proposed development is predicted to create the following peak hour trip totals:

Daily Traffic: (5.817 ksf x 74.06 trips/ksf) = 430.81 trips = 431 daily trips

AM Peak: (5.817 ksf x 12.18 trips/ksf) = 70.85 trips = 71 AM peak hour trips

PM Peak: (5.817 ksf x 12.34 trips/ksf)= 71.78 trips = 72 PM peak hour trips

The ITE Trip Generation Report also provides anticipated trip distribution. The AM & PM Peak trip distribution is as follows:

AM
38 enter the site
34 exiting the site
PM
34 enter the site
38 exiting the site

No significant traffic impacts to Pope Road will be created as a result of this development.

06-Mar-24

Spack CONSULTING THE TRAFFIC STUDY COMPANY

ITE Trip Generation Rates - 9th Edition

Pass-by rates from ITE Trip Generation Handbook - 2nd Edition

(copyrights, Insitute of Transportation Engineers)

Instructions: Enter Expected Unit Volumes into Column 'M'

Notes on Color Coding at Bottom

Description/ITE Code	Units	ITE Vehicle Trip Generation Rates (peak hours are for peak hour of adjacent street traffic unless highlighted)								Expected Units	Total Generated Trips			Total Distribution of Generated Trips					
		Weekday	AM	PM	Pass-By	AM In	AM Out	PM In	PM Out		Daily	AM Hour	PM Hour	AM In	AM Out	Pass-By	PM In	PM Out	Pass-By
Daycare Center 565	KSF²	74.06	12.18	12.34		53%	47%	47%	53%	5.8	431	71	72	38	33	0	34	38	0
Daycare Center 565	Students	4.38	0.80	0.81		53%	47%	47%	53%		0	0	0	0	0	0	0	0	0
Daycare Center 565	Employees	26.73	4.85	4.73		53%	47%	47%	53%		0	0	0	0	0	0	0	0	0
Cemetery 566	Acres	4.73	0.17	0.84		70%	30%	33%	67%		0	0	0	0	0	0	0	0	0
Cemetery 566	Employees	58.09	1.43	7.00		70%	30%	33%	67%		0	0	0	0	0	0	0	0	0
Prison 571	KSF²	NA	7.27	2.91		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Prison 571	Employees	1.80	0.42	0.23		66%	34%	28%	72%		0	0	0	0	0	0	0	0	0
Museum 580	KSF²	NA	0.28	0.18		86%	14%	16%	84%			0	0	0	0	0			0
Museum 580	Employees	NA	0.89	0.58		86%	14%	16%	84%			0	0	0	0	0			0
Library 590	KSF²	56.24	1.04	7.30		71%	29%	48%	52%		0	0	0	0	0	0	0	0	0
Library 590	Employees	52.52	1.03	5.40		69%	31%	47%	53%		0	0	0	0	0	0	0	0	0
Lodge/Fraternal Organization591	Members	0.29	0.01	0.03		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Lodge/Fraternal Organization591	Employees	46.90	2.10	4.05		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Hospital 610	KSF²	13.22	0.95	0.93		63%	37%	38%	62%		0	0	0	0	0	0	0	0	0
Hospital 610	Beds	12.94	1.32	1.42		72%	28%	33%	67%		0	0	0	0	0	0	0	0	0
Hospital 610	Employees	4.50	0.31	0.29		72%	28%	29%	71%		0	0	0	0	0	0	0	0	0
Nursing Home 620	Beds	2.74	0.17	0.22		NA	NA	33%	67%		0	0	0	NA	NA	0	0	0	0
Nursing Home 620	Employees	3.26	0.23	0.47		69%	31%	NA	NA		0	0	0	0	0	0	NA	NA	0
Nursing Home 620	KSF²	7.60	0.55	0.74		71%	29%	52%	48%		0	0	0	0	0	0	0	0	0
Clinic 630	KSF²	31.45	NA	5.18		NA	NA	NA	NA		0	NA	0	NA	NA	0	NA	NA	0
Clinic 630	Employees	8.01	0.81	0.96		50%	50%	41%	59%		0	0	0	0	0	0	0	0	0
Animal/Veterinary Hospital/Clinic 640	KSF²	NA	4.08	4.72		72%	28%	39%	61%				0	0	0	0	0	0	0
General Office 710 (Equation)	KSF²	**Equations**				88%	12%	17%	83%		0	0	0	0	0	0	0	0	0
General Office 710	KSF²	11.03	1.56	1.49		88%	12%	17%	83%		0	0	0	0	0	0	0	0	0
Corporate Headquarters 714	KSF²	7.98	1.52	1.41		93%	7%	10%	90%		0	0	0	0	0	0	0	0	0

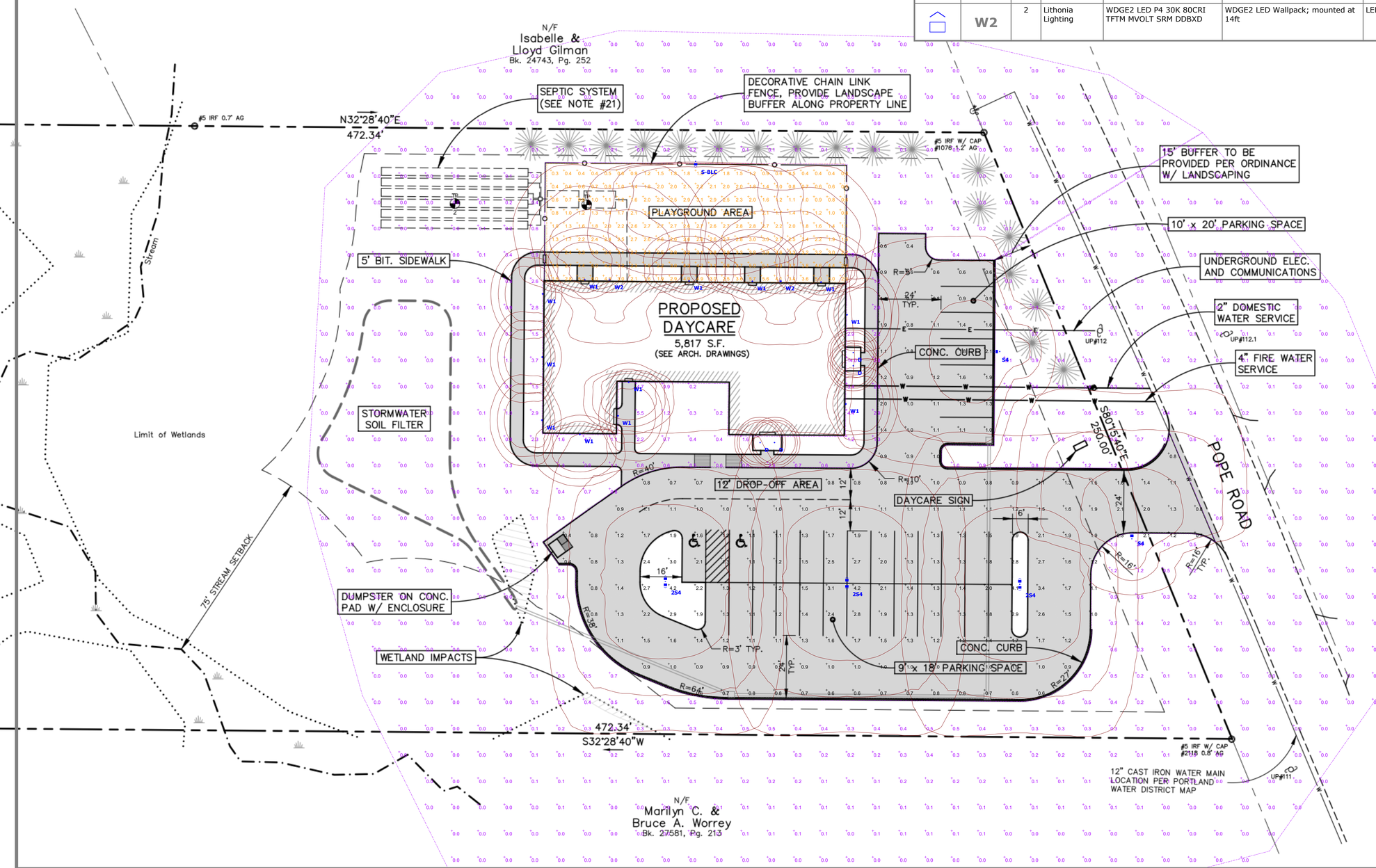
ATTACHMENT 13
Lighting Specifications

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.2 fc	14.0 fc	0.0 fc	N/A	N/A
Parking Lot	+	1.3 fc	4.2 fc	0.4 fc	10.5:1	3.3:1
Playground Area	+	2.3 fc	6.0 fc	0.3 fc	20.0:1	7.7:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Filename	Lumens per Lamp	LLF	Wattage	Distribution
	2S4	3	Lithonia Lighting	2 DSX0 LED P2 30K 80CRI TFTM MVOLT SPA DDBXD with SSS 14 4C DM28AS DDBXD	D-Series Size 0 Area Fixtures; mounted at 16ft (14ft pole on 2ft base)	LED	DSX0_LED_P2_30K_80CRI_TFTM.ies	5501	0.9	90.28	TYPE IV, SHORT, BUG RATING: B1 - U0 - G3
	D	4	Lithonia Lighting	LDN4 30/10 LO4AR LD	4in LDN Round Downlight; mounted at 10ft	LED	LDN4_30_10_LO4AR_LD.ies	922	0.9	10.58	DIRECT, SC-0=1.04, SC-90=1.06
	S4	2	Lithonia Lighting	DSX0 LED P2 30K 80CRI TFTM MVOLT SPA DDBXD with SSS 14 4C DM19AS DDBXD	D-Series Size 0 Area Fixture; mounted at 16ft (14ft pole on 2ft base)	LED	DSX0_LED_P2_30K_80CRI_TFTM.ies	5501	0.9	45.14	TYPE IV, SHORT, BUG RATING: B1 - U0 - G3
	S-BLC	1	Lithonia Lighting	DSX0 LED P2 30K 80CRI BLC3 MVOLT SPA DDBXD with SSS 14 4C DM19AS DDBXD	D-Series Size 0 Area Fixture with Extreme Backlight Control; mounted at 16ft (14ft pole on 2ft base)	LED	DSX0_LED_P2_30K_80CRI_BLC3.ies	3916	0.9	45.14	TYPE III, SHORT, BUG RATING: B0 - U0 - G2
	W1	12	Lithonia Lighting	WDGE1 LED P1 30K 80CRI VF MVOLT SRM DDBXD	WDGE1 LED Wallpack; mounted at 10ft	LED	WDGE1_LED_P1_30K_80CRI_VF.ies	1161	0.9	10.0002	TYPE II, VERY SHORT, BUG RATING: B0 - U0 - G0
	W2	2	Lithonia Lighting	WDGE2 LED P4 30K 80CRI TFTM MVOLT SRM DDBXD	WDGE2 LED Wallpack; mounted at 14ft	LED	WDGE2_LED_P4_30K_80CRI_TFTM.ies	4002	0.9	46.6589	TYPE IV, SHORT, BUG RATING: B1 - U0 - G1



NOTES:

1. APPLICANT: WINDHAM SCHOOL AGE C ASSOCIATION, INC NATURAL WONDERS DAYC PO BOX 839, WINDHAM,
2. OWNER: WINDHAM SCHOOL AGE C ASSOCIATION, INC. P.O. BOX 839, WINDHAM,
3. ENGINEER: ANDREW S. MORRELL, PE BH2M 380B MAIN STREET GORHAM, MAINE 04038
4. SURVEYOR: BOUNDARY WILLIAM SHIPPEN SURVEY INC. 396 ROOSEVELT TRAIL WINDHAM, ME 04062

TOPOGRAPHY ROBERT C. LIBBY JR., PL BH2M 380B MAIN STREET GORHAM, MAINE 04038

5. SITE EVALUATOR: NORMAN HARRIS SE#348 HARRIS SEPTIC SOLUTION 17 IRVING LANE WINDHAM, MAINE
6. ARCHITECT: ELIZABETH SCHIDZIG TASELPOINTE ARCHITECTU WINDHAM, ME 04062
7. WETLANDS: ERIC WHITNEY STANTEC CONSULTING, IN 2211 CONGRESS ST., SUI PORTLAND, ME 04102
8. DEED REFERENCE: BK. 39921, PG. 73
9. TAX MAP REFERENCE: MAP 43, BLOCK 30, LOT
10. ZONING: WINDHAM CENTER DISTRIC
11. MINIMUM STANDARDS: MIN. LOT SIZE - 30,000 FRONTAGE - 100' SETBACKS - 20' FRONT 10' SIDE AN
12. LOT AREA: 108,907 S.F. (2.500 ACR
13. PROPOSED USE: DAYCARE, (64 NON SCHO CHILDREN, 12-16 EMPLOY
14. SEWER SERVICE: ON SITE SUBSURFACE SY
15. WATER SERVICE: PUBLIC
16. ELECTRIC/TELEPHONE: UNDERGROUND
17. PARKING: PROVIDED - 32 (2 ADA)
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL E ACCORDANCE WITH THE EROSION PREVENTION PROVI OUTLINED IN THE MAINE EROSION CONTROL AND SED HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT LATEST EDITION.
19. PLAN REFERENCE: A. "BOUNDARY SURVEY LOT SPLIT", FOR

VISUAL

REVISION

NATURAL WONDERS DAYCARE
Windham, NH
Site Lighting Layout

Designer
Heidi G. Connors
Visible Light, Inc.
24 Stickney Terrace
Suite 6
Hampton, NH 03842
Date
02/20/2024
Scale
1"=20'
Drawing No.
Summary

D-Series Size 0
LED Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

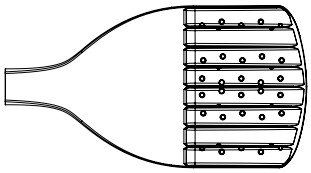
Introduction

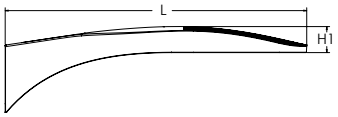
The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

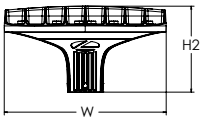
The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications, with typical energy savings of 70% and expected service life of over 100,000 hours.

Specifications

EPA:	0.44 ft² (0.04 m²)
Length:	26.18" (66.5 cm)
Width:	14.06" (35.7 cm)
Height H1:	2.26" (5.7 cm)
Height H2:	7.46" (18.9 cm)
Weight:	23 lbs (10.4 kg)







Design Select options indicated by this color background.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Ordering Information

EXAMPLE: DSX0 LED P6 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED

Series	LEDs	Color temperature [2]	Color Rendering Index [2]	Distribution		Voltage	Mounting
DSX0 LED	**Forward optics** P1 P5 P2 P6 P3 P7 P4 **Rotated optics** P10 [1] P12 [1] P11 [1] P13 [1]	(this section 70CRI only) 30K 3000K 40K 4000K 50K 5000K (this section 80CRI only, extended lead times apply) 27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 70CRI 70CRI 80CRI 80CRI 80CRI 80CRI 80CRI	AFR Automotive front row T1S Type I short T2M Type II medium T3M Type III medium T3LG Type III low glare [3] T4M Type IV medium T4LG Type IV low glare [3] TFTM Forward throw medium	T5M Type V medium T5LG Type V low glare T5W Type V wide BLC3 Type III backlight control [3] BLC4 Type IV backlight control [3] LCCO Left corner cutoff [3] RCCO Right corner cutoff [3]	MVOLT (120V-277V) [4] HVOLT (347V-480V) [5,6] XVOLT (277V-480V) [7,8] 120 [16,24] 208 [16,24] 240 [16,24] 277 [16,24] 347 [16,24] 480 [16,24]	**Shipped included** SPA Square pole mounting (#8 drilling, 3.5" min. SQ pole) RPA Round pole mounting (#8 drilling, 3" min. RND pole) SPA5 Square pole mounting (#5 drilling. 3" min. SQ pole) [9] RPA5 Round pole mounting (#5 drilling, 3" min. RND pole) [9] SPA8N Square narrow pole mounting (#8 drilling, 3" min. SQ pole) WBA Wall bracket [10] MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)

Control options

Shipped installed

NLTAIR2 PIRHN	nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc. [11,12,18,19]
PIR	High/low, motion/ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [13,18,19]
PER	NEMA twist-lock receptacle only (controls ordered separate) [14]
PER5	Five-pin receptacle only (controls ordered separate) [14,19]
PER7	Seven-pin receptacle only (controls ordered separate) [14,19]
FAO	Field adjustable output [15,19]
BL30	Bi-level switched dimming, 30% [16,19]
BL50	Bi-level switched dimming, 50% [16,19]
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) [17]

Other options

Shipped installed

HS	Houseside shield (black finish standard) [20]
L90	Left rotated optics [1]
R90	Right rotated optics [1]
CCE	Coastal Construction [21]
HA	50°C ambient operation [22]
BAA	Buy America(n) Act Compliant
SF	Single fuse (120, 277, 347V) [24]
DF	Double fuse (208, 240, 480V) [24]

Shipped separately

EGSR	External Glare Shield (reversible, field install required, matches housing finish)
BSDB	Bird Spikes (field install required)

Finish *(required)*

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white

Ordering Information

Accessories

Ordered and shipped separately.

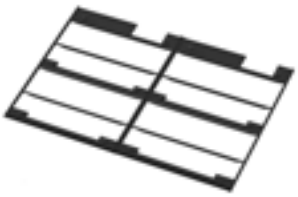
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [23]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [23]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [23]
DSHORT SBK	Shorting cap [23]
DSX0HS P#	House-side shield (enter package number P1-7, P10-13 in place of #)
DSXRPA (FINISH)	Round pole adapter (#8 drilling, specify finish)
DSXRPA5 (FINISH)	Round pole adapter #5 drilling (specify finish)
DSXSPA5 (FINISH)	Square pole adapter #5 drilling (specify finish)
DSX0EGSR (FINISH)	External glare shield (specify finish)
DSX0BSDB (FINISH)	Bird spike deterrent bracket (specify finish)

NOTES

1 Rotated optics available with packages P10, P11, P12 and P13. Must be combined with option L90 or R90.
2 30K, 40K, and 50K available in 70CRI and 80CRI. 27K and 35K only available with 80CRI. Contact Technical Support for other possible combinations.
3 T3LG, T4LG, BLC3, BLC4, LCCO, RCCO not available with option HS.
4 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
5 HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
6 HVOLT not available with package P1, P2 and P10 when combined with option NLTAIR2 PIRHN or option PIR.
7 XVOLT operates with any voltage between 277V and 480V (50/60 Hz).
8 XVOLT not available in packages P1, P2 or P10. XVOLT not available with fusing (SF or DF).
9 SPA5 and RPA5 for use with #5 drilling only (Not for use with #8 drilling).
10 WBA cannot be combined with Type 5 distributions plus photocell (PER).
11 NLTAIR2 and PIRHN must be ordered together. For more information on nLight Air 2.
12 NLTAIR2 PIRHN not available with other controls including PIR, PER, PER5, PER7, FAO, BL30, BL50 and DMG. NLTAIR2 PIRHN not available with P1, P2 and P10 using HVOLT. NLTAIR2 PIRHN not available with P1, P2 and P10 using XVOLT. NLTAIR2 PIRHN not available with P1 using MVOLT.
13 PIR not available with NLTAIR2, PER, PER5, PER7, FAO BL30, BL50 and DMG. PIR not available with P1, P2 and P10 using HVOLT. PIR not available with P1, P2 and P10 using XVOLT. PIR not available with P1 using MVOLT.
14 PER/PER5/PER7 not available with NLTAIR2, PIR, BL30, BL50. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
15 FAO not available with other dimming control options NLTAIR2 PIRHN, PIR, PER5, PER7, BL30, BL50, or DMG.
16 BL30 and BL50 are not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, FAO and DMG. BL30 or BL50 must specify 120, 277 or 347V. Consult tech support for 208, 240 or 480V.
17 DMG not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50 and FAO.
18 Reference Motion Sensor Default Settings table on page 4 to see functionality.
19 Reference Controls Options table on page 4.
20 Option HS not available with T3LG, T4LG, BLC3, BLC4, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
21 CCE option not available with option BS and EGSR. Contact Technical Support for availability.
22 Option HA not available with performance packages P6, P7, P12 and P13.
23 Requires luminaire to be specified with PER, PER5 or PER7 option. See Controls Table on page 4.
24 Single fuse (SF) requires 120V, 277V, or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF).

Shield Accessories

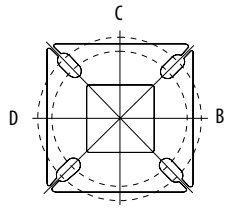
External Glare Shield (EGSR)



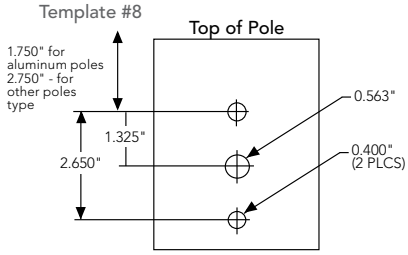
House Side Shield (HS)

Drilling

HANDHOLE ORIENTATION
(from top of pole)



Template #8



Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS
		Minimum Acceptable Outside Pole Dimension					
SPA	#8	3.5"	3.5"	3.5"	3.5"		3.5"
RPA	#8	3"	3"	3"	3"	3"	3"
SPA5	#5	3"	3"	3"	3"		3"
RPA5	#5	3"	3"	3"	3"	3"	3"
SPA8N	#8	3"	3"	3"	3"		3"

DSX0 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX0 with SPA	0.44	0.88	0.96	1.18	---	1.16
DSX0 with SPA5, SPA8N	0.51	1.02	1.06	1.26	---	1.29
DSX0 with RPA, RPA5	0.51	1.02	1.06	1.26	1.24	1.29
DSX0 with MA	0.64	1.28	1.24	1.67	1.70	1.93

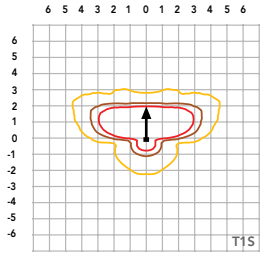
Photometric Diagrams

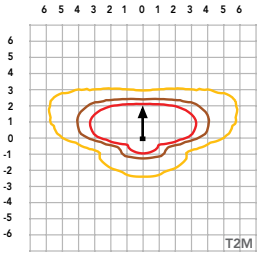
To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's homepage.

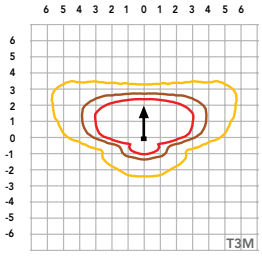
Isofootcandle plots for the DSX0 LED P7 40K 70CRI. Distances are in units of mounting height (20').

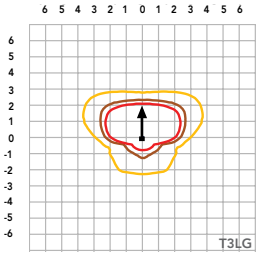
LEGEND

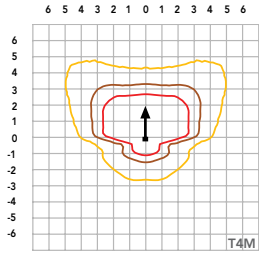
- 0.1 fc
- 0.5 fc
- 1.0 fc

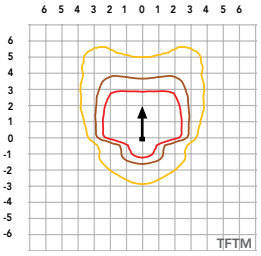


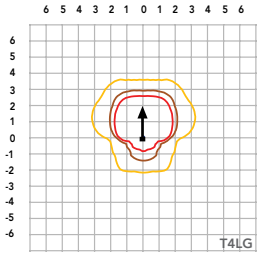


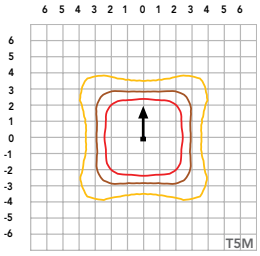


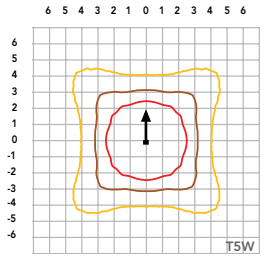


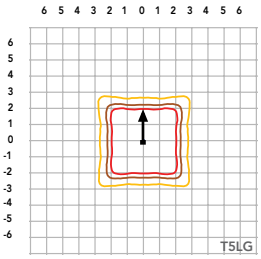


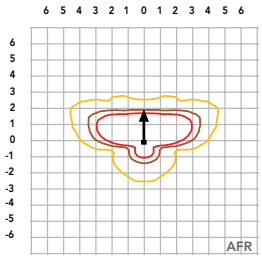


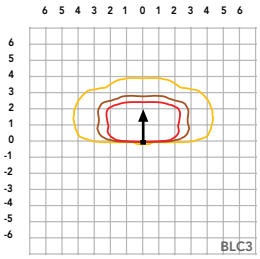


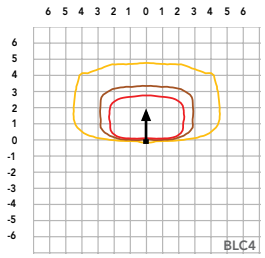


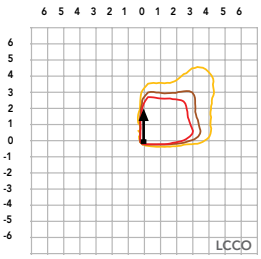


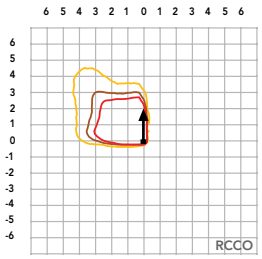












Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°C**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.94
50,000	0.89
100,000	0.80

FAO Dimming Settings

FAO Position	% Wattage	% Lumen Output
8	100%	100%
7	93%	95%
6	80%	85%
5	66%	73%
4	54%	61%
3	41%	49%
2	29%	36%
1	15%	20%

*Note: Calculated values are based on original performance package data. When calculating new values for given FAO position, use published values for each package based on input watts and lumens by optic type.

Electrical Load

					Current (A)					
	Performance Package	LED Count	Drive Current (mA)	Wattage	120V	208V	240V	277V	347V	480V
Forward Optics (Non-Rotated)	P1	20	530	34	0.28	0.16	0.14	0.12	0.10	0.07
	P2	20	700	45	0.38	0.22	0.19	0.16	0.13	0.09
	P3	20	1050	69	0.57	0.33	0.29	0.25	0.20	0.14
	P4	20	1400	94	0.78	0.45	0.39	0.34	0.27	0.19
	P5	40	700	89	0.75	0.43	0.38	0.33	0.26	0.19
	P6	40	1050	136	1.14	0.66	0.57	0.49	0.39	0.29
	P7	40	1300	170	1.42	0.82	0.71	0.62	0.49	0.36
Rotated Optics (Requires L90 or R90)	P10	30	530	51	0.42	0.24	0.21	0.18	0.15	0.11
	P11	30	700	67	0.57	0.33	0.28	0.25	0.20	0.14
	P12	30	1050	103	0.86	0.50	0.43	0.37	0.30	0.22
	P13	30	1300	129	1.07	0.62	0.54	0.46	0.37	0.27

LED Color Temperature / Color Rendering Multipliers

	70 CRI		80CRI		90CRI	
	Lumen Multiplier	Availability	Lumen Multiplier	Availability	Lumen Multiplier	Availability
5000K	102%	Standard	92%	Extended lead-time	71%	(see note)
4000K	100%	Standard	92%	Extended lead-time	67%	(see note)
3500K	100%	(see note)	90%	Extended lead-time	63%	(see note)
3000K	96%	Standard	87%	Extended lead-time	61%	(see note)
2700K	94%	(see note)	85%	Extended lead-time	57%	(see note)

Note: Some LED types are available as per special request. Contact Technical Support for more information.

Motion Sensor Default Settings

Option	Unoccupied Dimmed Level	High Level (when occupied)	Phototcell Operation	Dwell Time	Ramp-up Time	Dimming Fade Rate
PIR	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min
NLTAIR2 PIRHN	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min

Controls Options

Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS (not available on DSX0)	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell receptacle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire. Cannot be used with other controls options that need the 0-10V leads.
PIR	Motion sensor with integral photocell. Sensor suitable for 8' to 40' mounting height.	Luminaires dim when no occupancy is detected.	Acuity Controls rSBG	Cannot be used with other controls options that need the 0-10V leads.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSBG	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app. Cannot be used with other controls options that need the 0-10V leads.
BL30 or BL50	Integrated bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output	BLC device provides input to 0-10V dimming leads on all drivers providing either 100% or dimmed (30% or 50%) control by a secondary circuit	BLC UVOLT1	BLC device is powered off the 0-10V dimming leads, thus can be used with any input voltage from 120 to 480V

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79.
Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	33W	20	530	T1S	4,906	1	0	1	148	5,113	1	0	1	154	5,213	1	0	1	157
				T2M	4,545	1	0	2	137	4,736	1	0	2	143	4,829	1	0	2	145
				T3M	4,597	1	0	2	138	4,791	1	0	2	144	4,885	1	0	2	147
				T3LG	4,107	1	0	1	124	4,280	1	0	1	129	4,363	1	0	1	131
				T4M	4,666	1	0	2	141	4,863	1	0	2	146	4,957	1	0	2	149
				T4LG	4,244	1	0	1	128	4,423	1	0	1	133	4,509	1	0	1	136
				TFTM	4,698	1	0	2	141	4,896	1	0	2	147	4,992	1	0	2	150
				T5M	4,801	3	0	1	145	5,003	3	0	1	151	5,101	3	0	1	154
				T5W	4,878	3	0	1	147	5,084	3	0	2	153	5,183	3	0	2	156
				T5LG	4,814	2	0	1	145	5,018	2	0	1	151	5,115	2	0	1	154
				BLC3	3,344	0	0	1	101	3,485	0	0	1	105	3,553	0	0	1	107
				BLC4	3,454	0	0	2	104	3,599	0	0	2	108	3,670	0	0	2	111
				RCCO	3,374	0	0	1	102	3,517	0	0	1	106	3,585	0	0	1	108
				LCCO	3,374	0	0	1	102	3,517	0	0	1	106	3,585	0	0	1	108
				AFR	4,906	1	0	1	148	5,113	1	0	1	154	5,213	1	0	1	157
P2	45W	20	700	T1S	6,328	1	0	1	140	6,595	1	0	1	146	6,724	1	0	1	149
				T2M	5,862	1	0	2	130	6,109	1	0	2	135	6,228	1	0	2	138
				T3M	5,930	1	0	3	131	6,180	1	0	3	137	6,301	1	0	3	140
				T3LG	5,297	1	0	1	117	5,521	1	0	1	122	5,628	1	0	1	125
				T4M	6,018	1	0	3	133	6,272	1	0	3	139	6,395	1	0	3	142
				T4LG	5,474	1	0	1	121	5,705	1	0	1	126	5,816	1	0	1	129
				TFTM	6,060	1	0	3	134	6,316	1	0	3	140	6,439	1	0	3	143
				T5M	6,192	3	0	1	137	6,453	3	0	2	143	6,579	3	0	2	146
				T5W	6,293	3	0	2	139	6,558	3	0	2	145	6,686	3	0	2	148
				T5LG	6,210	2	0	1	138	6,472	3	0	1	143	6,598	3	0	1	146
				BLC3	4,313	0	0	2	96	4,495	0	0	2	100	4,583	0	0	2	102
				BLC4	4,455	0	0	2	99	4,643	0	0	2	103	4,733	0	0	2	105
				RCCO	4,352	0	0	2	96	4,536	0	0	2	100	4,624	0	0	2	102
				LCCO	4,352	0	0	2	96	4,536	0	0	2	100	4,624	0	0	2	102
				AFR	6,328	1	0	1	140	6,595	1	0	1	146	6,724	1	0	1	149
P3	69W	20	1050	T1S	9,006	1	0	2	131	9,386	1	0	2	136	9,569	1	0	2	139
				T2M	8,343	2	0	3	121	8,694	2	0	3	126	8,864	2	0	3	129
				T3M	8,439	2	0	3	122	8,795	2	0	3	128	8,967	2	0	3	130
				T3LG	7,539	1	0	2	109	7,857	1	0	2	114	8,010	1	0	2	116
				T4M	8,565	2	0	3	124	8,926	2	0	3	129	9,100	2	0	3	132
				T4LG	7,790	1	0	2	113	8,119	1	0	2	118	8,277	1	0	2	120
				TFTM	8,624	1	0	3	125	8,988	1	0	3	130	9,163	2	0	3	133
				T5M	8,812	3	0	2	128	9,184	4	0	2	133	9,363	4	0	2	136
				T5W	8,955	4	0	2	130	9,333	4	0	2	135	9,515	4	0	2	138
				T5LG	8,838	3	0	1	128	9,211	3	0	1	134	9,390	3	0	1	136
				BLC3	6,139	0	0	2	89	6,398	0	0	2	93	6,522	0	0	2	95
				BLC4	6,340	0	0	3	92	6,607	0	0	3	96	6,736	0	0	3	98
				RCCO	6,194	1	0	2	90	6,455	1	0	2	94	6,581	1	0	2	95
				LCCO	6,194	1	0	2	90	6,455	1	0	2	94	6,581	1	0	2	95
				AFR	9,006	1	0	2	131	9,386	1	0	2	136	9,569	1	0	2	139
P4	93W	20	1400	T1S	11,396	1	0	2	122	11,877	1	0	2	128	12,109	2	0	2	130
				T2M	10,557	2	0	3	113	11,003	2	0	3	118	11,217	2	0	3	121
				T3M	10,680	2	0	3	115	11,130	2	0	3	120	11,347	2	0	3	122
				T3LG	9,540	1	0	2	103	9,942	1	0	2	107	10,136	1	0	2	109
				T4M	10,839	2	0	3	117	11,296	2	0	3	121	11,516	2	0	4	124
				T4LG	9,858	1	0	2	106	10,274	1	0	2	110	10,474	1	0	2	113
				TFTM	10,914	2	0	3	117	11,374	2	0	3	122	11,596	2	0	3	125
				T5M	11,152	4	0	2	120	11,622	4	0	2	125	11,849	4	0	2	127
				T5W	11,332	4	0	3	122	11,811	4	0	3	127	12,041	4	0	3	129
				T5LG	11,184	3	0	1	120	11,656	3	0	2	125	11,883	3	0	2	128
				BLC3	7,768	0	0	2	83	8,096	0	0	2	87	8,254	0	0	2	89
				BLC4	8,023	0	0	3	86	8,362	0	0	3	90	8,524	0	0	3	92
				RCCO	7,838	1	0	2	84	8,169	1	0	2	88	8,328	1	0	2	90
				LCCO	7,838	1	0	2	84	8,169	1	0	2	88	8,328	1	0	2	90
				AFR	11,396	1	0	2	122	11,877	1	0	2	128	12,109	2	0	2	130

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79.
Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P5	90W	40	700	T1S	12,380	2	0	2	137	12,902	2	0	2	143	13,154	2	0	2	146
				T2M	11,468	2	0	3	127	11,952	2	0	3	133	12,185	2	0	3	135
				T3M	11,601	2	0	3	129	12,091	2	0	3	134	12,326	2	0	4	137
				T3LG	10,363	2	0	2	115	10,800	2	0	2	120	11,011	2	0	2	122
				T4M	11,774	2	0	4	131	12,271	2	0	4	136	12,510	2	0	4	139
				T4LG	10,709	1	0	2	119	11,160	2	0	2	124	11,378	2	0	2	126
				TFTM	11,856	2	0	3	132	12,356	2	0	4	137	12,596	2	0	4	140
				T5M	12,114	4	0	2	134	12,625	4	0	2	140	12,871	4	0	2	143
				T5W	12,310	4	0	3	137	12,830	4	0	3	142	13,080	4	0	3	145
				T5LG	12,149	3	0	2	135	12,662	3	0	2	141	12,908	3	0	2	143
				BLC3	8,438	0	0	2	94	8,794	0	0	2	98	8,966	0	0	2	99
				BLC4	8,715	0	0	3	97	9,083	0	0	3	101	9,260	0	0	3	103
				RCCO	8,515	1	0	2	94	8,874	1	0	2	98	9,047	1	0	2	100
				LCCO	8,515	1	0	2	94	8,874	1	0	2	98	9,047	1	0	2	100
				AFR	12,380	2	0	2	137	12,902	2	0	2	143	13,154	2	0	2	146
P6	137W	40	1050	T1S	17,545	2	0	3	128	18,285	2	0	3	133	18,642	2	0	3	136
				T2M	16,253	3	0	4	119	16,939	3	0	4	124	17,269	3	0	4	126
				T3M	16,442	2	0	4	120	17,135	3	0	4	125	17,469	3	0	4	128
				T3LG	14,687	2	0	2	107	15,306	2	0	2	112	15,605	2	0	2	114
				T4M	16,687	2	0	4	122	17,391	3	0	5	127	17,730	3	0	5	129
				T4LG	15,177	2	0	2	111	15,817	2	0	2	115	16,125	2	0	2	118
				TFTM	16,802	2	0	4	123	17,511	2	0	4	128	17,852	2	0	5	130
				T5M	17,168	4	0	2	125	17,893	5	0	3	131	18,241	5	0	3	133
				T5W	17,447	5	0	3	127	18,183	5	0	3	133	18,537	5	0	3	135
				T5LG	17,218	4	0	2	126	17,944	4	0	2	131	18,294	4	0	2	134
				BLC3	11,959	0	0	3	87	12,464	0	0	3	91	12,707	0	0	3	93
				BLC4	12,352	0	0	4	90	12,873	0	0	4	94	13,124	0	0	4	96
				RCCO	12,067	1	0	3	88	12,576	1	0	3	92	12,821	1	0	3	94
				LCCO	12,067	1	0	3	88	12,576	1	0	3	92	12,821	1	0	3	94
				AFR	17,545	2	0	3	128	18,285	2	0	3	133	18,642	2	0	3	136
P7	171W	40	1300	T1S	20,806	2	0	3	122	21,683	2	0	3	127	22,106	2	0	3	129
				T2M	19,273	3	0	4	113	20,086	3	0	4	118	20,478	3	0	4	120
				T3M	19,497	3	0	5	114	20,319	3	0	5	119	20,715	3	0	5	121
				T3LG	17,416	2	0	2	102	18,151	2	0	2	106	18,504	2	0	2	108
				T4M	19,787	3	0	5	116	20,622	3	0	5	121	21,024	3	0	5	123
				T4LG	17,997	2	0	2	105	18,756	2	0	2	110	19,121	2	0	2	112
				TFTM	19,924	3	0	5	117	20,765	3	0	5	122	21,170	3	0	5	124
				T5M	20,359	5	0	3	119	21,217	5	0	3	124	21,631	5	0	3	127
				T5W	20,689	5	0	3	121	21,561	5	0	3	126	21,982	5	0	3	129
				T5LG	20,418	4	0	2	120	21,279	4	0	2	125	21,694	4	0	2	127
				BLC3	14,182	0	0	3	83	14,780	0	0	3	87	15,068	0	0	3	88
				BLC4	14,647	0	0	4	86	15,265	0	0	4	89	15,562	0	0	4	91
				RCCO	14,309	1	0	3	84	14,913	1	0	3	87	15,204	1	0	3	89
				LCCO	14,309	1	0	3	84	14,913	1	0	3	87	15,204	1	0	3	89
				AFR	20,806	2	0	3	122	21,683	2	0	3	127	22,106	2	0	3	129

Performance Data

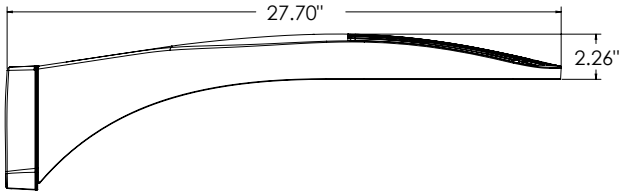
Lumen Output

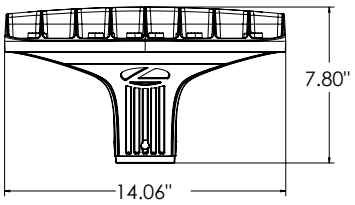
Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79.
Contact factory for performance data on any configurations not shown here.

Rotated Optics

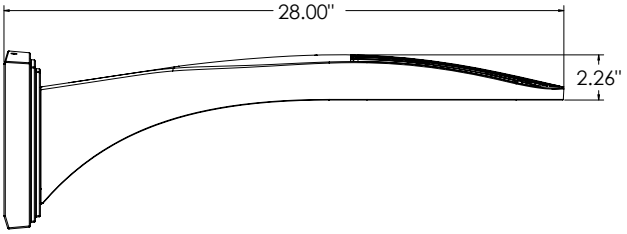
Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P10	51W	30	530	T1S	7,399	3	0	3	145	7,711	3	0	3	151	7,862	3	0	3	154
				T2M	6,854	3	0	3	135	7,144	3	0	3	140	7,283	3	0	3	143
				T3M	6,933	3	0	3	136	7,225	3	0	3	142	7,366	3	0	3	145
				T3LG	6,194	2	0	2	122	6,455	2	0	2	127	6,581	2	0	2	129
				T4M	7,036	3	0	3	138	7,333	3	0	3	144	7,476	3	0	3	147
				T4LG	6,399	2	0	2	126	6,669	2	0	2	131	6,799	2	0	2	134
				TFTM	7,086	3	0	3	139	7,385	3	0	3	145	7,529	3	0	3	148
				T5M	7,239	3	0	2	142	7,545	3	0	2	148	7,692	3	0	2	151
				T5W	7,357	3	0	2	145	7,667	3	0	2	151	7,816	4	0	2	154
				T5LG	7,260	3	0	1	143	7,567	3	0	1	149	7,714	3	0	1	152
				BLC3	5,043	3	0	3	99	5,256	3	0	3	103	5,358	3	0	3	105
				BLC4	5,208	3	0	3	102	5,428	3	0	3	107	5,534	3	0	3	109
				RCCO	5,089	0	0	2	100	5,303	0	0	2	104	5,407	0	0	2	106
				LCCO	5,089	0	0	2	100	5,303	0	0	2	104	5,407	0	0	2	106
				AFR	7,399	3	0	3	145	7,711	3	0	3	151	7,862	3	0	3	154
P11	68W	30	700	T1S	9,358	3	0	3	138	9,753	3	0	3	143	9,943	3	0	3	146
				T2M	8,669	3	0	3	127	9,034	3	0	3	133	9,211	3	0	3	135
				T3M	8,768	3	0	3	129	9,138	3	0	3	134	9,316	3	0	3	137
				T3LG	7,833	3	0	3	115	8,164	3	0	3	120	8,323	3	0	3	122
				T4M	8,899	3	0	3	131	9,274	3	0	3	136	9,455	3	0	3	139
				T4LG	8,093	3	0	3	119	8,435	3	0	3	124	8,599	3	0	3	126
				TFTM	8,962	3	0	3	132	9,340	3	0	3	137	9,522	3	0	3	140
				T5M	9,156	4	0	2	135	9,542	4	0	2	140	9,728	4	0	2	143
				T5W	9,304	4	0	2	137	9,696	4	0	2	143	9,885	4	0	2	145
				T5LG	9,182	3	0	1	135	9,569	3	0	1	141	9,756	3	0	1	143
				BLC3	6,378	3	0	3	94	6,647	3	0	3	98	6,777	3	0	3	100
				BLC4	6,587	3	0	3	97	6,865	3	0	3	101	6,999	3	0	3	103
				RCCO	6,436	0	0	2	95	6,707	0	0	2	99	6,838	0	0	2	101
				LCCO	6,436	0	0	2	95	6,707	0	0	2	99	6,838	0	0	2	101
				AFR	9,358	3	0	3	138	9,753	3	0	3	143	9,943	3	0	3	146
P12	103W	30	1050	T1S	13,247	3	0	3	128	13,806	3	0	3	134	14,075	3	0	3	136
				T2M	12,271	4	0	4	119	12,789	4	0	4	124	13,038	4	0	4	126
				T3M	12,412	4	0	4	120	12,935	4	0	4	125	13,187	4	0	4	128
				T3LG	11,089	3	0	3	107	11,556	3	0	3	112	11,782	3	0	3	114
				T4M	12,597	4	0	4	122	13,128	4	0	4	127	13,384	4	0	4	129
				T4LG	11,457	3	0	3	111	11,940	3	0	3	116	12,173	3	0	3	118
				TFTM	12,686	4	0	4	123	13,221	4	0	4	128	13,479	4	0	4	130
				T5M	12,960	4	0	2	125	13,507	4	0	2	131	13,770	4	0	2	133
				T5W	13,170	4	0	3	127	13,726	4	0	3	133	13,994	4	0	3	135
				T5LG	12,998	3	0	2	126	13,546	3	0	2	131	13,810	3	0	2	134
				BLC3	9,029	3	0	3	87	9,409	3	0	3	91	9,593	3	0	3	93
				BLC4	9,324	4	0	4	90	9,718	4	0	4	94	9,907	4	0	4	96
				RCCO	9,110	1	0	2	88	9,495	1	0	2	92	9,680	1	0	2	94
				LCCO	9,110	1	0	2	88	9,494	1	0	2	92	9,680	1	0	2	94
				AFR	13,247	3	0	3	128	13,806	3	0	3	134	14,075	3	0	3	136
P13	129W	30	1300	T1S	15,704	3	0	3	122	16,366	3	0	3	127	16,685	4	0	4	130
				T2M	14,547	4	0	4	113	15,161	4	0	4	118	15,457	4	0	4	120
				T3M	14,714	4	0	4	114	15,335	4	0	4	119	15,634	4	0	4	121
				T3LG	13,145	3	0	3	102	13,700	3	0	3	106	13,967	3	0	3	108
				T4M	14,933	4	0	4	116	15,563	4	0	4	121	15,867	4	0	4	123
				T4LG	13,582	3	0	3	105	14,155	3	0	3	110	14,431	3	0	3	112
				TFTM	15,039	4	0	4	117	15,673	4	0	4	122	15,979	4	0	4	124
				T5M	15,364	4	0	2	119	16,013	4	0	2	124	16,325	4	0	2	127
				T5W	15,613	5	0	3	121	16,272	5	0	3	126	16,589	5	0	3	129
				T5LG	15,409	3	0	2	120	16,059	3	0	2	125	16,372	4	0	2	127
				BLC3	10,703	4	0	4	83	11,155	4	0	4	87	11,372	4	0	4	88
				BLC4	11,054	4	0	4	86	11,520	4	0	4	89	11,745	4	0	4	91
				RCCO	10,800	1	0	2	84	11,256	1	0	2	87	11,475	1	0	3	89
				LCCO	10,800	1	0	2	84	11,255	1	0	2	87	11,475	1	0	3	89
				AFR	15,704	3	0	3	122	16,366	3	0	3	127	16,685	4	0	4	130

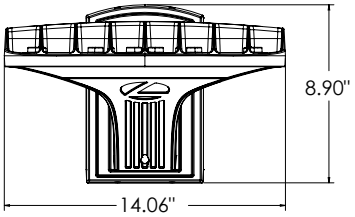
Dimensions



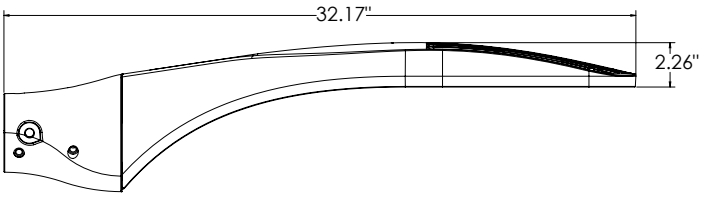


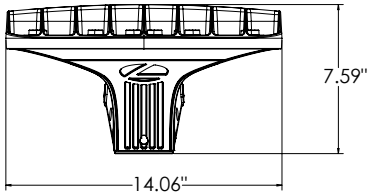
DSX0 with RPA, RPA5, SPA5, SPA8N mount
Weight: 25 lbs





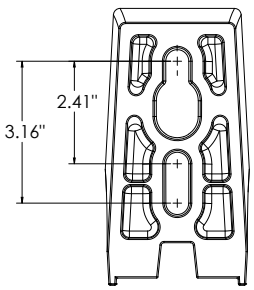
DSX0 with WBA mount
Weight: 27 lb



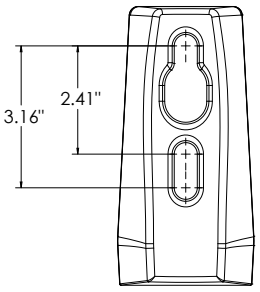


DSX0 with MA mount
Weight: 28 lbs

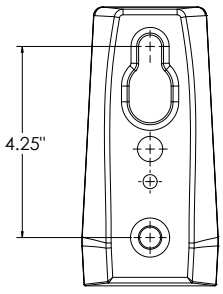
SPA (STANDARD ARM)



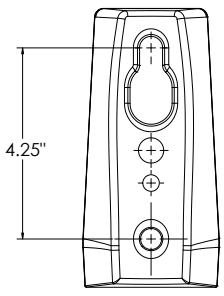
RPA



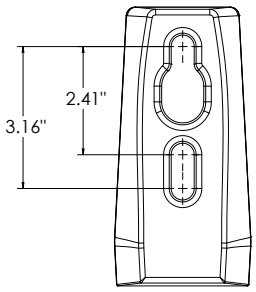
SPA5



RPA5

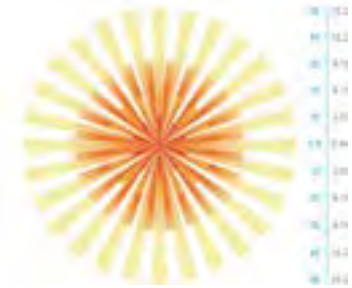


SPA8N



nLight Sensor Coverage Pattern

NLTAIR2 PIRHN



Top

Side

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 0 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and pedestrian areas.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing driver compartment is completely sealed against moisture and environmental contaminants (IP66). Vibration rated per ANSI C136.31 for 3G. Low EPA (0.44 ft^2) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

COASTAL CONSTRUCTION (CCE)

Optional corrosion resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under super durable paint. Provides additional corrosion protection for applications near coastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with scribe rating of 10. Additional lead-times may apply.

OPTICS

Precision-molded proprietary silicone lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in 3000 K, 4000 K or 5000 K (70 CRI) configurations. 80CRI configurations are also available. The D-Series Size 0 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine(s) configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L80/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS

The DSX0 LED area luminaire has a number of control options. DSX Size 0, comes standard with 0-10V dimming driver. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. PIR integrated motion sensor with on-board photocell feature field-adjustable programing and are suitable for mounting heights up to 40 feet. Control option BL features a bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output.

nLIGHT AIR CONTROLS

The DSX0 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION

Integral mounting arm allows for fast mounting using Lithonia standard #8 drilling and accommodates pole drilling's from 2.41 to 3.12" on center. The standard "SPA" option for square poles and the "RPA" option for round poles use the #8 drilling. For #5 pole drillings, use SPA5 or RPA5. Additional mountings are available including a wall bracket (WBA) and mast arm (MA) option that allows luminaire attachment to a 2 3/8" horizontal mast arm.

LISTINGS

UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP66 rated. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

BUY AMERICAN ACT

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

LDN4 STATIC WHITE

4" Open and Wallwash LED
Non-IC
New Construction Downlight

Open Trim

Wallwash Trim

FEATURES & SPECIFICATIONS

INTENDED USE — Typical applications include corridors, lobbies, conference rooms and private offices.

CONSTRUCTION — Galvanized steel mounting/plaster frame; galvanized steel junction box with bottom-hinged access covers and spring latches. Reflectors are retained by torsion springs.

Vertically adjustable mounting brackets with commercial bar hangers provide 3-3/4" total adjustment.

Two combination 1/2"-3/4" and four 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out). No. 12 AWG conductors, rated for 90°C.

Accommodates 12"-24" joist spacing.

Passive cooling thermal management for 25°C standard; high ambient (40°C) option available. Light engine and drivers are accessible from above or below ceiling.

Max ceiling thickness 1-1/2".

OPTICS — LEDs are binned to a 3-step MacAdam Ellipse; 80 CRI minimum. 90 CRI optional.

LED light source concealed with diffusing optical lens.

General illumination lighting with 1.0 S/MH and 55° cutoff to source and source image.

Self-flanged anodized reflectors in specular, semi-specular, or matte diffuse finishes. Also available in white and black painted reflectors.

A+ CAPABLE LUMINAIRE — This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning when used with Acuity Brands controls products. All configurations of this luminaire are calibrated and tested to meet the Acuity Brands' specifications for chromatic consistency – including color rendering, color fidelity and color temperature tolerance around standard CIE chromaticity coordinates. To learn more about A+ standards, specifications, and testing visit www.acuitybrands.com/aplus.

UGR — UGR is zero for fixtures aimed at nadir with a cut-off equeal to or less than 60deg per CIE 117-1996 Discomfort Galre in Interior Lighting. UGR FAQs

ELECTRICAL — Multi-volt (120-277V, 50/60Hz) 0-10V dimming drivers mounted to junction box, 10% or 1% minimum dimming level available.

0-10V dimming fixture requires two (2) additional low-voltage wires to be pulled.

LUMEN MAINTENANCE — 70% lumen maintenance at 60,000 hours.

LISTINGS — Certified to US and Canadian safety standards. Wet location standard (covered ceiling). IP55 rated. ENERGY STAR® certified product. Drivers are ROHS compliant

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuity-brands.com/buy-american for additional information.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

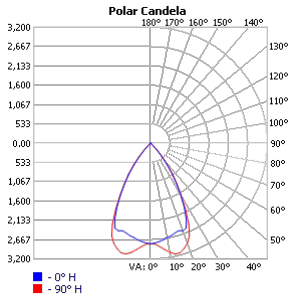
Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

PERFORMANCE DATA

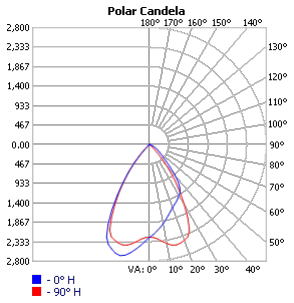
LDN4			
Nominal	**Lumens**	**Wattage**	**Lm/W**
500	523.6	5.74	91.2
750	751.1	8.6	87.3
1000	1045	10.58	98.8
1500	1512	17.5	86.4
2000	2006	22.12	90.7
2500	2551	26.1	97.7
3000	3007	32.1	93.7
4000	4212	43	98.0

Notes
Tested in accordance with IESNA LM-79-08
Tested to current IES and NEMA standards under stabilized laboratory conditions
Based on LDN4 AR LSS 35K 80CRI

DISTRIBUTIONS



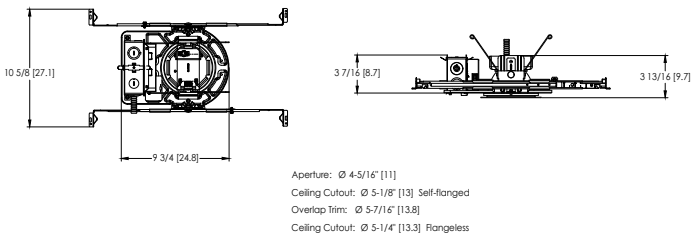
Open



Wallwash

DIMENSIONS

LDN4 500-2000 Lumens



See page 4 for other fixture dimensions

LDN4

Design Select options indicated by this color background.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: LDN4 35/15 LO4 AR LSS MVOLT EZ1

LDN4

Series	Color temperature	Lumens ‡		Trim Style	Trim Color	Trim Finish	Flange Color ‡
LDN4 4" round	27/ 2700K	05 500 lumens	20 2000 lumens	LO4 Downlight	AR Clear	LSS Semi-specular	TRW White painted flange
	30/ 3000K	07 750 lumens	25 2500 lumens	LW4 Wallwash	WR ‡ White	LD Matte diffuse	TRBL Black painted flange
	35/ 3500K	10 1000 lumens	30 3000 lumens		BR ‡ Black	LS Specular	FRALTBD RAL painted flange only
	40/ 4000K	15 1500 lumens	40 4000 lumens		TRALTBD ‡ RAL painted trim		FCPC Custom painted flange only
	50/ 5000K				TCPC ‡ Custom painted trim		

Voltage	Driver	Emergency ‡	Control Input ‡
MVOLT Multi-volt	GZ10 0-10V driver dims to 10%	(blank) No emergency option	(blank) No control option
120 120V	GZ1 0-10V driver dims to 1%	EL Emergency battery pack with integral test switch. 10W Constant Power, Not Certified in CA Title 20 MAEDBS	NPP16D nLight® network power/relay pack with 0-10V dimming for non-eldoLED drivers (GZ10, GZ1).
277 277V	D10 Minimum dimming 10% driver for use with JOT	ELR Emergency battery pack with remote test switch. 10W Constant Power, Not Certified in CA Title 20 MAEDBS	NPP16DER nLight® network power/relay pack with 0-10V dimming for non-eldoLED drivers (GZ10, GZ1). ER controls fixtures on emergency circuit.
347 ‡ 347V	D1 Minimum dimming 1% driver for use with JOT	ELSD Emergency battery pack with self-diagnostics, 10W Constant Power, integral test switch. Not Certified in CA Title 20 MAEDBS	N80 nLight™ Lumen Compensation
	EZ1 0-10V eldoLED driver with smooth and flicker-free deep dimming performance down to 1%	ELRSD Emergency battery pack with self-diagnostics, 10W Constant Power, remote test switch. Not Certified in CA Title 20 MAEDBS	JOT Wireless room control with "Just One Touch" pairing
	EDAB eldoLED DALI SOLDRIVE dim to dark	E10WCP Emergency battery pack, 10W Constant Power with integral test switch. Certified in CA Title 20 MAEDBS	NPS80EZ nLight® dimming pack controls 0-10V eldoLED drivers (EZ10, EZ1).
		E10WCPR Emergency battery pack, 10W Constant Power with remote test switch. Certified in CA Title 20 MAEDBS	NPS80EZER nLight® dimming pack controls 0-10V eldoLED drivers (EZ10, EZ1). ER controls fixtures on emergency circuit.
		E10WRSTAR Emergency battery pack, 10W with remote test switch and Iota STAR technology	NLTAIR2 nLight® Air enabled
			NLTAIRER2 nLight® AIR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit, not available with battery pack options
			NLTAIREM2 nLight® AIR Dimming Pack Wireless Controls. UL924 Emergency Operation, via power interrupt detection. Available with battery pack options.

Options	
HAO ‡	High ambient option (40°C)
CP ‡	Chicago Plenum
RRL___	RELOC®-ready luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature. Available only in RRLA, RRLB, RRLAE, and RRLC12S.
BAA	Buy America(n) Act Compliant
90CRI	High CRI (90+)
SF ‡	Single fuse

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

(Maximum order quantity for design select lead times is 160.)

‡ Option Value Ordering Restrictions

Option value	Restriction
Lumen Packages	Overall height varies based on lumen package, refer to dimensional charts on page 4
WR, BR	Not available with finish (LSS, LD, LS)
TRALTBD, FRALTBD	RALTBD for pricing only. Replace with applicable RAL number and finish when ready to order. See the RAL BROCHURE for available color options.
TRW, TRBL	Available with clear (AR) trim color only
TCPC, FCPC	CPC options for pricing only. Custom color chip needs to be sent in to your Customer Resolution specialist before order can be processed. Click HERE for more details
347	Not available with emergency options
All Emergency	12.5" of plenum depth or top access required for battery pack maintenance.
NPP16D, NPP16DER	Not available with MVOLT. ER for use with generator supply EM power. Will require an emergency hot feed and normal hot feed.
SF	Must specify 120 or 277 volt
N80	Fixture begins at 80% light level. Must be specified with NPS80EZ or NPS80EZ ER. Only available with EZ10 and EZ1 drivers.
NPP16D, NPP16DER, NPPS80EZ, NPS80EZER	Specify voltage. ER for use with generator supply EM power. Will require an emergency hot feed and normal hot feed.
NLTAIR2, NLTAIRER2, NLATAIREM2	Not available with CP, NPS80EZ, NPS80EZER, NPP16D, NPP16DER or N80 options. Not recommended for metal ceiling installations.
NLTAIR2	When combined with EZ1 or EZ10 drivers, can be used as a normal power
JOT	Must specify D10 or D1 driver. Not available with nLight options. Not available with CP. Not recommended for metal ceiling installation. Not for use with emergency backup power systems other than battery packs.
HAO	Fixture height is 5-11/16" for all lumen packages with HAO.
CP	Must specify voltage for 3000lm. Not available with emergency battery pack option.
E10WRSTAR	Not available with wet location, EC1, EC6, QDS, CP, 347V, NPS80EZ ER, NLTAIRER2, NLTAIREM2, ALO3 & ALO4 w/DALI, OR 2000-4500 lumens w/JOT. Top access installation or 17.5" plenum clearance required for roomside installation. Not available with integral test switch.

Accessories: *Order as separate catalog number.*	
PS1055CP	FMC Power Sentry batterypack, T20 compliant, field installable, 10w constant power
EAC ISSM 375	Compact interruptible emergency AC power system
EAC ISSM 125	Compact interruptible emergency AC power system
GRA46 JZ	Oversized trim ring with 6" outside diameter
SCA4	Sloped Ceiling Adapter. Degree of slope must be specified (5D, 10D, 15D, 20D, 25D, 30D). Ex: SCA4 10D.

Emergency Battery Pack Options - Field Installable

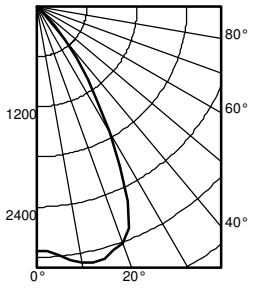
Battery Model Number	Wattage	Runtime (Minutes)	Lumen Output* @ 120 Lumens/Watt	Other
ILB CP07 2H A	7W	120	840	Storm Shelter/ 2-hour Runtime
ILB CP10 A	10W	90	1200	
ILBLP CP10 HE SD A+	10W	90	1200	Title 20, Self Diagnostic
ILBLP CP15 HE SD A+	15W	90	1800	Title 20, Self Diagnostic
ILB CP20 HE A	20W	90	2400	Title 20
ILB CP20 HE SD A	20W	90	2400	Title 20, Self Diagnostic
ILBHI CP10 HE SD A+	10W	90	1200	347-480V AC Input, Title 20, Self Diagnostic
ILBHI CP15 HE SD A+	15W	90	1800	347-480V AC Input, Title 20, Self Diagnostic

All the above are UL 924 Listed products that are certified for field install external/remote to the fixture.
*Minimum delivered lumen output to assist in product selection for increased fixture mounting height.
The CP10 delivered emergency illuminations outperforms legacy 1400 lumen fluorescent emergency ballasts.
Please contact us at techsupport@iotaengineering.com for any Emergency Battery related questions.

PHOTOMETRY

Distribution Curve | **Distribution Data** | **Output Data** | **Illuminance Data at 30" Above Floor for a Single Luminaire**

LDN4 35/30 LO4AR, input watts: 32.1, delivered lumens: 3122.6, LM/W = 88.52, spacing criterion at 0= 1.04, test no. ISF 30712P249.



	Ave	Lumens
0	2927	
5	2989	290
15	3120	875
25	2575	1136
35	1062	667
45	149	148
55	3	5
65	2	1
75	0	0
85	0	0
90	0	

Zone	Lumens	% Lamp
0° - 30°	2301.2	73.7
0° - 40°	2968.2	95.1
0° - 60°	3121.1	100.0
0° - 90°	3122.6	100.0
90° - 120°	0.0	0.0
90° - 130°	0.0	0.0
90° - 150°	0.0	0.0
90° - 180°	0.0	0.0
0° - 180°	3122.6	*100.0

*Efficiency

Mounting Height	Inital FC Center Beam	50% beam - 55.6° Diameter	50% beam - 55.6° FC	10% beam - 78.0° Diameter	10% beam - 78.0° FC
8.0	96.8	5.8	48.4	8.9	9.7
10.0	52.0	7.9	26.0	12.2	5.2
12.0	32.4	10.0	16.2	15.4	3.2
14.0	22.1	12.1	11.1	18.6	2.2
16.0	16.1	14.2	8.0	21.9	1.6

LUMEN OUTPUT MULTIPLIERS - CCT					
	2700K	**3000K**	**3500K**	**4000K**	**5000K**
80CRI	0.950	0.966	1.000	1.025	1.101

LUMEN OUTPUT MULTIPLIERS - FINISH			
	Clear (AR)	**White (WR)**	**Black (BR)**
Specular (LS)	1.0	N/A	N/A
Semi-specular (LSS)	0.950	N/A	N/A
Matte diffuse (LD)	0.85	N/A	N/A
Painted	N/A	0.87	0.73

HOW TO ESTIMATE DELIVERED LUMENS IN EMERGENCY MODE

Use the formula below to estimate the delivered lumens in emergency mode

Delivered Lumens = 1.25 x P x LPW

P = Ouput power of emergency driver. P = 10W for PS1055CP

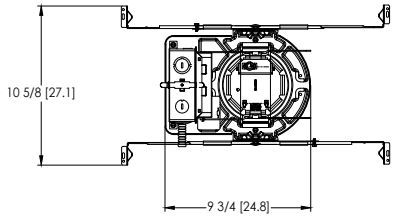
LPW = Lumen per watt rating of the luminaire. This information is available on the ABL luminaire spec sheet.
The LPW rating is also available at Designlight Consortium.

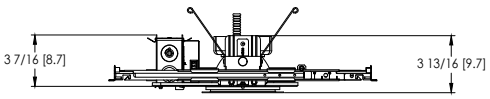
Notes
- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- CRI: 80 typical.

DOWNLIGHTING: One Lithonia Way Conyers, GA 30012 Phone: 800-705-SERV (7378) www.lithonia.com

* All dimensions are inches (centimeters) unless otherwise noted.

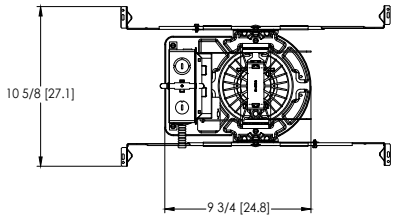
LDN4 500-2000 Lumens

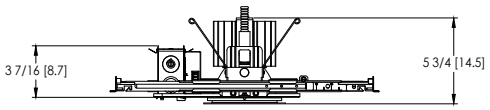




Aperture: Ø 4-5/16" [11]
Ceiling Cutout: Ø 5-1/8" [13] Self-flanged
Overlap Trim: Ø 5-7/16" [13.8]
Ceiling Cutout: Ø 5-1/4" [13.3] Flangeless

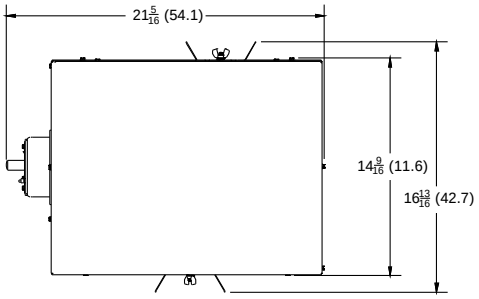
LDN4 2000-4000 Lumens

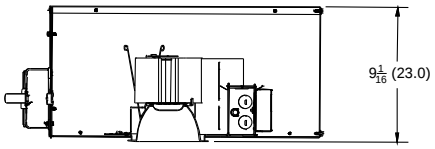




Aperture: Ø 4-5/16" [11]
Ceiling Cutout: Ø 5-1/8" [13] Self-flanged
Overlap Trim: Ø 5-7/16" [13.8]
Ceiling Cutout: Ø 5-1/4" [13.3] Flangeless

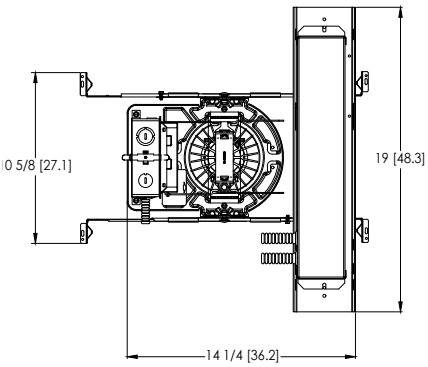
LDN4 CP

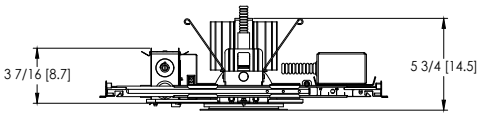




Aperture: 4-5/16" (11)
Ceiling Opening: 5-1/8" (13)
Overlap Trim: 5-7/16" (13.8)

LDN4 EL





Aperture: Ø 4-5/16" [11]
Ceiling Cutout: Ø 5-1/8" [13] Self-flanged
Overlap Trim: Ø 5-7/16" [13.8]
Ceiling Cutout: Ø 5-1/4" [13.3] Flangeless

ADDITIONAL DATA

JOT
JUST ONE TOUCH

The Sensor Switch JOT enabled solution offers a wireless, app-free approach to single room lighting control. JOT enabled products use Bluetooth® Low Energy (BLE) technology to enable wireless dimming and switching.

Diagram

LDN4 Series

Sensor Switch
WSXA JOT

1. **Power:** Install JOT enabled fixtures and controls as instructed.
2. **Pair:** Insert the pairing tool into the pinhole on the wall switch; press and hold any button for 6 seconds.
3. **Play:** Once paired, each fixture will individually dim down to 10% brightness. All products will be fully functional.

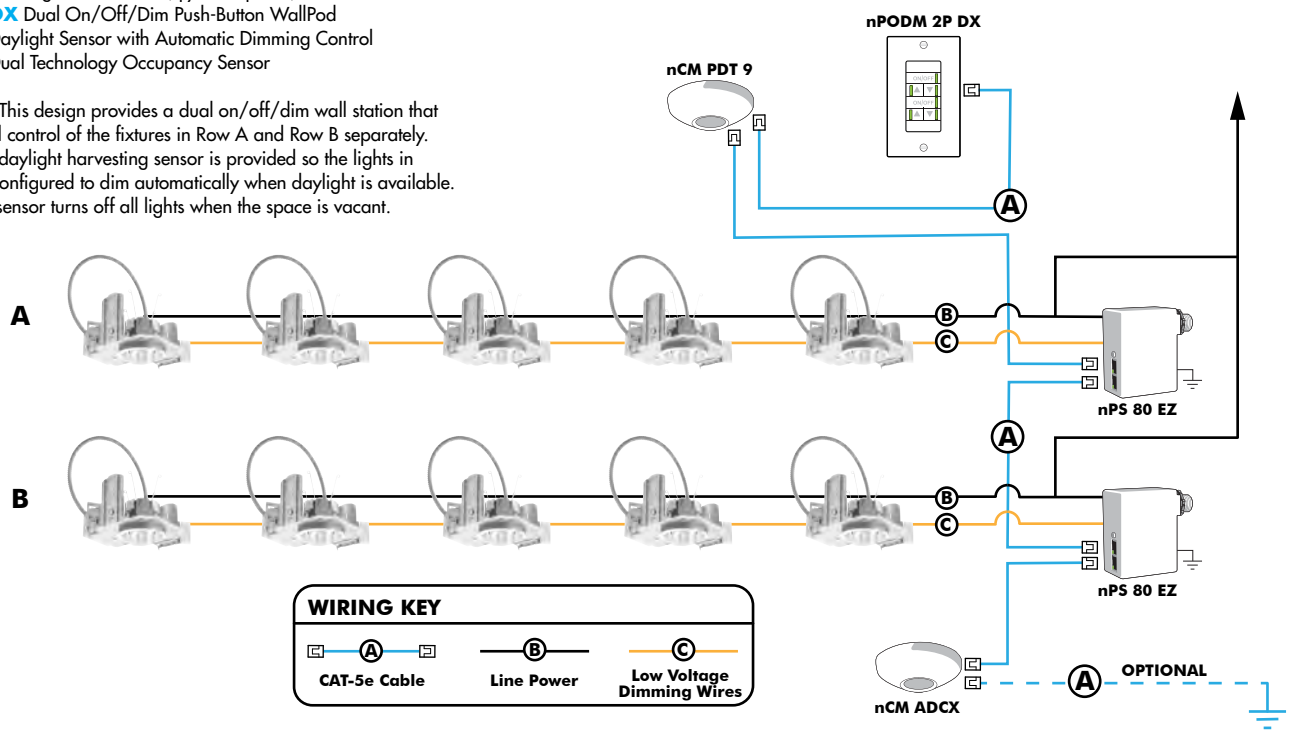
COMPATIBLE 0-10V WALL-MOUNT DIMMERS		
MANUFACTURER	PART NO.	POWER BOOSTER AVAILABLE
Lutron®	Diva® DVTV	
	Diva® DVSCTV	
	Nova T® NTFTV	
	Nova® NFTV	
Leviton®	AWSMT-7DW	CN100
	AWSMG-7DW	PE300
	AMRMG-7DW	
	Leviton Centura Fluorescent Control System	
	IllumaTech® IP7 Series	
Synergy®	ISD BC	RDMFC
	SLD LPCS	
	Digital Equinox (DEQ BC)	
Douglas Lighting Controls	WPC-5721	
Entertainment Technology	Tap Glide TG600FAM120 (120V)	
	Tap Glide Heatsink TGH1500FAM120 (120V)	
	Oasis 0A2000FAMU	
Honeywell	EL7315A1019	EL7305A1010 (optional)
	EL7315A1009	
HUNT Dimming	Preset slide: PS-010-IV and PS-010-WH	
	Preset slide: PS-010-3W-IV and PS-010-3W-WH	
	Preset slide, controls FD-010: PS-IFC-010-IV and PS-IFC-010-WH-120/277V	
	Preset slide, controls FD-010: PS-IFC-010-3W-IV and PS-IFC-010-3W-WH-120/277V	
	Remote mounted unit: FD-010	
Lehigh Electronic Products	Solitaire	PBX
PDM Electrical Products	WPC-5721	
Starfield Controls	TR61 with DALI interface port	RT03 DALInet Router
WattStopper®	LS-4 used with LCD-101 and LCD-103	

LDN4

EXAMPLE
Group Fixture Control*
*Appiication diagram applies for fixtures with eldoLED drivers only.

nPS 80 EZ Dimming/Control Pack (qty: 2 required)
nPODM 2P DX Dual On/Off/Dim Push-Button WallPod
nCM ADCX Daylight Sensor with Automatic Dimming Control
nCM PDT 9 Dual Technology Occupancy Sensor

Description: This design provides a dual on/off/dim wall station that enables manual control of the fixtures in Row A and Row B separately. Additionally, a daylight harvesting sensor is provided so the lights in Row B can be configured to dim automatically when daylight is available. An occupancy sensor turns off all lights when the space is vacant.



Choose Wall Controls

nLight offers multiple styles of wall controls - each with varying features and user experience.

Push-Button Wallpod
Traditional tactile buttons and LED user feedback

Graphic Wallpod
Full color touch screen provides a sophisticated look and feel

nLight® Wired Controls Accessories:			
Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlight for complete listing of nLight controls.			
WallPod Stations	**Model number**	**Occupancy sensors**	**Model Number**
On/Off	nPODM (Color)	Small motion 360°, ceiling (PIR/dual Tech)	nCM 9 / nCM PDT 9
On/Off & Raise/Lower	nPOD DX (Color)	Large motion 360°, ceiling (PIR/dual tech)	nCM 10 / nCM PDT 10
Graphic Touchscreen	nPOD GFX (Color)	Wide View (PIR/dual tech)	nWV 16 / nWV PDT 16
Photocell controls	**Model Number**	Wall Switch w/ Raise/Lower (PIR/dual tech)	nWSX LV DX / nWSX PDT LV DX
Dimming	nCM ADCX	**Cat-5 cables (plenum rated)**	**Model Number**
		10', CAT5 10FT	CAT5 10FT J1
		15, CAT5 15FT	CAT5 15FT J1

DOWNLIGHTING: One Lithonia Way Conyers, GA 30012 Phone: 800-705-SERV (7378) www.lithonia.com

nLight® AIR Control Accessories:
Order as separate catalog number. Visit www.acuitybrands.com/products/controls/nlightair.

Wall switches	Model number
On/Off single pole	rPODB [color]
On/Off two pole	rPODB 2P [color]
On/Off & raise/lower single pole	rPODB DX [color]
On/Off & raise/lower two pole	rPODB 2P DX [color]
On/Off & raise/lower single pole	rPODBZ DX WH[1]

Notes
1 Can only be ordered with the RES7Z zone control sensor version.

UL924 Sequence of Operation

The below information applies to all nLight AIR devices with an EM option.

- EM devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CL**AIR**ITY+ mobile app, EM devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- Only non-emergency rPP20, rLSXR, rSBOR, rSDGR, and nLight AIR luminaires with version 3.4 or later firmware can provide normal power sensing for EM devices. See specification sheets for control devices and luminaires for more information on options that support normal power sensing.

nLight AIR

nLight AIR is the ideal solution for retrofit or new construction spaces where adding communication is cost prohibitive. The integrated nLight AIR rPP20 Power Pack is part of each Lithonia LDN Luminaire. These individually addressable controls offer the ultimate in flexibility during initial setup and for space repurposing.

Simple as 1,2,3

1. Install the nLight® AIR fixtures with embedded smart sensor
2. Install the wireless battery-powered wall switch
3. With CL**AIR**ITY app, pair the fixtures with the wall switch and if desired, customize the sensor settings for the desired outcome

nLight AIR rPODB 2P DX Mobile Device

WDGE1 LED
Architectural Wall Sconce

Buy American

Catalog Number

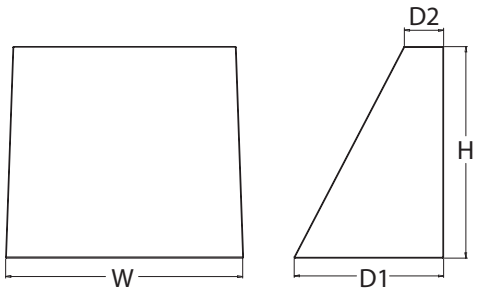
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 5.5"
Depth (D2): 1.5"
Height: 8"
Width: 9"
Weight: (without options) 9 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing true site-wide solution.

WDGE1 delivers up to 2,000 lumens with a soft, non-pixelated light source, creating a visually comfortable environment. The compact size of WDGE1, with its integrated emergency battery backup option, makes it an ideal over-the-door wall-mounted lighting solution.

WDGE LED Family Overview

Luminaire	Standard EM, 0°C	Cold EM, -20°C	Sensor	Lumens (4000K)					
				P1	P2	P3	P4	P5	P6
WDGE1 LED	4W	--	--	1,200	2,000	--	--	--	--
WDGE2 LED	10W	18W	Standalone / nLight	1,200	2,000	3,000	4,500	6,000	--
WDGE3 LED	15W	18W	Standalone / nLight	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	--	--	Standalone / nLight	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE1 LED P2 40K 80CRI VF MVOLT SRM PE DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE1 LED	P1 P2	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K[1] 5000K	80CRI 90CRI	VF Visual comfort forward throw VW Visual comfort wide	MVOLT 347[2]	**Shipped included** SRM Surface mounting bracket ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only)[5] **Shipped separately** AWS 3/8inch Architectural wall spacer PBBW Surface-mounted back box (top, left, right conduit entry) Use when there is no junction box available.

Options

E4WH[3]	Emergency battery backup, Certified in CA Title 20 MAEDBS (4W, 0°C min)
PE[4]	Photocell, Button Type
DS	Dual switching (comes with 2 drivers and 2 light engines; see page 3 for details)
DMG	0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)
BCE	Bottom conduit entry for back box (PBBW). Total of 4 entry points.
BAA	Buy America(n) Act Compliant

Finish

DDBXD	Dark bronze	DDBTXD	Textured dark bronze
DBLXD	Black	DBLBXD	Textured black
DNAXD	Natural aluminum	DNATXD	Textured natural aluminum
DWHXD	White	DWHGXD	Textured white
DSSXD	Sandstone	DSSTXD	Textured sandstone

Accessories

Ordered and shipped separately.

WDGEAWS DDBXD	WDGE 3/8inch Architectural Wall Spacer (specify finish)
WDGE1PBBW DDBXD U	WDGE1 surface-mounted back box (specify finish)

NOTES

1. 50K not available in 90CRI.
2. 347V not available with E4WH, DS or PE.
3. E4WH not available with PE or DS.
4. PE not available with DS.
5. Not qualified for DLC. Not available with E4WH.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	27K (2700K, 80 CRI)					30K (3000K, 80 CRI)					35K (3500K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P1	10W	VF	1,120	112	0	0	0	1,161	116	0	0	0	1,194	119	0	0	0	1,227	123	0	0	0	1,235	123	0	0	0
		VW	1,122	112	0	0	0	1,163	116	0	0	0	1,196	120	0	0	0	1,229	123	0	0	0	1,237	124	0	0	0
P2	15W	VF	1,806	120	1	0	0	1,872	125	1	0	0	1,925	128	1	0	0	1,978	132	1	0	0	1,992	133	1	0	0
		VW	1,809	120	1	0	0	1,876	125	1	0	0	1,929	128	1	0	0	1,982	132	1	0	0	1,996	133	1	0	0

Electrical Load

Performance Package	System Watts	Current (A)				
		120V	208V	240V	277V	347V
P1	10W	0.082	0.049	0.043	0.038	--
	13W	--	--	--	--	0.046
P2	15W	0.132	0.081	0.072	0.064	--
	18W	--	--	--	--	0.056

Lumen Multiplier for 90CRI

CCT	Multiplier
27K	0.845
30K	0.867
35K	0.845
40K	0.885
50K	0.898

Lumen Output in Emergency Mode (4000K, 80 CRI)

Option	Dist. Type	Lumens
E4WH	VF	646
	VW	647

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.96	>0.95	>0.91

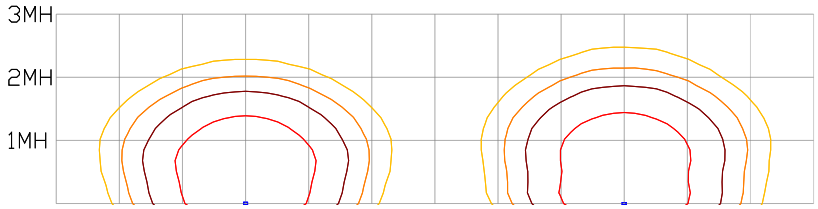
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND

- 0.25 fc
- 0.5 fc
- 1.0 fc
- 3.0 fc

MH = 8ft
Grid = 8ft x 8ft



WDGE1 LED P2 40K 80CRI VW

WDGE1 LED P2 40K 80CRI VF

Emergency Egress Options

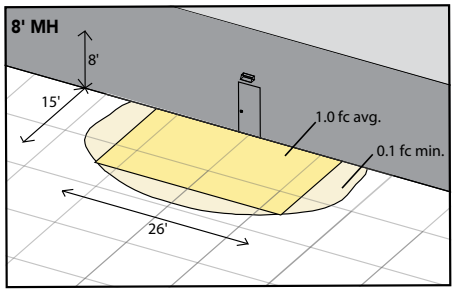
Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90minutes.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The example below shows illuminance of 1 fc average and 0.1 fc minimum in emergency mode with E4WH and VF distribution.

Grid = 10ft x 10ft

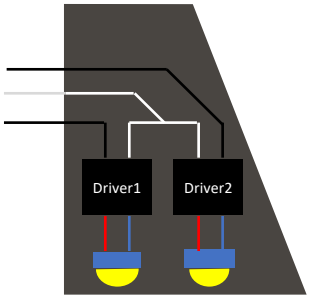


WDGE1 LED xx 40K 80CRI VF MVOLT E4WH

Dual Switching (DS) Option

The dual switching option offers operational redundancy that certain codes require. With this option the luminaire comes integrated with two drivers and two light engines. These work completely independent to each other so that a failure of any individual component does not cause the whole luminaire to go dark. This option is typically used with a back generator or inverter providing emergency power.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9



Mounting, Options & Accessories

E4WH – 4W Emergency Battery Backup

D = 5.5"

H = 8"

W = 9"

PBBW – Surface-Mounted Back Box
Use when there is no junction box available.

D = 1.75"

H = 8"

W = 9"

AWS – 3/8inch Architectural Wall Spacer

D = 0.38"

H = 4.4"

W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE
Common architectural look, with clean rectilinear shape, of the WDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION
The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP66 rating for the luminaire.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Well crafted reflector optics allow the light engine to be recessed within the luminaire, providing visual comfort, superior distribution, uniformity, and spacing in wall-mount applications. The WDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP66 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 2700K and 3000K color temperature only and SRM mounting only.

BUY AMERICAN
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

WDGE2 LED

Architectural Wall Sconce
Precision Refractive Optic

Buy American

Catalog Number

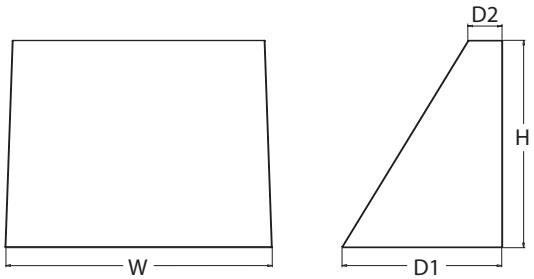
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 7"
Depth (D2): 1.5"
Height: 9"
Width: 11.5"
Weight: (without options) 13.5 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE2 with industry leading precision refractive optics provides great uniform distribution and optical control. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

WDGE LED Family Overview

Luminaire	Optics	Standard EM, 0°C	Cold EM, -20°C	Sensor	Approximate Lumens (4000K, 80CRI)						
					P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	10W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE3 LED	Precision Refractive	15W	18W	Standalone / nLight	--	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE2 LED P3 40K 80CRI VF MVOLT SRM DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE2 LED	P0[1] P1[2] P2[2] P3[2] P4[2]	27K 2700K 30K 3000K 40K 4000K 50K 5000K AMB[3] Amber	70CRI[4] 80CRI LW[3] Limited Wavelength	T1S Type I Short T2M Type II Medium T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT 347[5] 480[5]	**Shipped included** SRM Surface mounting bracket ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only)[6] **Shipped separately** AWS 3/8inch Architectural wall spacer PBBW S urface-mounted back box (top, left, right conduit entry). Use when there is no junction box available.

Options

E10WH	Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 5°C min)
E20WC	Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C min)
PE[7]	Photocell, Button Type
DMG[8]	0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)
BCE	Bottom conduit entry for back box (PBBW). Total of 4 entry points.
BAA	Buy America(n) Act Compliant

Standalone Sensors/Controls

PIR	Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.
PIRH	Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching
PIR1FC3V	Bi-level (100/35%) motion sensor for 8-15' mounting heights with photocell pre-programmed for dusk to dawn operation.
PIRH1FC3V	Bi-level (100/35%) motion sensor for 15-30' mounting heights with photocell pre-programmed for dusk to dawn operation.

Networked Sensors/Controls

NLTAIR2 PIR	nLightAIR Wireless enabled bi-level motion/ambient sensor for 8-15' mounting heights.
NLTAIR2 PIRH	nLightAIR Wireless enabled bi-level motion/ambient sensor for 15-30' mounting heights.

See page 4 for out of box functionality

Finish

DDBXD	Dark bronze
DBLXD	Black
DNAXD	Natural aluminum
DWHXD	White
DSSXD	Sandstone
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white
DSSTXD	Textured sandstone

Accessories

Ordered and shipped separately.

WDGEAWS DDBXD	WDGE 3/8inch Architectural Wall Spacer (specify finish)
WDGE2PBBW DDBXD U	WDGE2 surface-mounted back box (specify finish)

NOTES

1 P0 option not available with sensors/controls.
2 P1-P4 not available with AMB and LW.
3 AMB and LW always go together.
4 70CRI only available with T3M and T4M.
5 347V and 480V not available with E10WH or E20WC.
6 Not qualified for DLC. Not available with emergency battery backup or sensors/controls.
7 PE not available in 480V or with sensors/controls.
8 DMG option not available with sensors/controls.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	27K (2700K, 80 CRI)					30K (3000K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)					Amber (Limited Wavelength)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P0	7W	T1S	636	92	0	0	0	666	97	0	0	0	699	101	0	0	1	691	100	0	0	1	712	47	0	0	1
		T2M	662	96	0	0	0	693	101	0	0	0	728	106	0	0	0	719	104	0	0	0	741	48	0	0	0
		T3M	662	96	0	0	0	693	101	0	0	0	728	106	0	0	0	719	104	0	0	0	741	48	0	0	0
		T4M	648	94	0	0	0	679	98	0	0	0	712	103	0	0	0	704	102	0	0	0	726	47	0	0	0
		TFTM	652	95	0	0	0	683	99	0	0	0	717	104	0	0	0	708	103	0	0	0	730	48	0	0	1
P1	11W	T1S	1,105	99	0	0	1	1,157	104	0	0	1	1,215	109	0	0	1	1,200	107	0	0	1					
		T2M	1,150	103	0	0	1	1,204	108	0	0	1	1,264	113	0	0	1	1,249	112	0	0	1					
		T3M	1,150	103	0	0	1	1,205	108	0	0	1	1,265	113	0	0	1	1,250	112	0	0	1					
		T4M	1,126	101	0	0	1	1,179	106	0	0	1	1,238	111	0	0	1	1,223	110	0	0	1					
		TFTM	1,133	101	0	0	1	1,186	106	0	0	1	1,245	112	0	0	1	1,230	110	0	0	1					
P2	19W	T1S	1,801	95	1	0	1	1,886	99	1	0	1	1,981	104	1	0	1	1,957	103	1	0	1					
		T2M	1,875	99	1	0	1	1,963	103	1	0	1	2,061	109	1	0	1	2,037	107	1	0	1					
		T3M	1,876	99	1	0	1	1,964	103	1	0	1	2,062	109	1	0	1	2,038	107	1	0	1					
		T4M	1,836	97	1	0	1	1,922	101	1	0	1	2,018	106	1	0	1	1,994	105	1	0	1					
		TFTM	1,847	97	1	0	1	1,934	102	1	0	1	2,030	107	1	0	1	2,006	106	1	0	1					
P3	32W	T1S	2,809	87	1	0	1	2,942	92	1	0	1	3,089	96	1	0	1	3,052	95	1	0	1					
		T2M	2,924	91	1	0	1	3,062	95	1	0	1	3,215	100	1	0	1	3,176	99	1	0	1					
		T3M	2,925	91	1	0	1	3,063	95	1	0	1	3,216	100	1	0	1	3,177	99	1	0	1					
		T4M	2,862	89	1	0	1	2,997	93	1	0	1	3,147	98	1	0	1	3,110	97	1	0	1					
		TFTM	2,880	90	1	0	1	3,015	94	1	0	1	3,166	99	1	0	1	3,128	97	1	0	1					
P4	47W	T1S	3,729	80	1	0	1	3,904	84	1	0	1	4,099	88	1	0	1	4,051	87	1	0	1					
		T2M	3,881	83	1	0	1	4,063	87	1	0	1	4,267	91	1	0	1	4,216	90	1	0	1					
		T3M	3,882	83	1	0	1	4,065	87	1	0	1	4,268	91	1	0	1	4,217	90	1	0	1					
		T4M	3,799	81	1	0	1	3,978	85	1	0	1	4,177	90	1	0	1	4,127	88	1	0	1					
		TFTM	3,822	82	1	0	1	4,002	86	1	0	1	4,202	90	1	0	1	4,152	89	1	0	1					

Performance Package	System Watts	Dist. Type	27K (2700K, 70 CRI)					30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P0	7W	T3M	737	107	0	0	0	763	111	0	0	0	822	119	0	0	0	832	121	0	0	1
		T4M	721	105	0	0	0	746	108	0	0	0	804	117	0	0	1	814	118	0	0	1
P1	11W	T3M	1,280	115	0	0	1	1,325	119	0	0	1	1,427	128	1	0	1	1,445	129	1	0	1
		T4M	1,253	112	0	0	1	1,297	116	0	0	1	1,397	125	0	0	1	1,415	127	0	0	1
P2	19W	T3M	2,087	110	1	0	1	2,160	114	1	0	1	2,327	123	1	0	1	2,357	124	1	0	1
		T4M	2,042	108	1	0	1	2,114	111	1	0	1	2,278	120	1	0	1	2,306	121	1	0	1
P3	32W	T3M	3,254	101	1	0	1	3,369	105	1	0	1	3,629	113	1	0	1	3,675	114	1	0	1
		T4M	3,185	99	1	0	1	3,297	103	1	0	1	3,552	111	1	0	1	3,597	112	1	0	1
P4	47W	T3M	4,319	93	1	0	1	4,471	96	1	0	1	4,817	103	1	0	2	4,878	105	1	0	2
		T4M	4,227	91	1	0	1	4,376	94	1	0	2	4,714	101	1	0	2	4,774	102	1	0	2

Electrical Load

Performance Package	System Watts	Current (A)					
		120Vac	208Vac	240Vac	277Vac	347Vac	480Vac
P0	7.0	0.061	0.042	0.04	0.039	--	--
	9.0	--	--	--	--	0.031	0.021
P1	11.0	0.100	0.064	0.059	0.054	--	--
	14.1	--	--	--	--	0.046	0.031
P2	19.0	0.168	0.106	0.095	0.083	--	--
	22.8	--	--	--	--	0.067	0.050
P3	32.0	0.284	0.163	0.144	0.131	--	--
	37.1	--	--	--	--	0.107	0.079
P4	47.0	0.412	0.234	0.207	0.185	--	--
	53.5	--	--	--	--	0.153	0.112

Lumen Output in Emergency Mode (4000K, 80 CRI, T3M)

Option	Lumens
E10WH	1,358
E20WC	2,230

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.96	>0.93	>0.87

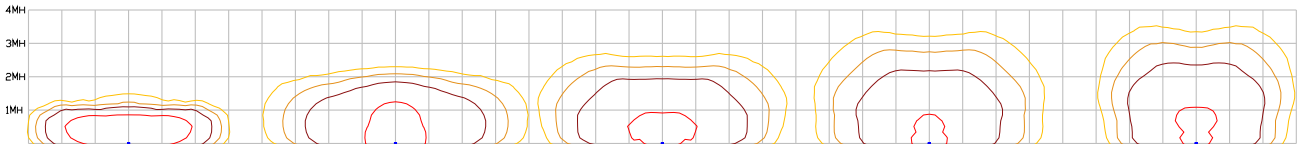
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND

0.25 fc
0.5 fc
1.0 fc
3.0 fc

MH = 10ft
Grid = 10ft x 10ft



"P3 40K 80CRI T1S" "P3 40K 80CRI T2M" "P3 40K 80CRI T3M" "P3 40K 80CRI T4M" "P3 40K 80CRI TFTM"

Emergency Egress Options

Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90minutes.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

Control / Sensor Options

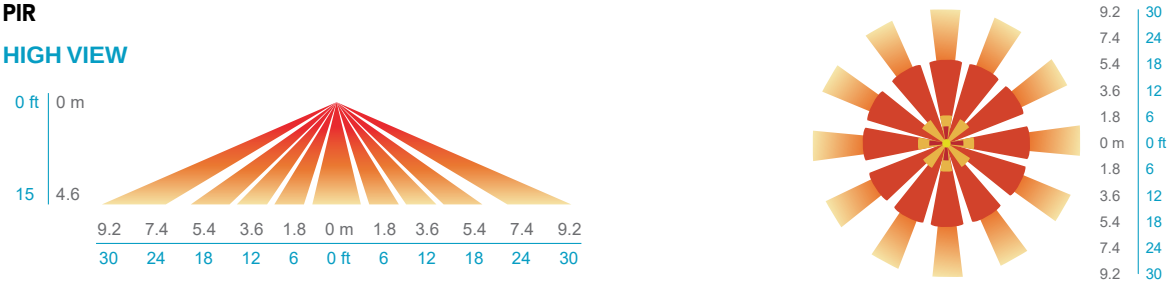
Motion/Ambient Sensor (PIR_, PIRH_)

Motion/Ambeint sensor (Sensor Switch MSOD) is integrated into the the luminaire. The sensor provides both Motion and Daylight based dimming of the luminaire. For motion detection, the sensor utilizes 100% Digital Passive Infrared (PIR) technology that is tuned for walking size motion while preventing false tripping from the environment. The integrated photocell enables additional energy savings during daytime periods when there is sufficient daylight. Optimize sensor coverage by either selecting PIR or PIRH option. PIR option comes with a sensor lens that is optimized to provide maximum coverage for mounting heights between 8-15ft, while PIRH is optimized for 15-40ft mounting height.

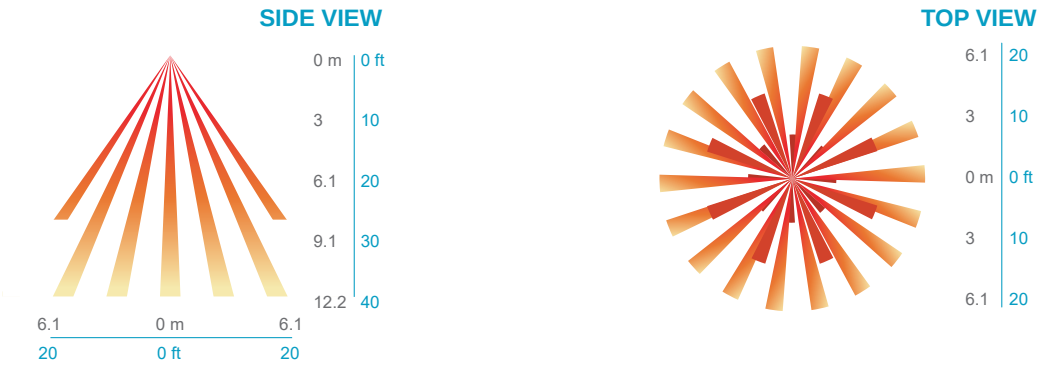
Networked Control (NLTAIR2)

nLight® AIR is a wireless lighting controls platform that allows for seamless integration of both indoor and outdoor luminaires. Five-tier security architecture, 900 MHz wireless communication and app (CLAIRITY™ Pro) based configurability combined together make nLight® AIR a secure, reliable and easy to use platform.

PIR



PIRH



Option	Dim Level	High Level (when triggered	Photocell Operation	Motion Time Delay	Ramp-down Time	Ramp-up Time
PIR or PIRH	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
PIR1FC3V, PIRH1FC3V	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 1fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
NLTAIR2 PIR, NLTAIR2 PIRH (out of box)	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	7.5 min	5 min	Motion - 3 sec Photocell - 45 sec

Mounting, Options & Accessories

Motion/Ambient Sensor

D = 7"
H = 9" (Standalone controls)
11" (nLight AIR controls, 2" antenna will be pointing down behind the sensor)
W = 11.5"

PBBW – Surface-Mounted Back Box
Use when there is no junction box available.

D = 1.75"
H = 9"
W = 11.5"

AWS – 3/8inch Architectural Wall Spacer

D = 0.38"
H = 4.4"
W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE
Common architectural look, with clean rectilinear shape, of the WDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION
The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP66 rating for the luminaire.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Individually formed acrylic lenses are engineered for superior application efficiency which maximizes the light in the areas where it is most needed. The WDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP66 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 2700K and 3000K color temperature only and SRM mounting only.

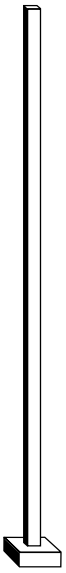
BUY AMERICAN
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL

BAA

FEATURES & SPECIFICATIONS

INTENDED USE — **These specifications are for USA standards only.** Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, 0.120"), or 50 KSI (7-gauge, 0.179"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

Pole Top: Options include 4" tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. Side drilled and open top poles include a removable top cap.

Handhole: A reinforced handhole with grounding provision is provided at 18" from the base on side A. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

Base Cover: A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

Anchor Base/Bolts: Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

HARDWARE — All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH — Extra durable painted finish is coated with TGIC (Triglycidyl Isocyanurate) Polyester powder that meets 5A and 5B classifications of ASTM D3359. Powder-coat finishes include Dark Bronze, White, Black, and Natural Aluminum colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes.

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations.
Please refer to www.acuitybrands.com/buy-american for additional information.

INSTALLATION — **Do not** erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.

SSS Square Straight Steel Poles

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

Example: SSS 20 5C DM19 DDBXD

SSS					
Series	**Nominal fixture mounting height**	**Nominal shaft base size/wall thickness[1]**	**Mounting[2]**	**Options**	**Finish**
SSS	10'-39' (for 1/2 ft increments, add -6 to the pole height. **Ex:** 20-6 equals 20ft 6in.) (See technical information table for complete ordering information.)	4C 4" 11g (0.120") 4G 4" 7g (0.179") 5C 5" 11g (0.120") 5G 5" 7g (0.179") 6G 6" 7g (0.179") (See technical information table for complete ordering information.)	Tenon mounting PT Open top (includes top cap) T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) KAC/KAD/KSE/KSF/KVR/KVF Drill mounting[3] DM19 1 at 90° DM28 2 at 180° DM28 PL 2 at 180° with one side plugged DM29 2 at 90° DM39 3 at 90° DM49 4 at 90° CSX/DSX/RSX/AERIS™/OMERO™/ KAX Drill mounting[3] DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° RAD drill mounting[3] DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting[3] DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90°	Shipped installed VD Vibration damper[4] HAxy Horizontal arm bracket (1 fixture)[5,6] FDLxy Festoon outlet less electrical[5,7] CPL12/xy 1/2" coupling[5] CPL34/xy 3/4" coupling[5] CPL1/xy 1" coupling[5] NPL12/xy 1/2" threaded nipple[5] NPL34/xy 3/4" threaded nipple[5] NPL1/xy 1" threaded nipple[5] EHHxy Extra handhole[5,8] STLHHC Steel handhole cover (standard is plastic, finish is smooth)[9] FBCSTL2PC 2 Piece steel base cover (standard is plastic)[9] IC Interior coating[10] L/AB Less anchor bolts (Include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) UL UL listed with label (Includes NEC compliant cover) BAA Buy America(n) Act Compliant[11] VM/original order# Match pole to prior order or project[12]	Super durable paint colors DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DGCXD Charcoal gray DTGXD Tennis green DBRXD Bright red DSBXD Steel blue DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white Other finishes GALV Galvanized finish Architectural colors and special finishes[13] [PAINT] GALV Paint over galvanizing VP30 3 year warranty extension VP53 5 year warranty extension RAL#### Use designated Lithonia Lighting nomenclature in brochure Custom color Nomenclature assigned through Customer Care "Custom Color Process"

NOTES:

1. Wall thickness will be signified with a "C" (11 Gauge) or a "G" (7-Gauge) in nomenclature. "C" - 0.120" | "G" - 0.179".
2. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, specify as drilling option/tenon option. The combination includes a required extra handhole.
   Example: DM28/T20.
3. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
4. On 4" and 5" poles, VD cannot be installed if provisions (EHH, FDL, NPL, CPL) are located higher than 2/3 of the pole's total height.
   Example: Pole height is 25ft, A provision cannot be placed above 16ft.
5. Specify location and orientation when ordering option.
   For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
   Example: 5ft = 5 and 20ft 3in = 20-3
   For "y": Specify orientation from handhole (A,B,C,D) Refer to the Handhole Orientation diagram below.
   Example: 1/2" coupling at 5' 8 ", orientation C = CPL12/5-8C
6. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. If ordering two horizontal arm at the same height, specify with HAxyy.
   Example: HA20BD.
7. FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
8. Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.
9. Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.
10. Provides enhanced corrosion resistance. N/A with GALV.
11. Use when mill certifications are required.
12. Must add original order number. Not for replacement parts or post sales issues, contact tech support or post sales teams. VM is used to ensure poles match in appearance exactly from order to order, on a single project site. A common use case would be a multi-phase project with multiple orders.
    Example: VM/010-36784
13. Must be quoted through AQD. Finishes do not require RFA. RAL colors available are shown in "Architectural Colors brochure". Lead times may be extended up to 2 weeks due to paint procurement.

Accessories: *Order as separate catalog number.*	
PL DT20	Plugs for ESX drillings
PL DT8	Plugs for DMxxAS drillings
FVD xxFT	Field installed vibration damper (snake style)

OUTDOOR: One Lithonia Way Conyers, GA 30012 Phone: 800-705-SERV (7378) www.lithonia.com

SSS Square Straight Steel Poles

TECHNICAL INFORMATION — EPA (ft^2) with 1.3 gust

Catalog Number	Nominal Shaft Length (ft.)*	Pole Shaft Size (Base in. x Top in. x ft.)	Wall thick (in)	Gauge	EPA (ft^2) with 1.3 gust						Approximate ship weight (lbs.)
					80 MPH	Max. weight	90 MPH	Max. weight	100 MPH	Max. weight	
SSS 10 4C	10	4.0 x 10.0	0.120"	11	30.6	765	23.8	595	18.9	473	75
SSS 12 4C	12	4.0 x 12.0	0.120"	11	24.4	610	18.8	470	14.8	370	90
SSS 14 4C	14	4.0 x 14.0	0.120"	11	19.9	498	15.1	378	11.7	293	100
SSS 16 4C	16	4.0 x 16.0	0.120"	11	15.9	398	11.8	295	8.9	223	115
SSS 18 4C	18	4.0 x 18.0	0.120"	11	12.6	315	9.2	230	6.7	168	125
SSS 20 4C	20	4.0 x 20.0	0.120"	11	9.6	240	6.7	167	4.5	150	140
SSS 20 4G	20	4.0 x 20.0	0.179"	7	14	350	11	275	8	200	198
SSS 20 5C	20	5.0 x 20.0	0.120"	11	17.7	443	12.7	343	9.4	235	185
SSS 20 5G	20	5.0 x 20.0	0.179"	7	28.1	703	21.4	535	16.2	405	265
SSS 25 4C	25	4.0 x 25.0	0.120"	11	4.8	150	2.6	100	1	50	170
SSS 25 4G	25	4.0 x 25.0	0.179"	7	10.8	270	7.7	188	5.4	135	245
SSS 25 5C	25	5.0 x 25.0	0.120"	11	9.8	245	6.3	157	3.7	150	225
SSS 25 5G	25	5.0 x 25.0	0.179"	7	18.5	463	13.3	333	9.5	238	360
SSS 30 4G	30	4.0 x 30.0	0.179"	7	6.7	168	4.4	110	2.6	65	295
SSS 30 5C	30	5.0 x 30.0	0.120"	11	4.7	150	2	50	--	--	265
SSS 30 5G	30	5.0 x 30.0	0.179"	7	10.7	267	6.7	167	3.9	100	380
SSS 30 6G	30	6.0 x 30.0	0.179"	7	19	475	13.2	330	9	225	520
SSS 35 5G	35	5.0 x 35.0	0.179"	7	5.9	150	2.5	100	--	--	440
SSS 35 6G	35	6.0 x 35.0	0.179"	7	12.4	310	7.6	190	4.2	105	540
SSS 39 6G	39	6.0 x 39.0	0.179"	7	7.2	180	3	75	--	--	605

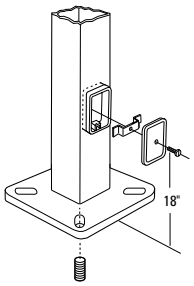
NOTE: EPA values are based ASCE 7-93 wind map.
* For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

TECHNICAL INFORMATION — EPA (ft^2) WITH 3-SECOND GUST PER AASHTO 2013

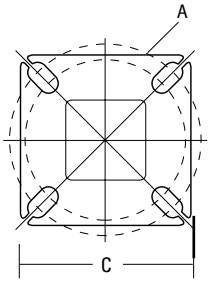
Series	Mounting Height (ft)*	Shaft Base Size	90 MPH	Max. weight	100 MPH	Max. weight	110 MPH	Max. weight	120 MPH	Max. weight	130 MPH	Max. weight	140 MPH	Max. weight	150 MPH	Max. weight	Approximate ship weight (lbs.)
SSS	10	4C	20	500	16	400	13	325	10.5	263	8.5	213	7	175	6	150	75
SSS	12	4C	16	400	13	325	10	250	8	200	6.5	163	5	125	4	100	90
SSS	14	4C	13.5	338	10	250	7.5	188	6	150	4.5	113	3.5	88	2.5	63	100
SSS	16	4C	10.5	263	7.5	188	5.5	138	4	100	3	75	1.5	38	1	25	115
SSS	18	4C	8	200	5.5	138	4	100	2.5	63	1.5	38	0.5	13	-	-	125
SSS	18	4G	13	325	9.5	238	7	175	5	125	3.5	88	2.5	63	1.5	38	185
SSS	18	5C	13	325	9.5	238	6.5	163	4.5	113	3	75	1.5	38	.5	13	170
SSS	20	4C	6	150	4	100	2.5	63	1	25	-	-	-	-	-	-	140
SSS	20	4G	10.5	263	7.5	188	5.5	138	3.5	88	2	50	1	25			205
SSS	20	5C	10	250	7	175	4.5	113	2.5	63	1	25	-	-	-	-	185
SSS	20	5G	20	500	15	375	11.5	288	8.5	213	6	150	4.5	113	3	75	265
SSS	25	4C	2	50	0.5	13	-	-	-	-	-	-	-	-	-	-	170
SSS	25	4G	5.5	138	3	75	1.5	38	-	-	-	-	-	-	-	-	245
SSS	25	5C	4.5	113	2	50	-	-	-	-	-	-	-	-	-	-	225
SSS	25	5G	12	300	8.5	213	5.5	138	3	75	1.5	38	-	-	-	-	360
SSS	25	6G	19	475	13.5	338	9	225	5.5	138	3	75	1	25			445
SSS	30	4G	1.5	38	-	-	-	-	-	-	-	-	-	-	-	-	291
SSS	30	5C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265
SSS	30	5G	6.5	163	3.5	88	1	25	-	-	-	-	-	-	-	-	380
SSS	30	6G	11	275	6	150	2.5	63	-	-	-	-	-	-	-	-	520
SSS	35	5G	2	50	-	-	-	-	-	-	-	-	-	-	-	-	440
SSS	35	6G	4	100	-	-	-	-	-	-	-	-	-	-	-	-	540
SSS	39	6G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	605

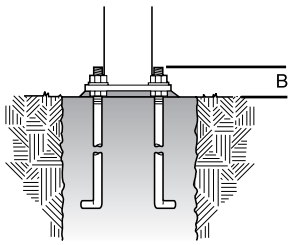
NOTE: AASHTO 2013 criteria is the most conservative existing EPA calculation. For poles not showing EPA values under AASHTO 2013, EPA values may exist under commercial criteria (see table above).
*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

BASE DETAIL

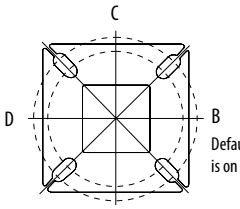


ANCHORAGE AND TEMPLATE INFORMATION								
Shaft base size	**Bolt circle A**	**Bolt projection B**	**Base square C**	**Base plate thickness**	**Template description**	**Anchor bolt description**	**Bolt size (in. x in. x in.)**	**Anchor bolt and template description**
4"C	8" – 9"	3.25"- 3.75"	8"- 8.25"	0.75"	ABTEMPLATE PJ50004	AB18-0	3/4 x 18 x 3	ABSSS-4C
4"G	8" – 9"	3.38"- 3.75"	8"- 8.25"	0.875"	ABTEMPLATE PJ50004	AB30-0	3/4 x 30 x 3	ABSSS-4G
5"	10" – 12"	3.5"- 4"	11"	1"	ABTEMPLATE PJ50010	AB36-0	1 x 36 x 4	ABSSS-5
6"	11" – 13"	4"- 4.50"	12.5"	1"	ABTEMPLATE PJ50011	AB36-0	1 x 36 x 4	N/A





HANDHOLE ORIENTATION



Default DM19 is on side B.

IMPORTANT INSTALLATION NOTES:

- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.
- Bolt circles have +/- 1/2" tolerance.

ATTACHMENT 14
Stormwater Report

STORMWATER MANAGEMENT REPORT

Natural Wonders Daycare

184 Pope Road
Windham, Maine

Submitted by:

Windham School Age
Children Association Inc.
P.O. Box 839
Windham, Maine 04062

Prepared by:
Gage Feeney

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2024

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LIST OF APPENDICES

1.0 INTRODUCTION

The applicant, Windham School Age Children Association Inc, is proposing a 5,817 square foot daycare on Pope Rd in Windham, ME. The parcel of land (Tax Map 43, Block 30, Lot A-2) is approximately 2.5 acres in size. The project is not required to obtain an Individual Stormwater Management Permit from the Maine DEP.

The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a bituminous parking lot
- Installation of storm drain system including catch basins, stormdrains, and a grassed underdrained soil filter.
- Installation of utilities
- Final site stabilization

The proposed infrastructure improvements will create approximately 28,916 sf (0.66 acres) of new impervious area and 34,587 sf (0.79 acres) of newly vegetated area totaling 63,503 sf (1.46 acres) of newly developed area.

The Stormwater Management Plan has been prepared to satisfy the requirements of the Maine Department of Environmental Protections "Stormwater Management Rules" Chapters 500, 501 and 502, the most recent version of the "Maine Stormwater Best Management Practices Manual", and the Town of Windham's Stormwater Ordinance.

1.1 OVERVIEW OF MODELING METHODOGY AND SOURCE INFORMATION

Hydrologic Analysis: The pre and post development conditions have been modeled using modeling software (Hydrocad Version 10) which is based upon the methodology contained within the USDA Soil Conservation Service Technical Release 55. Type III 24-hour storm distributions for Cumberland County were used for the analysis. The following return periods and 24-hour rainfall depths were used for the analysis:

Return Period	24-Hour Rainfall Depth
2-Year Storm	3.10 inches
10-Year Storm	4.60 inches
25-Year Storm	5.80 inches

Soils: The soils used for the stormwater analysis were digitized from the Natural Resource Conservation Service (NRCS), web soil survey website. The source of the data is the Cumberland County Soil Survey (Class D). Refer to the following for additional documentation regarding the soils used for modelling:

- Appendix B of this Report
- Pre and Post Development Watershed Plans (Sheets A and B)

The onsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
BgB	Nicholville very fine sandy loam, 0-8% slopes	C
BuB	Lamoine silt loam, 3-8% slopes	C/D
PbC	Paxton fine sandy loam, 8-15% slopes	C
PbB	Paxton fine sandy loam, 3-8% slopes	C
Sn	Scantic silt loam, 0-3% slopes	D
WrB	Woodbridge fine sandy loam, 0-8% slopes	C

Topography: On ground survey by BH2M

Natural Resources: Eric Whitney, Stantec Consulting, Inc.

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at two Analysis Points as described below:

Analysis Point #1
Description: Culmination of flow to unnamed stream that bisects the property.
Pre Development Tributary Drainage Areas: SA-1
Post Development Tributary Drainage Areas: SA-1, 1A-1D

Analysis Point #2
Description: Culmination of flow over the northwestern property line.
Pre Development Tributary Drainage Areas: SA-2
Post Development Tributary Drainage Areas: SA-2

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on Sheet A of the accompanying plans. The parcel to be developed encompasses an area of approximately 2.5 acres and is located on Pope Road in Windham. The parcel is currently undeveloped and flows to an unnamed stream which is in the watershed of Pleasant River.

The watershed that was analyzed for this project is approximately 2.23 acres. The analysis points are described in Section 1.2 of this report. The watershed generally flows from west to east and is bounded by Pope Road to the north, and residential lots to the south, east, and west.

The Pre-Development Watershed Map is included as Sheet A of the accompanying plans and the Calculations are attached as Appendix C.

The Pre-Development Watershed Model predicts the following peak flow rates:

Pre-Development Peak Flows (cu. ft./sec)			
Analysis Point	**2-Year**	**10-Year**	**25-Year**
AP-1	0.93	2.27	3.48
AP-2	0.38	0.90	1.37

1.4 POST DEVELOPMENT CONDITIONS

The proposed project will include construction of a 5,817 square foot daycare building with a paved access drive, parking lot, and associated stormwater infrastructure. Below is a summary of the proposed developed areas associated with construction of the public infrastructure.

Proposed Impervious Area	=	28,916 sf
Proposed Landscaped Area	=	34,587 sf
Proposed Developed Area	=	63,503 sf

The Post Development Watershed Map is included as Sheet B of the accompanying plan set and the Calculations are attached as Appendix D.

The Post-Development Watershed Model predicts the following peak flow rates:

Post Development Peak Flows (cu. ft./sec)			
Analysis Point	**2-Year**	**10-Year**	**25-Year**
AP-1	0.77	1.75	3.15
AP-2	0.60	1.18	1.66

1.5 BASIC STANDARDS

The proposed project is not required to meet the Basic Standards for the Maine DEP. To meet the Basic Standards the project design must demonstrate that the erosion and sedimentation control, inspection and maintenance, and housekeeping standards specified in Appendices A, B, and C of 06-096 Chapter 500 (Maine DEP) are met, and that the grading or other construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel.

The proposed project will provide temporary (during construction) BMP's and post-construction BMP's. Refer to Sheet 5 of the project plans for erosion and sedimentation control narratives and details. The project requirements for inspection and maintenance during construction and post-construction are described in the Erosion and Sedimentation Control - Inspection and Maintenance Plan found in Appendix F of this Report. The housekeeping standards can also be found in the Inspection and Maintenance Plan.

1.6 GENERAL STANDARDS

The proposed project is not required to meet the General Standards for the Maine DEP.

1.7 PHOSPHORUS STANDARD

The proposed project flows to an unnamed stream which is a tributary to Pleasant River. The proposed project is not located within the direct watershed of a lake or lake most-at-risk listed in 06-096 Chapter 502. The Phosphorus Standard does not apply to this project.

1.8 URBAN IMPAIRED STREAM STANDARD

The proposed project flows to an unnamed stream which is a tributary to Pleasant River. Pleasant River is not listed in 06-096 Chapter 502 as an Urban Impaired Stream. The Urban Impaired Stream Standard does not apply to this project.

1.9 FLOODING STANDARD

The proposed project is not required to meet the Flooding Standards of the Maine DEP. However, the Town of Windham requires that pre and post development runoff modelling be evaluated. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project.

b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits.

c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be defined, and no buildings or other similar facilities may be planned within such areas.

d) Runoff from the project may not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm.

The following Table compares the Pre and Post Development peak flow rates for the 2-year, 10-year, and 25-year storm events. Refer to Appendix C for the Pre-Development model and Appendix D for Post Development model.

Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	0.93	0.77	2.27	1.75	3.48	3.15
AP-2	0.38	0.60	0.90	1.18	1.37	1.66

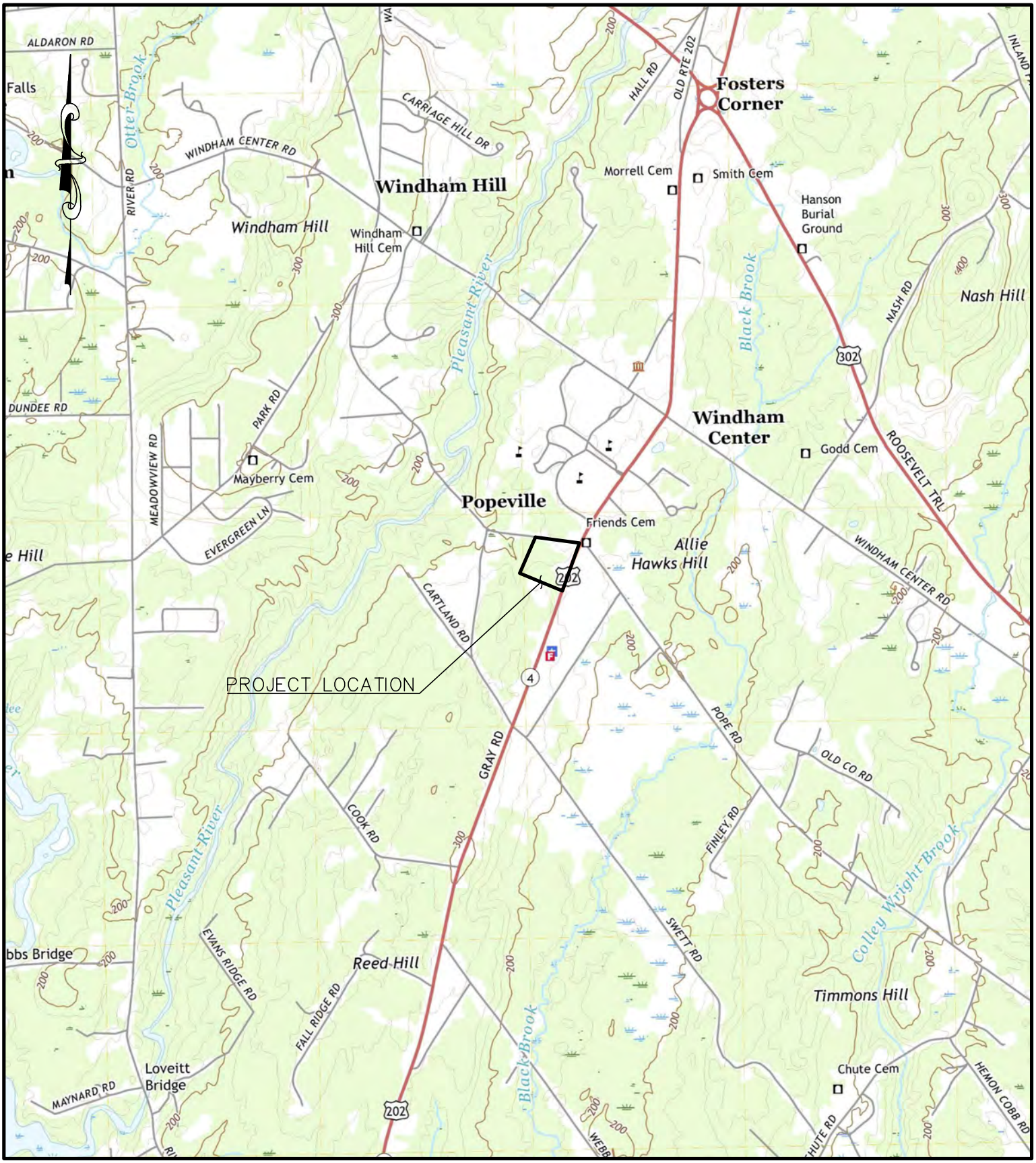
As illustrated in the table above, development of the proposed project will create a condition where peak flows of stormwater from the project site exceed the peak flows of stormwater prior to undertaking the project at Analysis Point 2 for the 2, 10, and 25-year storm events. This increase is minor and due to the decrease in peak flows at Analysis Point 1 in the post development state, the changes are well within the capacity of the downstream conditions.

The development of this project will not create any adverse impacts to the downstream conditions. Please see the post development stormwater model for additional information.

1.7 CLOSURE

The proposed stormwater management facilities have been designed to mitigate stormwater impacts associated with development of the proposed project. The proposed stormwater management facilities have been designed to meet the Basic, General and Flooding Standards required by Chapter 500.

Appendix A
Figures

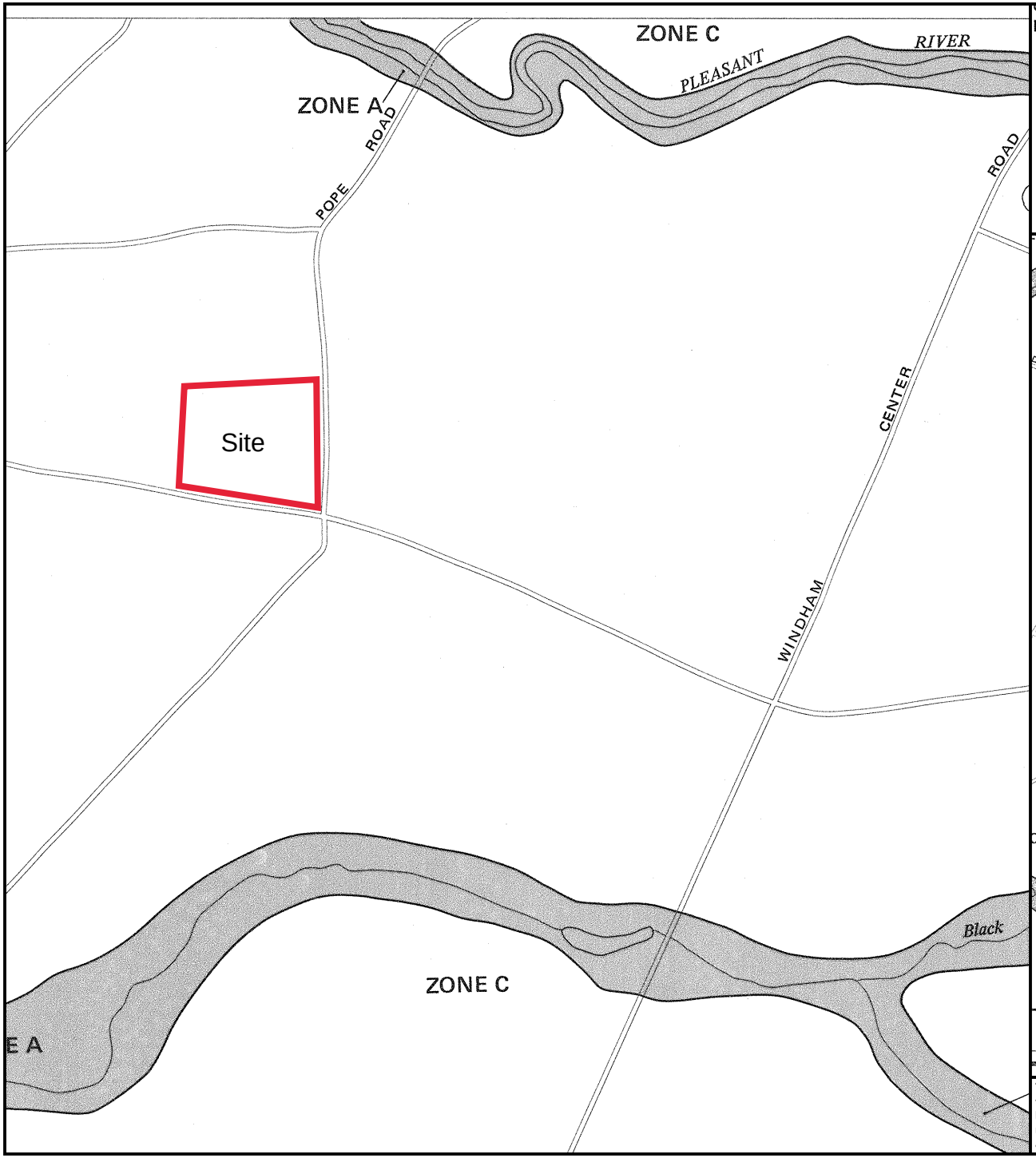


REFERENCES:
1. USGS QUADRANGLE NORTH WINDHAM, ME 2021

Scale: 1" = 2000'

2000' 0 2000' 4000'

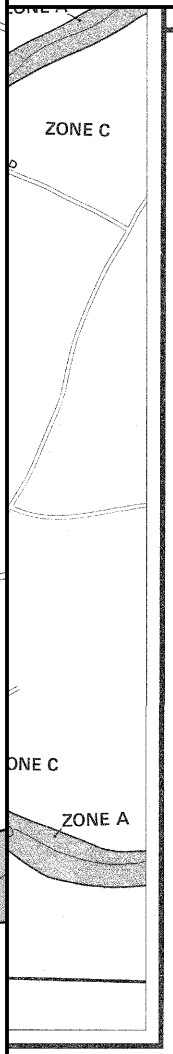
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
Fax (207) 839-8250



contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE

800 0 800 FEET



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

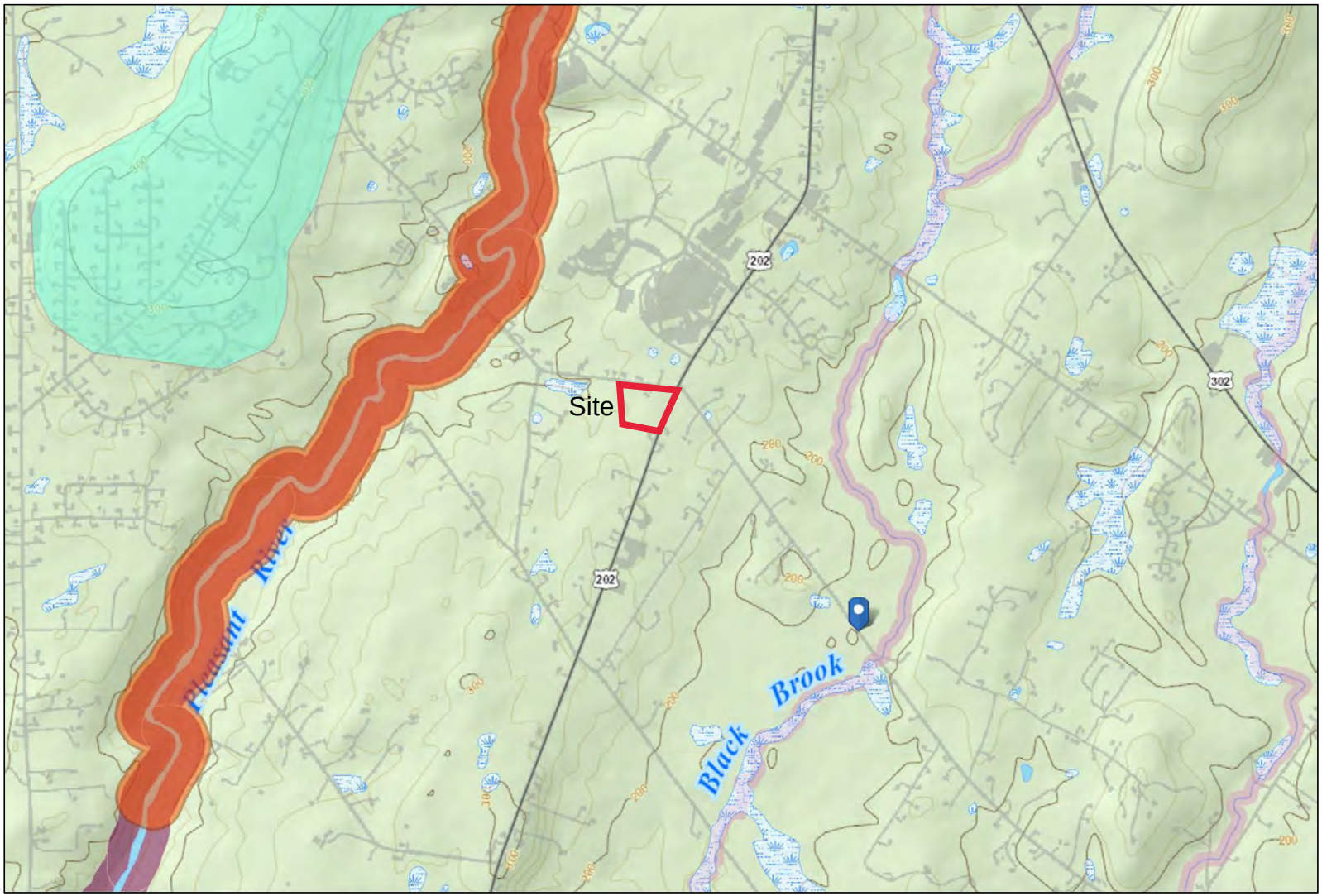
TOWN OF
WINDHAM, MAINE
CUMBERLAND COUNTY

PANEL 30 OF 35
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230189 0030 B

EFFECTIVE DATE:
SEPTEMBER 2, 1981

federal emergency management agency
federal insurance administration



BEGINNING WITH HABITAT

Legend

State of Maine

The Nature Conservancy

Maine Audubon

Maine Coast Heritage Trust
A Statewide Land Conservation Organization

MaineDOT

0 0.225 0.45 0.9 1.35 mi

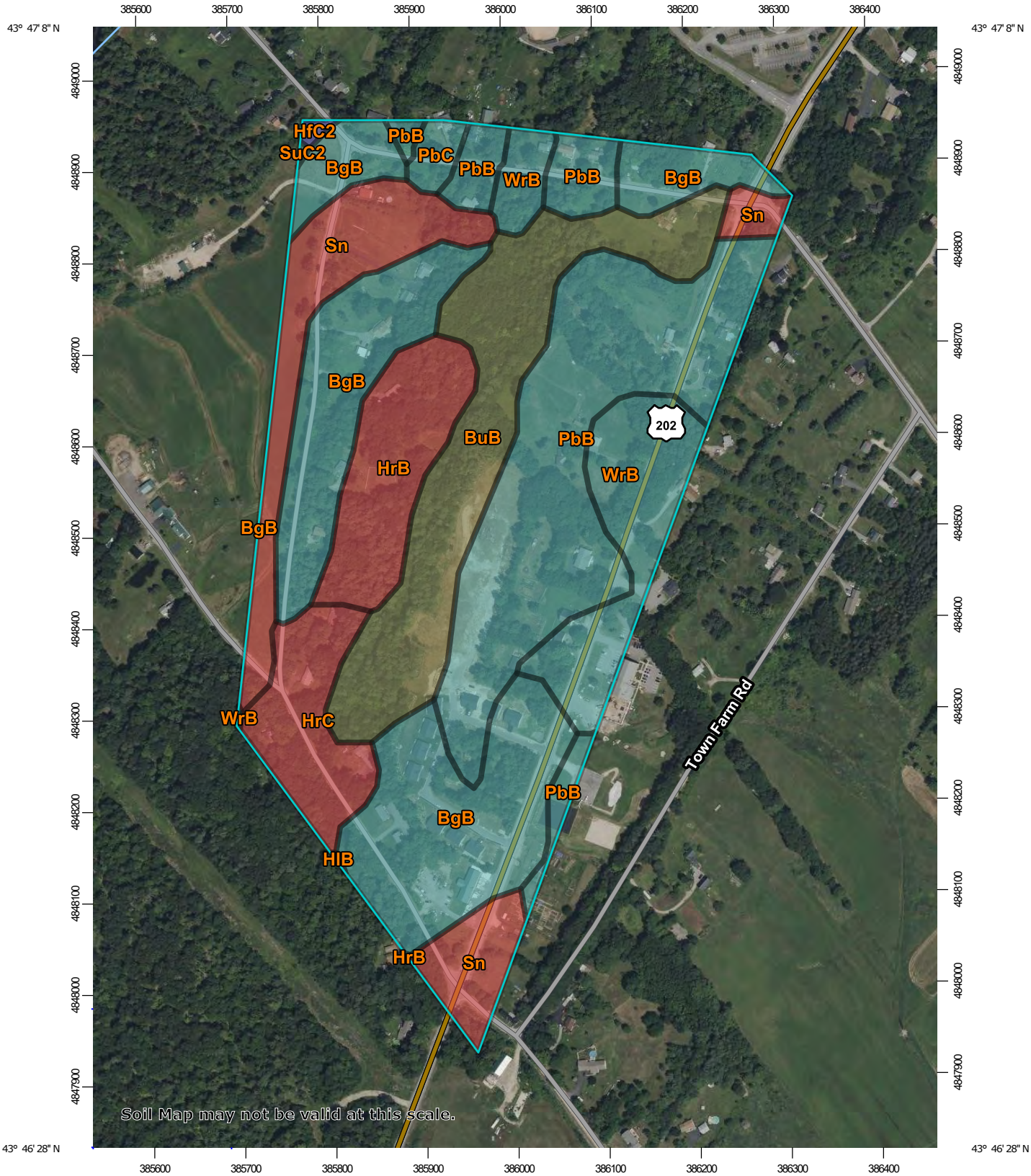
N W E S

Supported in part by Maine Outdoor Heritage Fund lottery ticket sales

Map Prepared by Maine Department of Inland Fisheries & Wildlife
November 2023

Supported in part by Loon Conservation Plate funds

Appendix B
Soils Report



Map Scale: 1:5,970 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 20, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	C	23.8	25.3%
BuB	Lamoine silt loam, 3 to 8 percent slopes	C/D	14.6	15.5%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	B	0.2	0.2%
HlB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.0	0.0%
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	D	6.7	7.1%
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	D	5.5	5.8%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	C	23.1	24.5%
PbC	Paxton fine sandy loam, 8 to 15 percent slopes	C	0.9	1.0%
Sn	Scantic silt loam, 0 to 3 percent slopes	D	10.9	11.5%
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded	C	0.0	0.0%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	C	8.5	9.0%
Totals for Area of Interest			**94.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

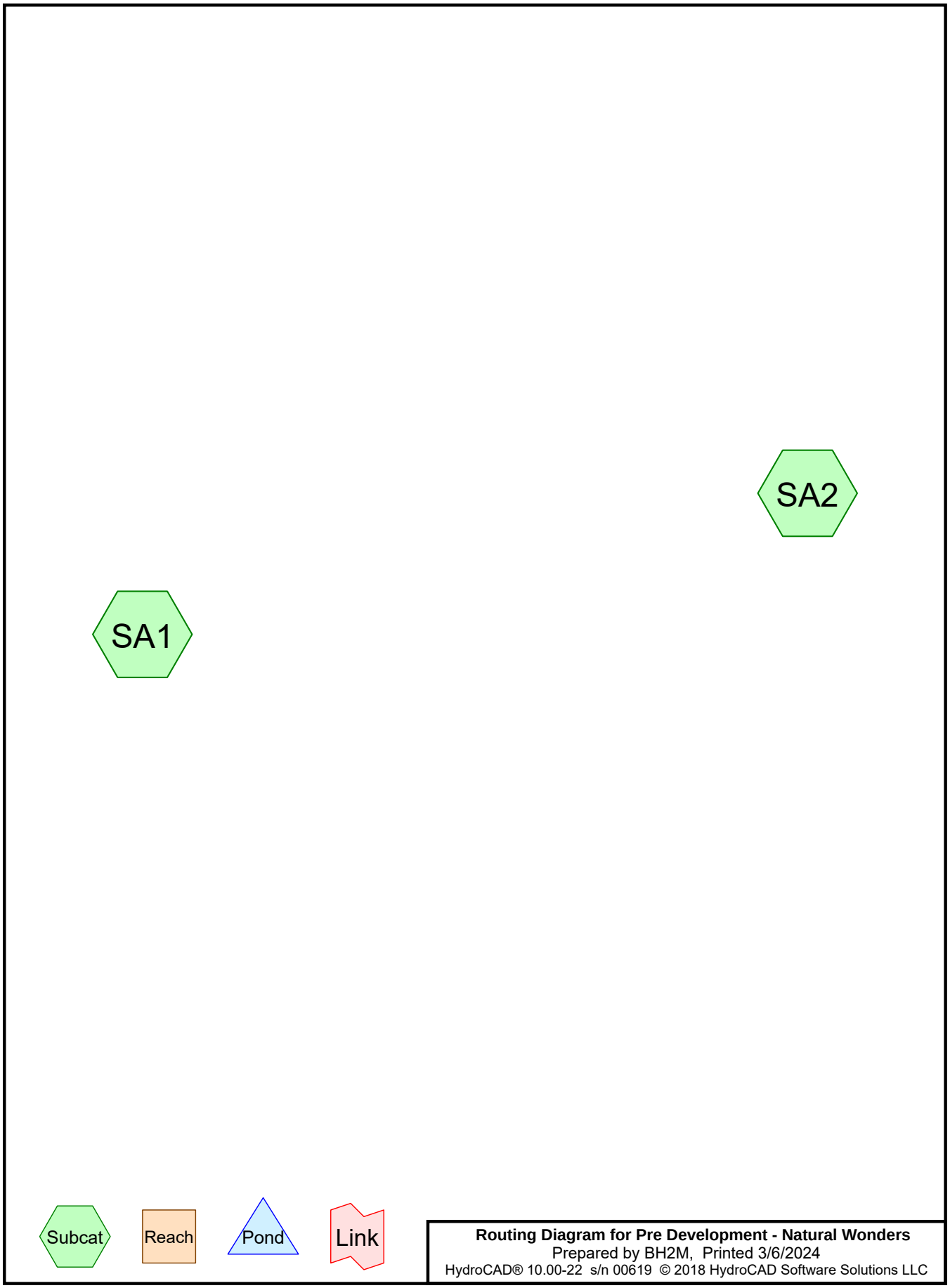
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C
Pre Development Calculations



Routing Diagram for Pre Development - Natural Wonders
Prepared by BH2M, Printed 3/6/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.059	98	Paved parking, HSG A (SA1, SA2)
1.914	70	Woods, Good, HSG C (SA1, SA2)
0.253	77	Woods, Good, HSG D (SA1, SA2)
2.226	**72**	**TOTAL AREA**

Summary for Subcatchment SA1:

Runoff = 0.93 cfs @ 12.30 hrs, Volume= 0.097 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.10"

Area (sf)	CN	Description
10,184	77	Woods, Good, HSG D
58,397	70	Woods, Good, HSG C
487	98	Paved parking, HSG A
69,068	71	Weighted Average
68,581		99.29% Pervious Area
487		0.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.9	120	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment SA2:

Runoff = 0.38 cfs @ 12.34 hrs, Volume= 0.042 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.10"

Area (sf)	CN	Description
2,067	98	Paved parking, HSG A
24,998	70	Woods, Good, HSG C
819	77	Woods, Good, HSG D
27,884	72	Weighted Average
25,817		92.59% Pervious Area
2,067		7.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.4	150	0.0470	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	20	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.8	170	Total			

Summary for Subcatchment SA1:

Runoff = 2.27 cfs @ 12.27 hrs, Volume= 0.220 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=4.60"

Area (sf)	CN	Description
10,184	77	Woods, Good, HSG D
58,397	70	Woods, Good, HSG C
487	98	Paved parking, HSG A
69,068	71	Weighted Average
68,581		99.29% Pervious Area
487		0.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.9	120	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment SA2:

Runoff = 0.90 cfs @ 12.32 hrs, Volume= 0.093 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=4.60"

Area (sf)	CN	Description
2,067	98	Paved parking, HSG A
24,998	70	Woods, Good, HSG C
819	77	Woods, Good, HSG D
27,884	72	Weighted Average
25,817		92.59% Pervious Area
2,067		7.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.4	150	0.0470	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	20	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.8	170	Total			

Summary for Subcatchment SA1:

Runoff = 3.48 cfs @ 12.27 hrs, Volume= 0.334 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
10,184	77	Woods, Good, HSG D
58,397	70	Woods, Good, HSG C
487	98	Paved parking, HSG A
69,068	71	Weighted Average
68,581		99.29% Pervious Area
487		0.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.9	120	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment SA2:

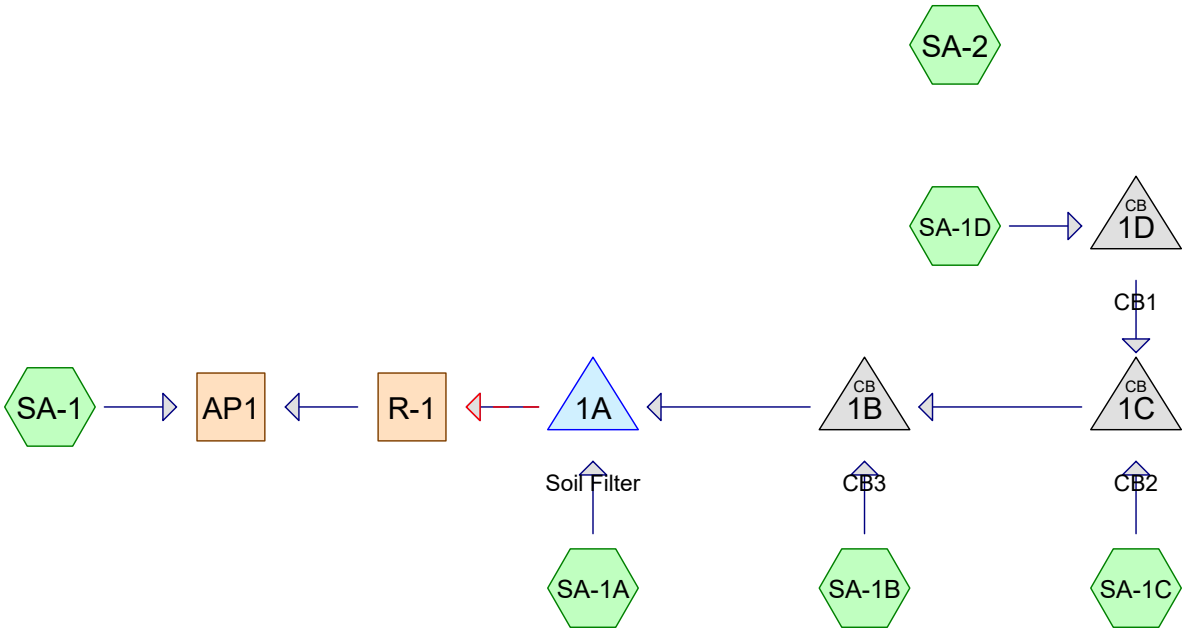
Runoff = 1.37 cfs @ 12.31 hrs, Volume= 0.139 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
2,067	98	Paved parking, HSG A
24,998	70	Woods, Good, HSG C
819	77	Woods, Good, HSG D
27,884	72	Weighted Average
25,817		92.59% Pervious Area
2,067		7.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.4	150	0.0470	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	20	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.8	170	Total			

Appendix D
Post Development Calculations



Subcat Reach Pond Link

Routing Diagram for Post Development - Natural Wonders
Prepared by BH2M, Printed 3/6/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.652	74	>75% Grass cover, Good, HSG C (SA-1, SA-1A, SA-1B, SA-1C, SA-1D, SA-2)
0.142	80	>75% Grass cover, Good, HSG D (SA-1, SA-1A, SA-2)
0.722	98	Paved parking, HSG A (SA-1, SA-1A, SA-1B, SA-1C, SA-1D, SA-2)
0.605	70	Woods, Good, HSG C (SA-1, SA-1A, SA-2)
0.104	77	Woods, Good, HSG D (SA-1)
2.226	**81**	**TOTAL AREA**

Summary for Subcatchment SA-2:

Runoff = 0.60 cfs @ 12.13 hrs, Volume= 0.044 af, Depth> 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.10"

Area (sf)	CN	Description
808	80	>75% Grass cover, Good, HSG D
10,149	74	>75% Grass cover, Good, HSG C
5,268	98	Paved parking, HSG A
2,803	70	Woods, Good, HSG C
19,028	80	Weighted Average
13,760		72.31% Pervious Area
5,268		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	140	0.0570	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Summary for Reach AP1:

Inflow Area = 1.789 ac, 33.61% Impervious, Inflow Depth > 0.63" for 2-YEAR STORM event
Inflow = 0.77 cfs @ 12.19 hrs, Volume= 0.094 af
Outflow = 0.77 cfs @ 12.19 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment SA-2:

Runoff = 1.18 cfs @ 12.12 hrs, Volume= 0.086 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=4.60"

Area (sf)	CN	Description
808	80	>75% Grass cover, Good, HSG D
10,149	74	>75% Grass cover, Good, HSG C
5,268	98	Paved parking, HSG A
2,803	70	Woods, Good, HSG C
19,028	80	Weighted Average
13,760		72.31% Pervious Area
5,268		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	140	0.0570	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Summary for Reach AP1:

Inflow Area = 1.789 ac, 33.61% Impervious, Inflow Depth > 1.49" for 10-YEAR STORM event
Inflow = 1.75 cfs @ 12.17 hrs, Volume= 0.222 af
Outflow = 1.75 cfs @ 12.17 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment SA-1:

Runoff = 2.59 cfs @ 12.17 hrs, Volume= 0.210 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
23,015	70	Woods, Good, HSG C
4,535	77	Woods, Good, HSG D
6,973	74	>75% Grass cover, Good, HSG C
5,017	80	>75% Grass cover, Good, HSG D
953	98	Paved parking, HSG A
40,493	73	Weighted Average
39,540		97.65% Pervious Area
953		2.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	120	0.1250	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment SA-1A:

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
551	70	Woods, Good, HSG C
8,390	74	>75% Grass cover, Good, HSG C
359	80	>75% Grass cover, Good, HSG D
1,258	98	Paved parking, HSG A
10,558	77	Weighted Average
9,300		88.08% Pervious Area
1,258		11.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment SA-1B:

Runoff = 1.81 cfs @ 12.09 hrs, Volume= 0.134 af, Depth> 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
2,215	74	>75% Grass cover, Good, HSG C
12,420	98	Paved parking, HSG A
14,635	94	Weighted Average
2,215		15.13% Pervious Area
12,420		84.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	28	0.0360	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.5	117	0.0170	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
4.3	145	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment SA-1C:

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
6,584	98	Paved parking, HSG A
232	74	>75% Grass cover, Good, HSG C
6,816	97	Weighted Average
232		3.40% Pervious Area
6,584		96.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	97	0.0150	1.20		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
1.3	97	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment SA-1D:

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
445	74	>75% Grass cover, Good, HSG C
4,975	98	Paved parking, HSG A
5,420	96	Weighted Average
445		8.21% Pervious Area
4,975		91.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	88	0.0110	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
1.4	88	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment SA-2:

Runoff = 1.66 cfs @ 12.12 hrs, Volume= 0.123 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=5.80"

Area (sf)	CN	Description
808	80	>75% Grass cover, Good, HSG D
10,149	74	>75% Grass cover, Good, HSG C
5,268	98	Paved parking, HSG A
2,803	70	Woods, Good, HSG C
19,028	80	Weighted Average
13,760		72.31% Pervious Area
5,268		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	140	0.0570	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Summary for Reach AP1:

Inflow Area = 1.789 ac, 33.61% Impervious, Inflow Depth > 2.46" for 25-YEAR STORM event
Inflow = 3.15 cfs @ 12.35 hrs, Volume= 0.367 af
Outflow = 3.15 cfs @ 12.35 hrs, Volume= 0.367 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach R-1:

Inflow Area = 0.859 ac, 67.43% Impervious, Inflow Depth > 2.20" for 25-YEAR STORM event
Inflow = 1.58 cfs @ 12.35 hrs, Volume= 0.157 af
Outflow = 1.54 cfs @ 12.39 hrs, Volume= 0.157 af, Atten= 2%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.10 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 2.9 min

Peak Storage= 102 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 196.75 cfs

10.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 10.0 '/' Top Width= 30.00'
Length= 135.0' Slope= 0.0926 '/'
Inlet Invert= 210.50', Outlet Invert= 198.00'

‡

Summary for Pond 1A: Soil Filter

Inflow Area = 0.859 ac, 67.43% Impervious, Inflow Depth > 4.39" for 25-YEAR STORM event
Inflow = 4.27 cfs @ 12.09 hrs, Volume= 0.315 af
Outflow = 1.58 cfs @ 12.35 hrs, Volume= 0.157 af, Atten= 63%, Lag= 16.0 min
Primary = 0.03 cfs @ 12.36 hrs, Volume= 0.034 af
Secondary = 1.55 cfs @ 12.35 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 210.91' @ 12.36 hrs Surf.Area= 3,004 sf Storage= 7,300 cf
Flood Elev= 212.00' Surf.Area= 3,752 sf Storage= 10,991 cf

Plug-Flow detention time= 170.5 min calculated for 0.157 af (50% of inflow)
Center-of-Mass det. time= 79.4 min (830.7 - 751.3)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	10,991 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.00	870	0	0
208.00	1,334	1,102	1,102
209.00	1,853	1,594	2,696
210.00	2,430	2,142	4,837
211.00	3,063	2,747	7,584
212.00	3,752	3,408	10,991

Device	Routing	Invert	Outlet Devices
#1	Primary	204.50'	**6.0" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 204.50' / 203.00' S= 0.0441 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	204.50'	**0.7" Vert. Orifice/Grate** C= 0.600
#3	Secondary	210.75'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.03 cfs @ 12.36 hrs HW=210.91' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 2.20 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 12.16 fps)

Secondary OutFlow Max=1.53 cfs @ 12.35 hrs HW=210.91' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 1.53 cfs @ 0.98 fps)

Summary for Pond 1B: CB3

Inflow Area = 0.617 ac, 89.24% Impervious, Inflow Depth > 4.91" for 25-YEAR STORM event
Inflow = 3.35 cfs @ 12.09 hrs, Volume= 0.252 af
Outflow = 3.35 cfs @ 12.09 hrs, Volume= 0.252 af, Atten= 0%, Lag= 0.0 min
Primary = 3.35 cfs @ 12.09 hrs, Volume= 0.252 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 213.74' @ 12.09 hrs
Flood Elev= 216.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	212.78'	**15.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 212.78' / 211.49' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.26 cfs @ 12.09 hrs HW=213.72' (Free Discharge)
└**1=Culvert** (Inlet Controls 3.26 cfs @ 3.30 fps)

Summary for Pond 1C: CB2

Inflow Area = 0.281 ac, 94.47% Impervious, Inflow Depth > 5.04" for 25-YEAR STORM event
Inflow = 1.55 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.55 cfs @ 12.09 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.09 hrs, Volume= 0.118 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 214.03' @ 12.09 hrs
Flood Elev= 217.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	213.35'	**15.0" Round Culvert** L= 94.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 213.35' / 212.88' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.50 cfs @ 12.09 hrs HW=214.02' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.50 cfs @ 3.29 fps)

Summary for Pond 1D: CB1

Inflow Area = 0.124 ac, 91.79% Impervious, Inflow Depth > 4.99" for 25-YEAR STORM event
Inflow = 0.68 cfs @ 12.09 hrs, Volume= 0.052 af
Outflow = 0.68 cfs @ 12.09 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Primary = 0.68 cfs @ 12.09 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 214.72' @ 12.09 hrs
Flood Elev= 217.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	214.30'	**12.0" Round Culvert** L= 94.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 214.30' / 213.45' S= 0.0090 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.66 cfs @ 12.09 hrs HW=214.71' (Free Discharge)
1=Culvert (Inlet Controls 0.66 cfs @ 2.18 fps)

Appendix E

Water Quality Calculations and Vegetated Soil Filter Sizing Calculations

BH2M
380B Main Street
Gorham, Maine 04038

WATER QUALITY CALCULATIONS
Natural Wonders Daycare

Subcatchment ID	Proposed Impervious Area (sq. ft.)	Proposed Lawn Area (sq. ft.)	Proposed Developed Area (sq. ft.)	Existing Impervious Area (sq.ft.)	Existing Vegetated Area (sq.ft.)	Treated Impervious Area (sq. ft.)	Treated Developed Area (sq. ft.)	BMP ID
1	275	11,990	12,265	678	27,552	0	0	None
2	3,404	10,957	14,361	1,864	2,803	0	0	None
1A	1,258	8,748	10,006	0	551	1,258	10,006	Filter A
1B	12,420	2,215	14,635	0	0	12,420	14,635	Filter A
1C	6,584	232	6,816	0	0	6,584	6,816	Filter A
1D	4,975	445	5,420	0	0	4,975	5,420	Filter A
Total	**28,916**	**34,587**	**63,503**	**2,542**	**30,906**	**25,237**	**36,877**	

Treatment Summary	
Proposed Linear Impervious Area (sq. ft.)=	28,916
Proposed Linear Developed Area (sq. ft.)=	63,503
Treated Linear Impervious Area (sq. ft.)=	25,237
Treated Linear Developed Area (sq. ft.)=	41,066
Impervious Area Treatment % =	**87.28%**
Developed Area Treatment % =	**64.67%**

Summary for Pond 1A: Soil Filter

Inflow Area = 0.859 ac, 67.43% Impervious, Inflow Depth > 6.46" for 100-YEAR STORM event
Inflow = 6.21 cfs @ 12.09 hrs, Volume= 0.463 af
Outflow = 5.45 cfs @ 12.14 hrs, Volume= 0.305 af, Atten= 12%, Lag= 3.1 min
Primary = 0.03 cfs @ 12.14 hrs, Volume= 0.035 af
Secondary = 5.42 cfs @ 12.14 hrs, Volume= 0.270 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 211.11' @ 12.14 hrs Surf.Area= 3,136 sf Storage= 7,913 cf
Flood Elev= 212.00' Surf.Area= 3,752 sf Storage= 10,991 cf

Plug-Flow detention time= 131.2 min calculated for 0.304 af (66% of inflow)
Center-of-Mass det. time= 59.7 min (806.5 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	10,991 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.00	870	0	0
208.00	1,334	1,102	1,102
209.00	1,853	1,594	2,696
210.00	2,430	2,142	4,837
211.00	3,063	2,747	7,584
212.00	3,752	3,408	10,991

Device	Routing	Invert	Outlet Devices
#1	Primary	204.50'	**6.0" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 204.50' / 203.00' S= 0.0441 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	204.50'	**0.7" Vert. Orifice/Grate** C= 0.600
#3	Secondary	210.75'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.03 cfs @ 12.14 hrs HW=211.10' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 2.23 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 12.34 fps)

Secondary OutFlow Max=5.30 cfs @ 12.14 hrs HW=211.10' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 5.30 cfs @ 1.51 fps)

Appendix F
Inspection and Maintenance Manual

EROSION AND SEDIMENTATION CONTROL INSPECTION AND MAINTENANCE PLAN

Natural Wonders Daycare

184 Pope Road
Windham, Maine

Submitted by:

Windham School Age
Children Association Inc.
P.O. Box 839
Windham, Maine 04062

Prepared by:

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2024

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for the Natural Wonders Daycare Project. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management, the Town of Windham Post-Construction Stormwater Management Ordinance, and the Maine Construction General Permit.

1.1 PROJECT DESCRIPTION

Natural Wonders Daycare is proposing to construct a 5,817 sf daycare building with associated parking and access infrastructure (the project). The Project is proposed to occupy approximately 2.50 acres on a parcel located off Cummings Road known as Tax Map 43, Block 30, Lot A-2.

The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a bituminous parking lot
- Construction of a 5,817 sf building
- Installation of storm drain system including catch basins, stormdrains, and a grassed underdrained soil filter.
- Installation of utilities
- Final site stabilization

1.2 REQUIRED PERMITS

The following is a list of Municipal, State, and Federal permits that are required for the Project:

Municipal
Town Windham Site Plan Approval

State of Maine
Stormwater PBR

Federal
Maine General Permit – Self Verification

1.3 REFERENCES

This plan has been developed in accordance with the following:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
  http://legislature.maine.gov/statutes/38/title38sec420-C.html
  http://legislature.maine.gov/statutes/38/title38sec420-D.html

- 06-096 Chapter 500 – Stormwater Management
  http://www.maine.gov/sos/cec/rules/06/096/096c500.docx

- General Permit – Construction Activity
  Maine Pollutant Discharge Elimination System (MPDES)
  https://www.maine.gov/dep/land/stormwater/construction.html

- Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers
  https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf

- Maine Erosion and Sediment Control Practices Field Guide for Contractors
  https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_field.pdf

- MaineDOT Best Management Practices for Erosion and Sedimentation Control
  https://www.maine.gov/mdot/env/documents/bmp/BMP2008full.pdf

1.4 RESPONSIBLE PARTIES

Preparer/Design Engineer:	Andrew S. Morrell, PE BH2M 380B Main Street Gorham, Maine 04038 (207) 839-2771
Developer/Applicant:	Windham School Age Children Assoc., Inc. P.O. Box 839 Windham, ME 04062
Site Contractor:	_____ _____ _____
Owner:	Windham School Age Children Assoc., Inc. P.O. Box 839 Windham, ME 04062
Post Construction Stormwater Inspector*:	Andrew S. Morrell, PE BH2M 380B Main Street Gorham, Maine 04038 (207) 839-2771
Stormwater Maintenance**:	
During Construction:	Windham School Age Children Assoc., Inc. P.O. Box 839 Windham, ME 04062
Post Construction:	_____ _____ _____

** During construction, the Developer/Applicant or their representatives will be responsible for implementing the erosion and sediment control BMP's as well routine inspections and maintenance of the BMP's. Post-construction stormwater BMP inspection, maintenance, reporting, and required recertifications will be the responsibility of the Owner or their representatives.

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix D shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

2. Maintenance: If BMP's need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event. All measures must be maintained in effective operating condition until areas are permanently stabilized.

3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form. Major observations must include BMP's that need maintenance, BMP's that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action should be taken and when it was taken. The Owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that will require routine inspection and maintenance:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Stabilized Construction Entrance
- Construction Limit Barrier Fence
- Temporary Sediment Trap
- Pipe Inlet/Outlet Protection
- Temporary Grass/Stone Lined Swale
- Parking Lot and Sidewalks
- Snow Storage Areas
- Catch Basins and Storm Drain Manholes
- Storm Drains and Culverts
- Grassed Underdrained Soil Filters

Winter Construction

Winter construction is any construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

Site Stabilization: For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.

1. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.

2. Ditches: All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by Maine DEP.

3. Slopes: Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 INSPECTION AND MAINTENANCE – POST-CONSTRUCTION

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and maintenance: All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.

a) Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (1 inch in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

b) Inspect catch basins and drain manholes annually and clean out either when the sump is half full or when sediment is within one foot of the invert of the outlet pipe. Clean-out must include the removal and legal disposal of any accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil absorptive pads).

c) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (1 inch in 24-hour period) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

d) Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert’s inlet and outlet.

e) Inspect at least once per year, each underdrained soil filter, including the filter embankments, vegetation, underdrain piping, and overflow spillway. Remove and dispose of accumulated sediments in the filter. If needed, rehabilitate any clogged surface linings, and flush underdrain piping.

f) Inspect level spreaders in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, and outlet, and repair any erosion damage at the inlet and outlet.

2. Regular maintenance

    a) Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.

3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed of after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.

4. The site-specific post-construction BMP's for Natural Wonders Daycare include the following:

    - Underdrained Soil Filters
    - Parking Lot and Sidewalks
    - Storm Drain System (including culverts, storm drains, catch basins, drain manholes, and vegetated and reinforced ditches/swales).
    - Snow storage areas
    - Rip rap inlet and outlet aprons
    - Sediment forebay

1.7 RECERTIFICATION OF STORMWATER MANAGEMENT SYSTEMS

This parcel is not subject to recertification with the Maine DEP and is not in the Town of Windham's designated MS4 area. No recertification is required.

1.8 SITE-SPECIFIC BMP MAINTENANCE AND ANNUAL REPORTING REQUIREMENTS

Below is a site-specific of list BMP's implemented for the Project as well as their ID, discharge location, and inspection and certification requirements.

Table 1 - Post-Construction BMP Designation Table

Post-Const. BMP ID	Type of Post-Const. BMP	Discharge Location	MS4 (YES/NO)	Inspection Frequency	Post-Const. Certification Requirement	Post-Const. Responsibility
BMP-A	Vegetated Areas	N/A	N/A	N/A	N/A	Owner
BMP-B	Catch Basins	Soil Filter	No	Annual	N/A	Owner
BMP-C	Stormdrain Pipes	Soil Filter	No	Annual	N/A	Owner
BMP-D	Parking & Sidewalks	Stormdrain System	No	Biannual	N/A	Owner
BMP-E	Soil Filter	Wooded Area	No	Biannual	N/A	Owner

1.9 HOUSEKEEPING

The following performance standards shall apply:

1. Spill prevention: Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop and implement as necessary appropriate spill prevention, containment, and response planning measures.

NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a

day. For more information, visit the Department's website at : http://www.maine.gov/dep/spills/emergspillresp/

2. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area or provide for treatment within the infiltration area in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

   See 06-096 Chapter 500 - Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately, no less than once a week, and prior to significant storm events. Operations during dry months that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

NOTE: Take care in sourcing water. Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. Debris and other materials: Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post- construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering: Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the "Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection."

6. Authorized non-stormwater discharges: Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non- stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

   a) Discharges from firefighting activity;
   b) Fire hydrant flushings;
   c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
   d) Dust control runoff in accordance with permit conditions;
   e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
   f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
   g) Uncontaminated air conditioning or compressor condensate;
   h) Uncontaminated groundwater or spring water;
   i) Foundation or footer drain-water where flows are not contaminated;
   j) Uncontaminated excavation dewatering;
   k) Potable water sources including waterline flushings; and
   l) Landscape irrigation.

7. Unauthorized non-stormwater discharges: The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with 06-096 Chapter 500 - Appendix C (6). Specifically, the Department's approval does not authorize discharges of the following:

    a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
    b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
    c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
    d) Toxic or hazardous substances from a spill or other release.

8. Additional requirements: Additional requirements may be applied on a site-specific basis.

Appendix A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL						
General Information:						
Site Name:	Date:			Inspected by:		
Owner:						
Retained 3PI:	Last Rain Date:			Amount:		
Reason for Inspection:	Weekly	Winter	Final	Rain Event	Complaint	
Description of disturbed area:						
Photos:						
	YES/NO/NA	**COMMENTS**				
1. Is an Erosion and Sediment Control Plan available?						
ESC plan on-site and followed						
Other:						
2. Are all erosion control practices installed properly, maintained and functioning?						
Disturbed areas stable						
Concentrated flow inlet/outlet protection						
All areas at final grade						
Disturbed dormant areas stabilized						
Access roads and parking						
Hillsides and stockpiles						
Other:						
3. Are all sedimentation control practices installed properly, maintained and functioning?						
Construction entrance						
Sedimentation basins/traps/diversions						
Perimeter controls						
Check dams						
Other:						
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?						
Sedimentation/erosion in ditches						
Tracked Sediment or dust at exits						
Hazardous material storage and spill control practices						
Waste management (concrete, hazardous material, etc.)						
Other:						
5. Violation, Corrective Actions, Recommendations						
Sediment discharged from site?						
Corrective action required?						
Site compliant with all permits?						
Notice of violation or stop work order issued?						
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)						

Appendix C
Post-Construction Inspection Forms

Natural Wonders Daycare **Post-Construction Inspection Form (Vegetated Area)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
All slopes and embankments well vegetated? Signs of sparse growth?		
Rill erosion apparent in vegetated areas?		
Downs slope of level spreaders/ditch turnouts stable?		
Mowing of vegetated areas appropriate?		

Additional Comments:

Natural Wonders Daycare
Post-Construction Inspection Form (Ditches, Swales and Open Stormwater Channels)

Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Obstructions, sediment or debris noticeable in ditch line?		
Mowing required?		
Woody vegetation apparent in ditches?		
Side slopes stable? Signs of slumping?		
Rip rap stable? Underlying filter fabric visible?		

Additional Comments:

Natural Wonders Daycare
Post-Construction Inspection Form (Roadway and Parking Areas)

Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Winter sand accumulation apparent?		
Pavement Sweeping required?		
Gravel shoulders graded appropriately?		
Gravel road grading required?		
Low spots causing puddling?		

Additional Comments:

Natural Wonders Daycare **Post-Construction Inspection Form (Storm Drain System including catch basins and culverts)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?		
Flow obstructions present?		
Erosion apparent at culvert inlet/outlet?		
Accumulated debris around catch basin grate?		
Accumulated debris in catch basin sump?		
Floating debris or oils found in catch basins?		

Additional Comments:

Natural Wonders Daycare **Post-Construction Inspection Form (Underdrain Filter)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Debris apparent in basin bottom?		
Vegetation established in basin bottom?		
Basin draining within 72 hours?		
Inlet forebay rip rap stable and free of debris?		
Embankment and side slopes stable? Sloughs or unvegetated areas apparent?		
Outlet free of debris? Rip rap stable?		
Valve in operating condition?		
Outlet control structure operational free of debris?		
Orifice free of debris and operational?		

Additional Comments:

Appendix D

Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Appendix E
Permit Orders

Appendix F
Stormwater Report Narrative

STORMWATER MANAGEMENT REPORT

Natural Wonders Daycare

184 Pope Road
Windham, Maine

Submitted by:

Windham School Age
Children Association Inc.
P.O. Box 839
Windham, Maine 04062

Prepared by:
Gage Feeney

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2024

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LIST OF APPENDICES

1.0 INTRODUCTION

The applicant, Windham School Age Children Association Inc, is proposing a 5,817 square foot daycare on Pope Rd in Windham, ME. The parcel of land (Tax Map 43, Block 30, Lot A-2) is approximately 2.5 acres in size. The project is not required to obtain an Individual Stormwater Management Permit from the Maine DEP.

The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a bituminous parking lot
- Installation of storm drain system including catch basins, stormdrains, and a grassed underdrained soil filter.
- Installation of utilities
- Final site stabilization

The proposed infrastructure improvements will create approximately 28,916 sf (0.66 acres) of new impervious area and 34,587 sf (0.79 acres) of newly vegetated area totaling 63,503 sf (1.46 acres) of newly developed area.

The Stormwater Management Plan has been prepared to satisfy the requirements of the Maine Department of Environmental Protections "Stormwater Management Rules" Chapters 500, 501 and 502, the most recent version of the "Maine Stormwater Best Management Practices Manual", and the Town of Windham's Stormwater Ordinance.

1.1 OVERVIEW OF MODELING METHODOGY AND SOURCE INFORMATION

Hydrologic Analysis: The pre and post development conditions have been modeled using modeling software (Hydrocad Version 10) which is based upon the methodology contained within the USDA Soil Conservation Service Technical Release 55. Type III 24-hour storm distributions for Cumberland County were used for the analysis. The following return periods and 24-hour rainfall depths were used for the analysis:

Return Period	24-Hour Rainfall Depth
2-Year Storm	3.10 inches
10-Year Storm	4.60 inches
25-Year Storm	5.80 inches

Soils: The soils used for the stormwater analysis were digitized from the Natural Resource Conservation Service (NRCS), web soil survey website. The source of the data is the Cumberland County Soil Survey (Class D). Refer to the following for additional documentation regarding the soils used for modelling:

- Appendix B of this Report
- Pre and Post Development Watershed Plans (Sheets A and B)

The onsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
BgB	Nicholville very fine sandy loam, 0-8% slopes	C
BuB	Lamoine silt loam, 3-8% slopes	C/D
PbC	Paxton fine sandy loam, 8-15% slopes	C
PbB	Paxton fine sandy loam, 3-8% slopes	C
Sn	Scantic silt loam, 0-3% slopes	D
WrB	Woodbridge fine sandy loam, 0-8% slopes	C

Topography: On ground survey by BH2M

Natural Resources: Eric Whitney, Stantec Consulting, Inc.

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at two Analysis Points as described below:

Analysis Point #1
Description: Culmination of flow to unnamed stream that bisects the property.
Pre Development Tributary Drainage Areas: SA-1
Post Development Tributary Drainage Areas: SA-1, 1A-1D

Analysis Point #2
Description: Culmination of flow over the northwestern property line.
Pre Development Tributary Drainage Areas: SA-2
Post Development Tributary Drainage Areas: SA-2

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on Sheet A of the accompanying plans. The parcel to be developed encompasses an area of approximately 2.5 acres and is located on Pope Road in Windham. The parcel is currently undeveloped and flows to an unnamed stream which is in the watershed of Pleasant River.

The watershed that was analyzed for this project is approximately 2.23 acres. The analysis points are described in Section 1.2 of this report. The watershed generally flows from west to east and is bounded by Pope Road to the north, and residential lots to the south, east, and west.

The Pre-Development Watershed Map is included as Sheet A of the accompanying plans and the Calculations are attached as Appendix C.

The Pre-Development Watershed Model predicts the following peak flow rates:

Pre-Development Peak Flows (cu. ft./sec)			
Analysis Point	**2-Year**	**10-Year**	**25-Year**
AP-1	0.93	2.27	3.48
AP-2	0.38	0.90	1.37

1.4 POST DEVELOPMENT CONDITIONS

The proposed project will include construction of a 5,817 square foot daycare building with a paved access drive, parking lot, and associated stormwater infrastructure. Below is a summary of the proposed developed areas associated with construction of the public infrastructure.

Proposed Impervious Area	=	28,916 sf
Proposed Landscaped Area	=	34,587 sf
Proposed Developed Area	=	63,503 sf

The Post Development Watershed Map is included as Sheet B of the accompanying plan set and the Calculations are attached as Appendix D.

The Post-Development Watershed Model predicts the following peak flow rates:

Post Development Peak Flows (cu. ft./sec)			
Analysis Point	**2-Year**	**10-Year**	**25-Year**
AP-1	0.77	1.75	3.15
AP-2	0.60	1.18	1.66

1.5 BASIC STANDARDS

The proposed project is not required to meet the Basic Standards for the Maine DEP. To meet the Basic Standards the project design must demonstrate that the erosion and sedimentation control, inspection and maintenance, and housekeeping standards specified in Appendices A, B, and C of 06-096 Chapter 500 (Maine DEP) are met, and that the grading or other construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel.

The proposed project will provide temporary (during construction) BMP's and post-construction BMP's. Refer to Sheet 5 of the project plans for erosion and sedimentation control narratives and details. The project requirements for inspection and maintenance during construction and post-construction are described in the Erosion and Sedimentation Control - Inspection and Maintenance Plan found in Appendix F of this Report. The housekeeping standards can also be found in the Inspection and Maintenance Plan.

1.6 GENERAL STANDARDS

The proposed project is not required to meet the General Standards for the Maine DEP.

1.7 PHOSPHORUS STANDARD

The proposed project flows to an unnamed stream which is a tributary to Pleasant River. The proposed project is not located within the direct watershed of a lake or lake most-at-risk listed in 06-096 Chapter 502. The Phosphorus Standard does not apply to this project.

1.8 URBAN IMPAIRED STREAM STANDARD

The proposed project flows to an unnamed stream which is a tributary to Pleasant River. Pleasant River is not listed in 06-096 Chapter 502 as an Urban Impaired Stream. The Urban Impaired Stream Standard does not apply to this project.

1.9 FLOODING STANDARD

The proposed project is not required to meet the Flooding Standards of the Maine DEP. However, the Town of Windham requires that pre and post development runoff modelling be evaluated. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project.

b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits.

c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be defined, and no buildings or other similar facilities may be planned within such areas.

d) Runoff from the project may not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm.

The following Table compares the Pre and Post Development peak flow rates for the 2-year, 10-year, and 25-year storm events. Refer to Appendix C for the Pre-Development model and Appendix D for Post Development model.

Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	0.93	0.77	2.27	1.75	3.48	3.15
AP-2	0.38	0.60	0.90	1.18	1.37	1.66

As illustrated in the table above, development of the proposed project will create a condition where peak flows of stormwater from the project site exceed the peak flows of stormwater prior to undertaking the project at Analysis Point 2 for the 2, 10, and 25-year storm events. This increase is minor and due to the decrease in peak flows at Analysis Point 1 in the post development state, the changes are well within the capacity of the downstream conditions.

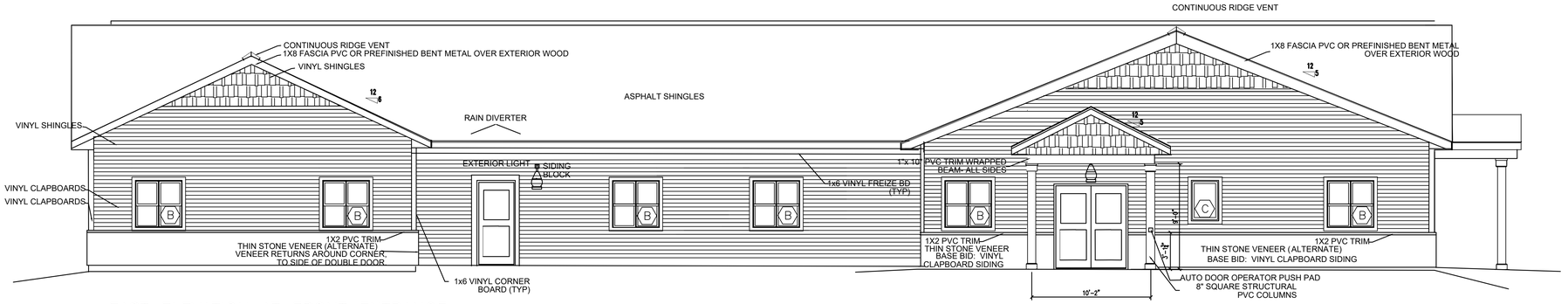
The development of this project will not create any adverse impacts to the downstream conditions. Please see the post development stormwater model for additional information.

1.7 CLOSURE

The proposed stormwater management facilities have been designed to mitigate stormwater impacts associated with development of the proposed project. The proposed stormwater management facilities have been designed to meet the Basic, General and Flooding Standards required by Chapter 500.

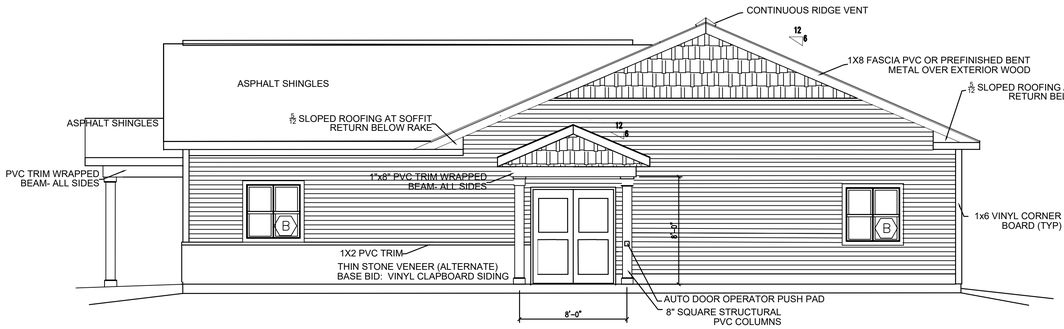
ATTACHMENT 15

Architectural Plans – Taselpointe Architecture



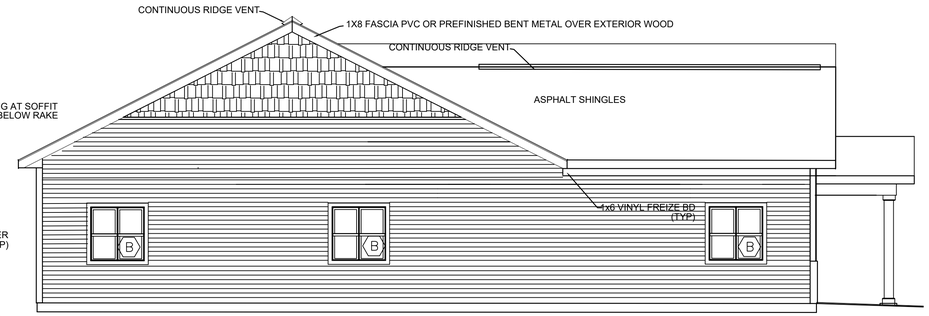
EAST ELEVATION AT FRONT ENTRANCE

1/4"=1'-0"



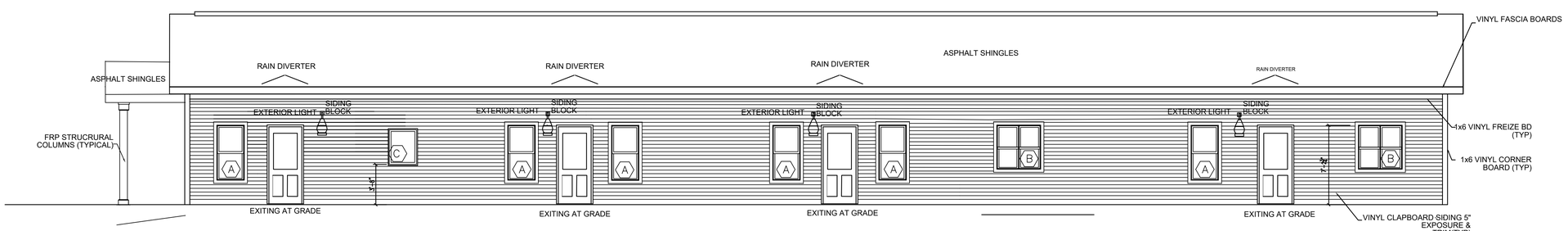
NORTH ELEVATION

1/4"=1'-0"



SOUTH ELEVATION

1/4"=1'-0"



WEST REAR ELEVATION @ PLAYGROUND

1/4"=1'-0"

LICENSED ARCHITECT
ELIZABETH C. QUINN
STAMBACH
REGISTERED NO. 3117
STATE OF MAINE

PROJECT NORTH

REV.	DESCRIPTION
	FOR CONSTRUCTION

ISSUE STATUS:

TASELPOINTE
ARCHITECTURE
DESIGN + PLANNING

NATURAL WONDERS CHILDCARE

WINDHAM, MAINE

EXTERIOR ELEVATIONS

SHEET TITLE:

DATE:	11/20/23
SCALE:	1/4"=1'-0"
PROJECT NO.	0319
DRAWN BY:	EQS

SHEET No.

A501

115'-0"

PRESCHOOL ROOM 115

KITCHEN STAFF BREAK 114

(SEE ROOM FINISH FOR KITCHEN CABINET CONFIGURATION)

STOOL HEIGHT LUNCH COUNTER W/BACKSPLASH

LAUNDRY 114A

STORAGE CLOSET 115B

TODDLER ROOM 2 111

TODDLER ROOM 1 107

INFANT SLEEPING ROOM 106

INFANT ROOM 1 105

FURNISH AND INSTALL SOLID WALL BLOCKING FOR WALL HUNG STORAGE (OFCI)

CUBBIES/ COATS

COATS/BACKPACKS

FLIP DOWN DIAPER CHANGING TABLE

MECHANICAL/ ELECTRICAL 112

1 HOUR RATED WALLS AND CEILING

TOILET 111A

TOILET 107A

TOILET 110

TOILET 109

SOLID BLOCKING FOR WALL HUNG BABY CHANGING STATION (OFCI)

TOILET 115A

INFANT STORAGE (O.F.C.I)

ALCOVE 111A

CORRIDOR 101A

CORRIDOR RATED TO PREVENT THE PASSAGE OF SMOKE FOR 20 MINUTES SMOKE (WALLS AND CEILINGS)

WATER COOLER

INFANT ENTRANCE 104

PIERS & COLUMNS FOR ENTRANCE CANOPY

SLOPE

REF UNDER COUNTER

OPEN SHELVES

UNDER COUNTER REF

ENCLOSED UTILITY CONCRETE PAD (SIZE AND LOCATION TO BE DETERMINED)

CONFERENCE/MULTIPURPOSE 116

TABLE AND CHAIR STORAGE

OUTDOOR SPACE

PAVED ENTRANCE

EGRESS ONLY

LOBBY CORRIDOR 101

OFFICE 102

VESTIBULE 100

INFANT SLEEPING ROOM 103A

INFANT ROOM 2 103

FLIP DOWN DIAPER CHANGING TABLE

CUBBIES/ COATS

FURNISH AND INSTALL SOLID WALL BLOCKING FOR WALL HUNG STORAGE (OFCI)

FLOOR PLAN

1/4"=1'-0"

LICENSED ARCHITECT ELIZABETH C. QUINN 3117 STATE OF MAINE

PROJECT NORTH

REV.	DESCRIPTION
	FOR CONSTRUCTION

ISSUE STATUS:

TASELPOINTE ARCHITECTURE DESIGN + PLANNING

NATURAL WONDERS CHILDCARE

WINDHAM, MAINE

FLOOR PLAN

SHEET TITLE:

DATE: 11/20/23

SCALE: 1/4"=1'-0"

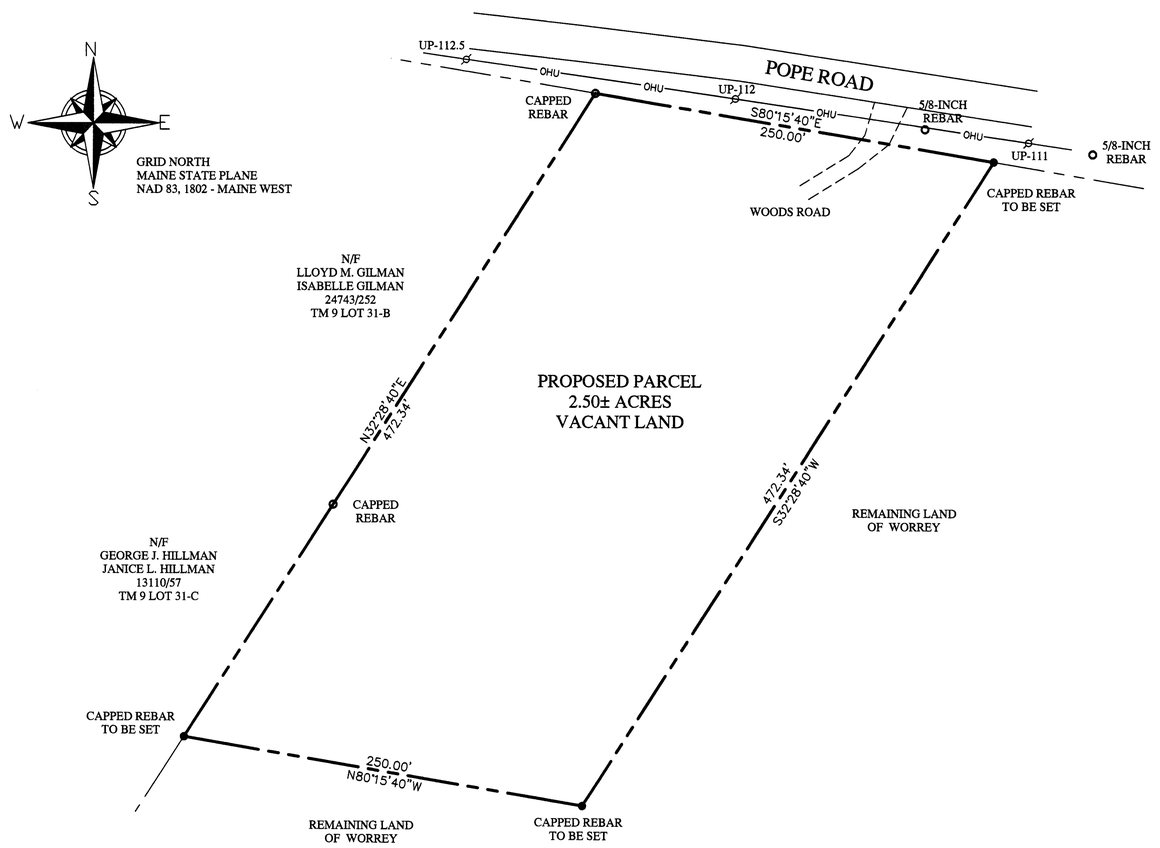
PROJECT NO. 0319

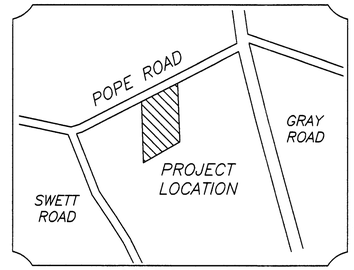
DRAWN BY: EQS

SHEET No. **A101**

ATTACHMENT 16

Boundary Survey Plan – Survey, INC.





LOCATION MAP
(NOT TO SCALE)

CERTIFICATION:

I CERTIFY THAT THIS SURVEY CONFORMS TO THE STANDARDS OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS AND IS CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

WILLIAM C. SHIPPEN P.L.S. 2118

STATE OF MAINE
WILLIAM C. SHIPPEN
2118
PROFESSIONAL LAND SURVEYOR

PLAN REFERENCE:

(1) STANDARD BOUNDARY SURVEY PLAN OF LAND POPE & SWETT ROAD WINDHAM MAINE MADE FOR PETER R. TETRAULT DATED OCTOBER 1988 BY JAMES C. LAUZIER RECORDED IN PLAN BOOK 177 PAGE 24 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

SURVEY NOTES:

(1) THE OWNERS OF RECORD ARE BRUCE A. WORREY AND MARILYN C. WORREY AS DESCRIBED IN A DEED RECORDED IN BOOK 27581 PAGE 213 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

(2) THE PARCEL IS SHOWN AS A PORTION OF LOT 30-A ON THE TOWN OF WINDHAM ASSESSORS MAP 43.

(3) BEARINGS ARE GRID NORTH, MAINE STATE PLANE 1802 WEST ZONE.

50 0 25 50 100
GRAPHIC SCALE
1"=50'

BOUNDARY SURVEY
LOT SPLIT

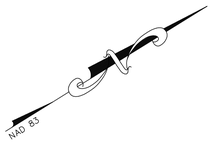
POPE ROAD
WINDHAM, MAINE

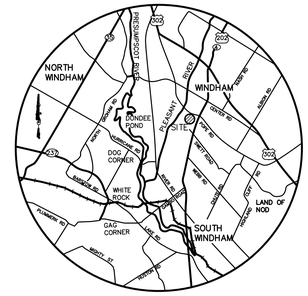
FOR: **BRUCE A. WORREY**
MARILYN C. WORREY
176 POPE ROAD
WINDHAM, MAINE 04062
(CLIENT/OWNER)

SURVEY BY: **SURVEY, INC.**
P.O. BOX 210
WINDHAM, ME 04062
(207) 892-2556
INFO@SURVEYINCORPORATED.COM

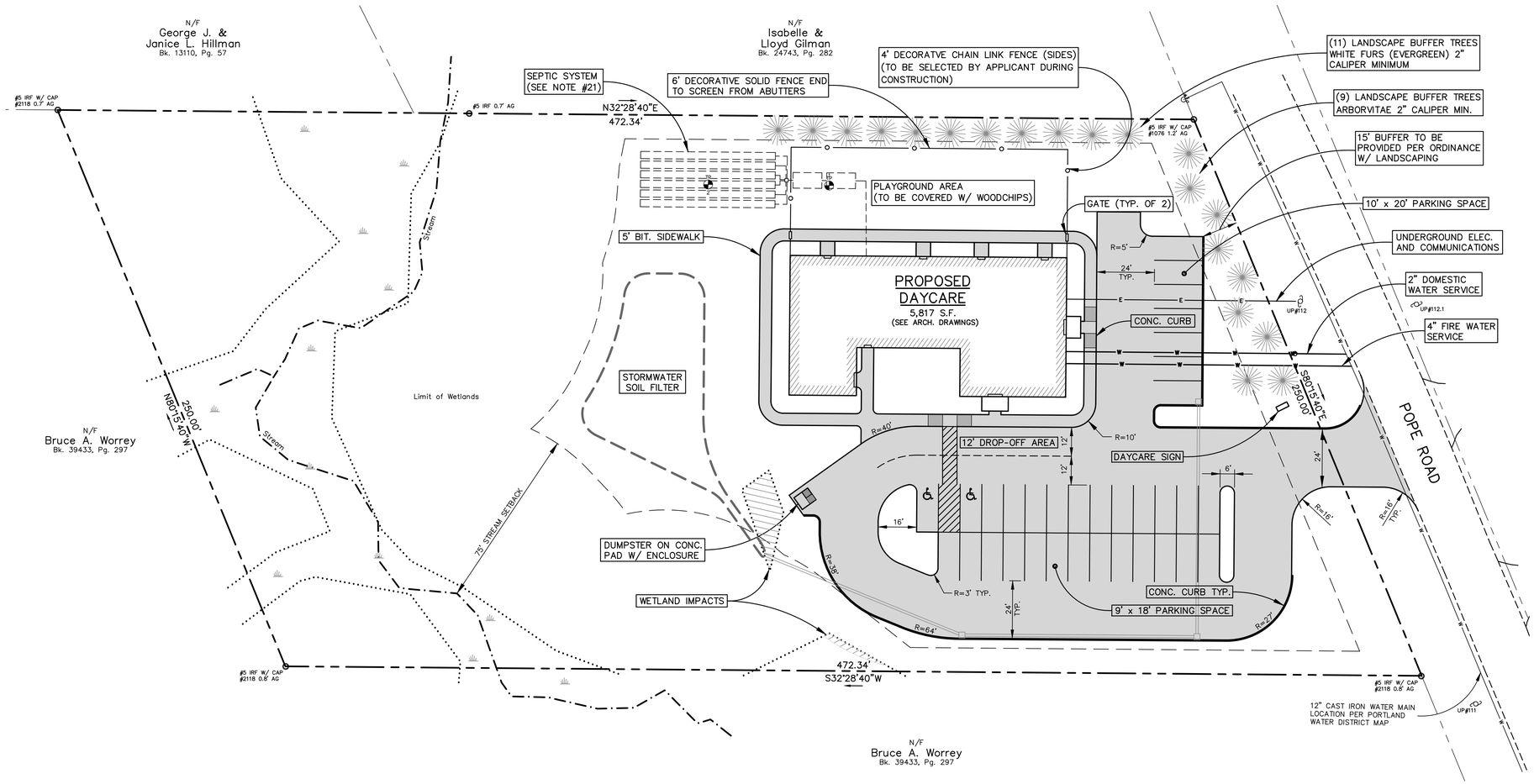
DWN: WCS CHK: DRR
DATE: DECEMBER 2022 JOB NO. 22-155

ATTACHMENT 17
Site Plan – BH2M





LOCATION MAP
SCALE: 1" = 2 MILES



PLAN REVIEWED AND APPROVED BY THE TOWN OF WINDHAM PLANNING BOARD.

DATE

CHAIR

LEGEND

SYMBOL	DESCRIPTION
WV	WATER SHUT OFF
UP	UTILITY POLE
IRF	IRON ROD FOUND
W	PROPOSED WATER SERVICE
E	PROPOSED U.G. ELECTRIC
	STREAM
	LIMIT OF WETLANDS
	EDGE OF PAVEMENT
	ABUTTER PROPERTY LINE
	PROPERTY LINE
W	EXISTING WATER MAIN

Scale: 1" = 25'
25' 0 25' 50'

NOTES:

1. APPLICANT: WINDHAM SCHOOL AGE CHILDREN ASSOCIATION, INC NATURAL WONDERS DAYCARE PO BOX 839, WINDHAM, MAINE 04062
2. OWNER: WINDHAM SCHOOL AGE CHILDREN ASSOCIATION, INC. P.O. BOX 839, WINDHAM, MAINE 04062
3. ENGINEER: ANDREW S. MORRELL, PE #13285 BH2M 380B MAIN STREET GORHAM, MAINE 04038
4. SURVEYOR: BOUNDARY WILLIAM SHIPPEN SURVEY INC. 396 ROOSEVELT TRAIL WINDHAM, ME 04062

TOPOGRAPHY & INTERIOR ROBERT C. LIBBY JR., PLS 2190 BH2M 380B MAIN STREET GORHAM, MAINE 04038

5. SITE EVALUATOR: NORMAN HARRIS SE#348 HARRIS SEPTIC SOLUTIONS 17 IRVING LANE WINDHAM, MAINE
6. ARCHITECT: ELIZABETH SCHIDZIG TASELPOINTE ARCHITECTURE WINDHAM, ME 04062
7. WETLANDS: ERIC WHITNEY STANTEC CONSULTING, INC. 2211 CONGRESS ST., SUITE 380 PORTLAND, ME 04102
8. DEED REFERENCE: BK. 39921, PG. 73
9. TAX MAP REFERENCE: MAP 43, BLOCK 30, LOT A-2
10. ZONING: WINDHAM CENTER DISTRICT
11. MINIMUM STANDARDS: MIN. LOT SIZE - 30,000 S.F.
FRONTAGE - 100'
SETBACKS - 20' FRONT
10' SIDE AND REAR
12. LOT AREA: 108,907 S.F. (2.500 ACRES)
13. PROPOSED USE: DAYCARE, (64 NON SCHOOL AGE CHILDREN, 12-16 EMPLOYEES)
14. SEWER SERVICE: ON SITE SUBSURFACE SYSTEM
15. WATER SERVICE: PUBLIC
16. ELECTRIC/TELEPHONE: UNDERGROUND
17. PARKING: PROVIDED - 33 (2 ADA)
26 @ 9' X 18' EASTERN SIDE OF BUILDING
7 @ 10' X 20' NORTH SIDE OF BUILDING
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE EROSION PREVENTION PROVISIONS OUTLINED IN THE MAINE EROSION CONTROL AND SEDIMENTATION HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, LATEST EDITION.
19. PLAN REFERENCE: A. "BOUNDARY SURVEY LOT SPLIT", FOR BRUCE A. AND MARILYN C. WORREY, DATED DEC. 2022, BY SURVEY INC., JOB NO. 22-155
20. WETLAND IMPACTS: 414 S.F.
21. SEPTIC SYSTEM TO BE FORMALLY DESIGNED BY HARRIS SEPTIC SOLUTIONS PRIOR TO CONSTRUCTION. (SEE PRELIMINARY EVALUATION SUBMITTED)
22. EXISTING PUBLIC AND PRIVATE UTILITY AND UNDERGROUND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE, AND ALL UTILITIES AND PIPES ARE NOT NECESSARILY SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING IN FIELD THE LOCATIONS OF UTILITIES SHOWN, AND FOR INVESTIGATING AND IDENTIFYING THE EXISTENCE AND LOCATIONS OF ANY ADDITIONAL PUBLIC AND PRIVATE UTILITIES NOT SHOWN ON THE PLANS, BEFORE COMMENCING ANY EXCAVATIONS, AND SHALL BE RESPONSIBLE FOR REPAIRING ALL UTILITIES DISTURBED DURING CONSTRUCTION. ALL COSTS INCURRED IN INVESTIGATING AND REPAIRING SAID UTILITIES SHALL BE BORNE BY THE CONTRACTOR, AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK PAID FOR UNDER THE APPLICABLE LUMP SUM AND UNIT PRICES IN THE CONTRACT. UTILITIES INCLUDE BUT ARE NOT LIMITED TO ELECTRIC, TELEPHONE, NATURAL GAS, WATER, SEWER AND STORM DRAINAGE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE.
23. LIGHTING: (SEE SHEET ATTACHED) HEIDI CONNORS VISIBLE LIGHT 24 STICKNEY TERRACE, SUITE 6 HAMPTON, NH 03842
24. SNOW STORAGE CAN BE ACCOMMODATED ALONG THE PERIMETERS OF BOTH PARKING LOTS.
25. STRUCTURAL ENGINEER: BRUCE HASKELL TAYLOR ENGINEERING ASSOCIATES PO BOX 1808 AUBURN, ME 04210
26. THE NEAREST FIRE HYDRANT IS LOCATED 850' EAST OF THE PROJECT AT THE INTERSECTION OF POPE ROAD AND GRAY ROAD.

REVISION NO.	DATE	DESCRIPTION
1	8/23/23	Submitted Draft for Client Review
2	10/20/23	Revised per Fire Marshall Comments
3	11/16/23	Revised per Fire Marshall & Town Comments
4	12/4/23	Revised per Development Review Meeting w/ Town
5	12/12/23	Revised per Fire Marshall Comments
6	3/8/24	Submitted Site Plan to Town

STATE OF MAINE
ANDREW S. MORRELL
No. 13285
REGISTERED PROFESSIONAL ENGINEER

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Windham School Age Childcare Assoc., Inc.
P.O. Box 839
Windham, Maine 04062

SITE PLAN
NATURAL WONDERS DAYCARE
184 POPE ROAD
WINDHAM, MAINE

DESIGNED	DATE
W. Pelkey	Aug. 2023
DRAWN	SCALE
Dept.	1" = 25'
CHECKED	JOB. NO.
A. Morrell	23147

SHEET
1

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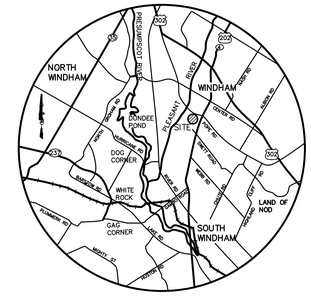
NAD 83



LOCATION MAP
SCALE: 1" = 2 MILES

N/F
George J. &
Janice L. Hillman
Bk. 13110, Pg. 57

N/F
Isabelle &
Lloyd Gilman
Bk. 24743, Pg. 282

#5 IRF W/ CAP
#2118 0.7' AG

#5 IRF 0.7' AG

N32°28'40"E
472.34'

#5 IRF W/ CAP
#1076 1.2' AG

Limit of Wetlands

Stream

LAND OF
WINDHAM SCHOOL AGE
CHILDREN ASSOCIATION, INC.
BK. 39921, PG. 73
2.500 ACRES

UP#112

UP#112.1

S80°15'40"E
250.00'

POPE ROAD

N80°15'40"W
250.00'

N/F
Bruce A. Worrey
Bk. 39433, Pg. 297

Stream

Limit of Wetlands

#5 IRF W/ CAP
#2118 0.8' AG

472.34'
S32°28'40"W

#5 IRF W/ CAP
#2118 0.8' AG

12" CAST IRON WATER MAIN
LOCATION PER PORTLAND
WATER DISTRICT MAP

UP#111

N/F
Bruce A. Worrey
Bk. 39433, Pg. 297

LEGEND

SYMBOL	DESCRIPTION
	WATER SHUT OFF
	UTILITY POLE
IRF	IRON ROD FOUND
151	EXISTING CONTOUR
	STREAM
	LIMIT OF WETLANDS
	EDGE OF PAVEMENT
	ABUTTER PROPERTY LINE
	PROPERTY LINE
w	EXISTING WATER MAIN

Scale: 1" = 25'
25' 0 25' 50'

I CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS TECHNICAL STANDARDS OF PRACTICE FOR A STANDARD BOUNDARY SURVEY WITH THE FOLLOWING EXCEPTIONS:

1. NO SURVEYORS REPORT

STATE OF MAINE
ROBERT C. LIBBY JR.
2190
REGISTERED LAND SURVEYOR

ROBERT C. LIBBY JR. PLS #2190

NOTES:

1. OWNER: WINDHAM SCHOOL AGE CHILDREN ASSOCIATION, INC.
PO BOX 839
WINDHAM, ME 04062

2. SURVEYOR: BOUNDARY
WILLIAM SHIPPEN
SURVEY INC.
396 ROOSEVELT TRAIL
WINDHAM, ME 04062

TOPOGRAPHY & INTERIOR
ROBERT C. LIBBY JR., PLS 2190
BH2M
380B MAIN STREET
GORHAM, MAINE 04038

3. WETLANDS: ERIC WHITNEY
STANTEC CONSULTING, INC.
2211 CONGRESS ST., SUITE 380
PORTLAND, ME 04102

4. DEED REFERENCE: BK. 39921, PG. 73

5. TAX MAP REFERENCE: MAP 43, BLOCK 30, LOT A-2

6. ZONING: WINDHAM CENTER DISTRICT

7. LOT AREA: 108,907 S.F. (2.500 ACRES)

8. PLAN REFERENCE: A. "BOUNDARY SURVEY LOT SPLIT", FOR BRUCE A. AND MARILYN C. WORREY, DATED DEC. 2022, BY SURVEY INC., JOB NO. 22-155

REVISION		
NO.	DATE	DESCRIPTION
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BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Windham School Age Childcare Assoc., Inc.
P.O. Box 839
Windham, Maine 04062

EXISTING CONDITIONS

NATURAL WONDERS DAYCARE
184 POPE ROAD
WINDHAM, MAINE

DESIGNED	DATE
W. Pelkey	Aug. 2023
DRAWN	SCALE
Dept.	1" = 25'
CHECKED	JOB. NO.
R. Libby Jr.	23147

SHEET
2

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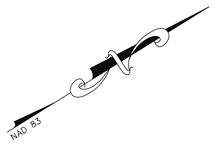
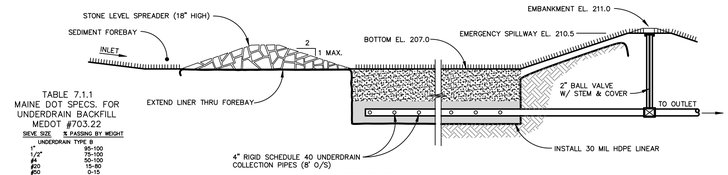




PROFILE

TABLE 7.1.1
MAINE DOT SPECS. FOR UNDERDRAIN BACKFILL MEDOT #703.22

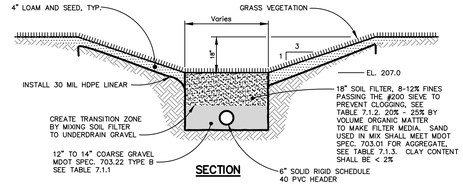
SIEVE SIZE	% PASSING BY WEIGHT
UNDERDRAIN TYPE B	
1"	95-100
1/2"	75-100
#4	50-100
#30	15-80
#50	0-30
#200	0-5
SIEVE SIZE	% PASSING BY WEIGHT
UNDERDRAIN TYPE C	
1"	100
3/4"	90-100
3/8"	0-75
#4	0-25
#10	0-5

TABLE 7.1.2
SANDY LOAM TO FINE SANDY LOAM SPECIFICATION

SIEVE #	% PASSING BY WEIGHT
4	75-95
10	65-90
50	30-70
200	20-70
200 (CLAY SIZE)	< 2.0

TABLE 7.1.3
LOAMY COARSE SAND SPECIFICATION

SIEVE #	% PASSING BY WEIGHT
10	85-100
20	70-100
60	15-40
200	8-15
200	< 2.0



SECTION

GRASSED UNDERDRAIN SOIL FILTER

NTS

N/F
George J. & Janice L. Hillman
Bk. 13110, Pg. 57

N/F
Isabelle & Lloyd Gilman
Bk. 24743, Pg. 282

N/F
Bruce A. Worrey
Bk. 39433, Pg. 297

N/F
Bruce A. Worrey
Bk. 39433, Pg. 297

Stream

Stream

Limit of Wetlands

75' STREAM SETBACK

2:1 SIDESLOPE

INV. 204.00

6" PVC OUTFALL

SPILLWAY EMERGENCY EL = 210.75

SOIL FILTER BOTTOM EL = 207.00 BERM EL = 212.00

SEDIMENT FOREBAY BOTTOM EL = 210.00 LID EL. = 211.50

RIPRAP OUTLET

INV. 211.49

WETLAND IMPACTS

PROPOSED DAYCARE
5,817 S.F.
FIN. FLR. EL. 219.00

CONC. CURB

CB#1

12' S.D., L=94' S=0.009'/FT.

BITUMINOUS PARKING

15' S.D., L=86' S=0.015'/FT.

15' S.D., L=94' S=0.005'/FT.

CB#3

CB#2

POPE ROAD

STABILIZED CONSTRUCTION ENTRANCE, SEE DETAIL

1.5:1 RIPRAP SIDE SLOPE SEE DETAIL

SILT FENCE/E.C. MIX

LEGEND

SYMBOL	DESCRIPTION
	WATER SHUT OFF
	UTILITY POLE
INF	IRON ROD FOUND
W	PROPOSED WATER SERVICE
E	PROPOSED U.G. ELECTRIC
211.1	PROPOSED SPOT GRADE
211	EXISTING CONTOUR
211	PROPOSED CONTOUR
	STREAM
	LIMIT OF WETLANDS
	EDGE OF PAVEMENT
	ABUTTER PROPERTY LINE
	PROPERTY LINE
W	EXISTING WATER MAIN

Scale: 1" = 25'
25' 0 25' 50'

STORMDRAIN STRUCTURES

CB#1 — RIM 217.80, 12" INV. 214.30

CB#2 — RIM 217.20, 12" INV. IN 213.45, 15" INV. OUT 213.35

CB#3 — RIM 216.80, 15" INV. IN 212.88, 15" INV. OUT 212.78

NO.	DATE	REVISION DESCRIPTION
1	8/23/23	Submitted Draft for Client Review
2	10/20/23	Revised per Fire Marshall Comments
3	11/16/23	Revised per Fire Marshall & Town Comments
4	12/4/23	Revised per Development Review Meeting w/ Town
5	12/12/23	Revised per Fire Marshall Comments
6	3/8/24	Submitted Site Plan to Town

STATE OF MAINE · ANDREW S. MORRELL · No. 12185 · REGISTERED PROFESSIONAL ENGINEER

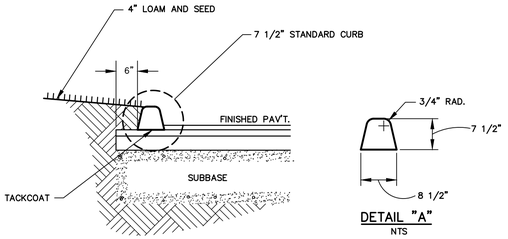
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Windham School Age Childcare Assoc., Inc.
P.O. Box 839
Windham, Maine 04062

SITE GRADING
NATURAL WONDERS DAYCARE
184 POPE ROAD
WINDHAM, MAINE

DESIGNED	DATE
W. Pelkey	Aug. 2023
DRAWN	SCALE
Dept.	1" = 25'
CHECKED	JOB. NO.
A. Morrell	23147

SHEET
3



DETAIL "A"
NTS

1 LB. FIBER MESH SHALL BE ADDED TO EVERY CUBIC YARD OF CONCRETE. THE CONCRETE WILL CONTAIN THE MAXIMUM AMOUNT OF WATER TO BE OF A CONSISTENCY THAT THE CONCRETE WILL MAINTAIN THE SHAPE OF THE CURB SECTION WITHOUT SUPPORT. THIS MIX ALSO MEETS THE READY MIX REQUIREMENTS OF ASTM C94 AND WILL MEET OR EXCEED 4,000 PSI IN 28 DAYS.

THE PAVEMENT SHALL BE THOROUGHLY CLEANED TO REMOVE DUST, DIRT AND OIL BEFORE APPROVED ADHESIVE IS APPLIED PER MANUFACTURERS SPECIFICATIONS.

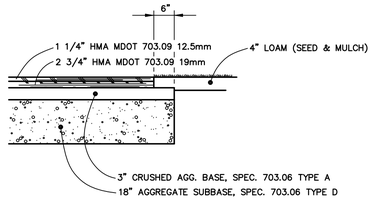
THE FIBER REINFORCED MIX SHALL BE FED INTO THE VIBRATING HOPPER WHERE IT IS COMPACTED INTO THE DESIRED MOLD PROFILE.

FRESHLY EXTRUDED CURB SHALL BE LIGHTLY TOUCHED UP WITH A STEEL HAND TROWEL. CONTROL JOINTS SHALL BE TOOLED AS SOON AS POSSIBLE AT 9' INTERVALS. ADDITIONAL CONTROL JOINTS ADDED ON RADIUS AS NECESSARY.

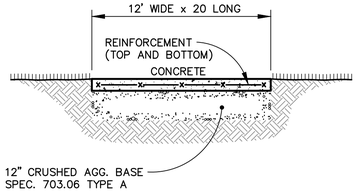
THE FINISHED CURB WILL BE COATED WITH AN APPROVED CURING COMPOUND.

FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS AND TEMPERATURE RESTRICTIONS.

EXTRUDED CONCRETE CURB
NTS

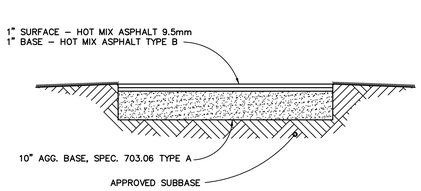


TYP. PAVEMENT DETAIL
NTS

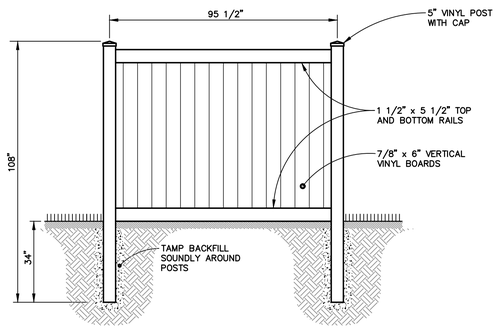


CONCRETE	-	8" THICK 4,000 PSI @ 28 DAYS, 3/4" MAX. AGGRIGATE, 3-5% AIR ENTRAINMENT, 4" MAX. SLUMP
REINFORCEMENT	-	#4 BARS AT 12" O.C. EACH WAY, TOP AND BOTTOM
FINISH	-	SCREED AND BULL FLOAT, BROOM FINISH PERPENDICULAR TO TRAVEL DIRECTION
JOINTS	-	SAWCUT TO 1/3 DEPTH AT 5'-6' O.C.
SEALING	-	APPLY POLY SULFIDE LIQUID SEALANT, GRAY PER MANUFACTURER'S SPEC'S.

DUMPSTER PAD
NTS

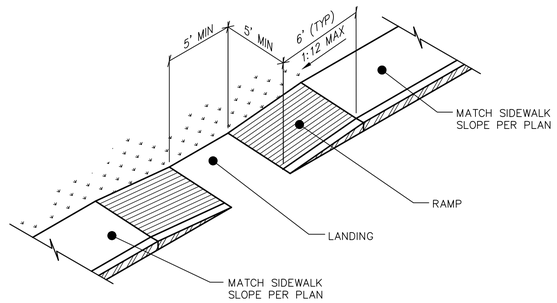


TYPICAL SIDEWALK SECTION
NTS



(ILLUSIONS VINYL FENCE OR APPROVED EQUAL)

DUMPSTER FENCE
NTS



HANDICAP RAMP
N.T.S.

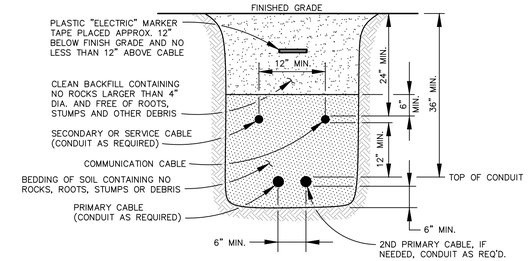
NOTES:

INSTALLATION SHOULD NOT ALLOW THE INTER-TWINING OF CABLES.

COMMUNICATION AND POWER CABLES SHALL HAVE NO LESS THAN 12" OF RADIAL SEPARATION.

CONDUITS FOR POWER AND COMMUNICATION CABLES SHALL BE SPECIFIED BY APPROPRIATE UTILITY COMPANIES.

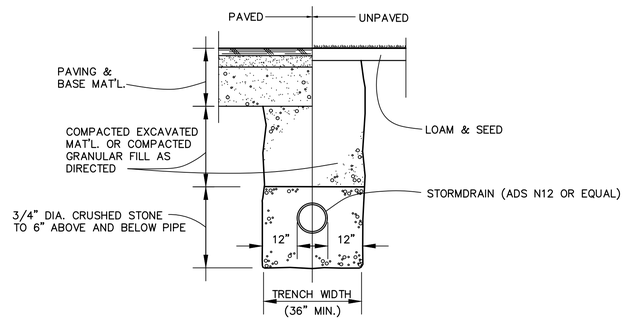
SEE PLAN FOR SURFACE FINISH



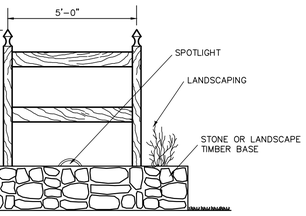
UNDERGROUND CABLE TRENCH
NTS

NOTES:

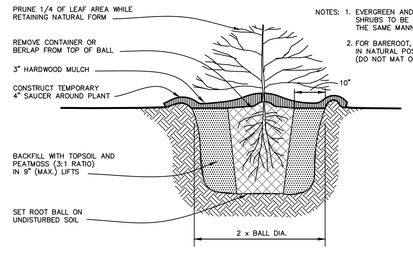
1. Trench width shown is payment width for rockexcavation & replacement of unsuitable material.
2. Do not mechanically compact directly over flexible pipe (e.g. PVC, Poltyethylene)
3. Concrete pipe shall have sand bedding.



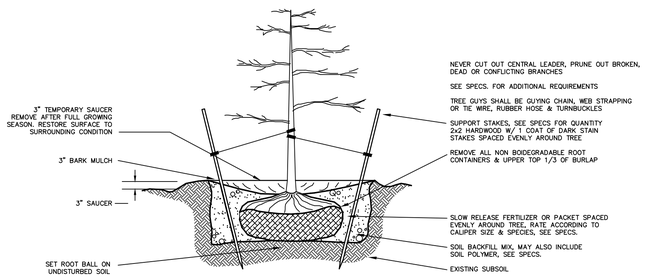
TRENCH DETAIL
NTS



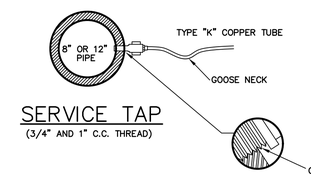
SIGN DETAIL
N.T.S.



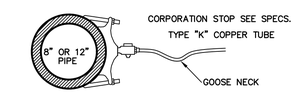
SHRUB PLANTING DETAIL
N.T.S.



TREE PLANTING & STAKING DETAIL
N.T.S.

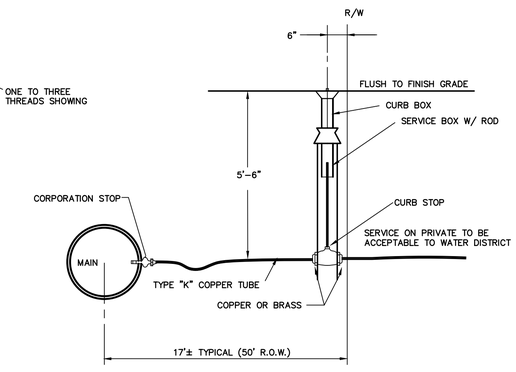


SERVICE TAP
(3/4" AND 1" C.C. THREAD)



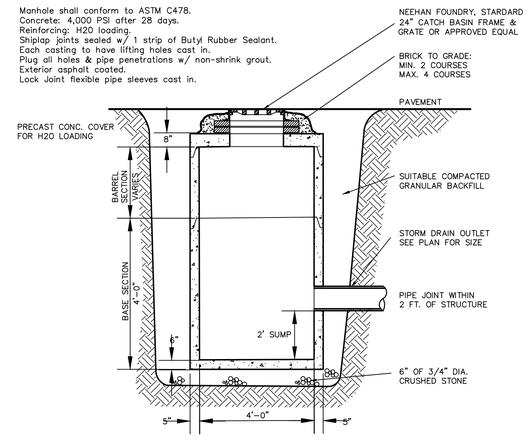
SERVICE SADDLE
(1-1/2" & 2" C.C. OR IRON PIPE THREAD)

NOTE: SERVICE CONNECTIONS (DIRECT TAPS AND SERVICE CLAMPS) WILL BE INSTALLED SO THAT THE OUTLET IS AT AN ANGLE OF NOT MORE THAN 45° ABOVE THE HORIZONTAL. ALWAYS PUT A BEND OR "GOOSENECK" IN THE SERVICE LINE PRIOR TO CONNECTING TO PROVIDE FLEXIBILITY AND "GIVE" TO COUNTERACT THE EFFECTS OF A LOAD DUE TO SETTLEMENT OR EXPANSON AND/OR CONTRACTION (SEE DETAILS).



TYPICAL SERVICE CONNECTION
N.T.S.

Manhole shall conform to ASTM C478.
Concrete: 4,000 PSI after 28 days.
Reinforcing: H20 loading.
Shiplap joints sealed w/ 1 strip of Butyl Rubber Sealant.
Each casting to have lifting holes cast in.
Plug all holes & pipe penetrations w/ non-shrink grout.
Exterior asphalt coated.
Lock Joint flexible pipe sleeves cast in.



PRECAST CONCRETE CATCH BASIN DETAIL
N.T.S.

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STATE OF MAINE
ANDREW S. MORRELL
No. 12785
REGISTERED PROFESSIONAL ENGINEER

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FOR
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NATURAL WONDERS DAYCARE
184 POPE ROAD
WINDHAM, MAINE

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W. Pelkey	Aug. 2023
DRAWN	SCALE
Dept.	1" = 25'
CHECKED	JOB. NO.
A. Morrell	23147

SHEET
4

<u>EROSION AND SEDIMENT CONTROL PLAN</u>

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN THE LATEST REVISION OF TO THE 2016 MAINE EROSION AND SEDIMENT CONTROL BMP'S MANUAL FOR DESIGNERS AND ENGINEERS, AND THE LATEST REVISION TO THE 2014 MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS. SEE MANUALS FOR ADDITIONAL INFORMATION AND DETAILS.

DURING CONSTRUCTION THE DEVELOPER/APPLICANT OR THEIR REPRESENTATIVES WILL BE RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL BMP'S AS WELL ROUTINE INSPECTIONS AND MAINTENANCE OF THE BMP'S.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES ARE SHOWN ON THE SITE PLAN.

1. ALL CONSTRUCTION INSPECTIONS SHALL BE CONDUCTED BY SOMEONE WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING STANDARDS AND PERMIT CONDITIONS. CONSTRUCTION INSPECTIONS SHALL BE PERFORMED AT LEAST ONCE A WEEK, AND PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT (1 INCH OR MORE IN A 24 HOUR PERIOD). CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 5 YEARS.
2. THE SCOPE OF CONSTRUCTION INSPECTIONS INCLUDE THE EROSION AND SEDIMENTATION CONTROL MEASURES AS WELL AS DISTURBED AREAS, MATERIAL STORAGE AREAS, AND LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S", DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION.
4. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 7 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE AREA SHALL BE STABILIZED WITHIN 2 DAYS OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
5. EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRES OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
6. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY.
7. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO MORE THAN ONE ACRE OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION.
8. SEDIMENT BARRIERS (EROSION CONTROL MIX, STONE CHECK DAMS, STABILIZED CONSTRUCTION ENTRANCE, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.
9. ALL SEDIMENT BARRIERS SHOULD BE INSTALLED ALONG THE CONTOUR, WITH THE ENDS TURNED UP SLOPE.
10. INSTALL EROSION CONTROL MIX AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE E.C. MIX DETAIL FOR PROPER INSTALLATION. EROSION CONTROL MIX WILL REMAIN IN PLACE PER NOTE #7. THE USE OF AN EROSION CONTROL MIX BERM IS PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER.
11. ALL ERSOION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED, AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY BEFORE AND FOLLOWING ANY SIGNIFICANT RAINFALL (1.0 INCH OR MORE IN A 24-HOUR PERIOD) OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS OR BEFORE THE NEXT STORM EVENT. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF. EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS 90% GRASS CATCH IN VEGETATED AREAS.
12. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN ONE AND ONE HALF TO ONE (1.5 TO 1).
13. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
14. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED BY AUG. 15 OR 45 DAYS PRIOR TO THE FIRST KILLING FROST (OCT. 1) TO PROTECT FROM SPRING RUNOFF PROBLEMS.
15. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
16. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
    a. FOUR INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
    b. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
    c. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS: SEEDING RATE IS 1.03 LBS PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED. SEED MIX SHALL CONTAIN 10% ANNUAL RYE GRASS.
    d. HAY MULCH AT THE RATE OF 70-90 LBS PER 1000 SQUARE FEET FOR OVER 75% COVERAGE. FOR UNPROTECTED OR WINDY AREAS, ANCHOR MULCH WITH PEG AND TWINE (1 SQ. YD./BLOCK). HYDRAULIC MULCHES MAY ALSO BE USED, APPLIED AT A RATE OF 5 LBS PER 1000 SQUARE FEET FOR PAPER MULCH OR 40 LBS PER 1000 SQUARE FEET OR AS DIRECTED BY THE MANUFACTURER. ON SLOPES GREATER THAN 3:1 EROSION CONTROL MIX MAY BE USED, SEE EROSION CONTROL MIX NOTES BELOW.
    e. FOR DISTURBED AREAS TO BE MAINTAINED IN POST-CONSTRUCTION AS A MEADOW BUFFER, APPLY NEW ENGLAND CONSERVATION WILDLIFE MIX BY NEW ENGLAND WETLAND PLANTS, INC., OF AMHERST, MASSACHUSETTS OR APPROVED EQUAL.
14. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS ONCE THE SITE IS STABILIZED WITH 90% GRASS CATCH IN VEGETATED AREAS. TEMPORARY EROSION AND SEDIMENT CONTROL BLANKET SHALL BE USED IN ALL DITCHES AND SWALES AS SHOWN IN DETAILS.
15. WETLANDS WILL BE PROTECTED WITH A DOUBLE ROW OF EROSION CONTROL MIX OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE. ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS DURING WINTER CONSTRUCTION.
16. ALL STORMWATER WILL BE PREVENTED FROM RUNNING ONTO STOCKPILES. SEDIMENT BARRIERS WILL BE INSTALLED DOWNGRADIENT OF ALL STOCKPILES.
17. PERMANENT POST-CONSTRUCTION BMP'S (VEGETATED SWALES, WET PONDS, ETC.) WILL NOT BE USED TO MANAGE FLOWS DURING CONSTRUCTION WITHOUT SPECIAL PROTECTION AND/OR RESTORATION.

<u>ADDITIONAL TEMPORARY SEED MIXTURE (FOR PERIODS LESS THAN 12 MONTHS):</u>

SEASON	SEED	RATE
SUMMER (5/15 – 8/15)	SUDANGRASS	40 LBS/ACRE
	OATS	80 LBS/ACRE
LATE SUMMER/EARLY FALL (8/15 – 9/15)	PERENNIAL RYEGRASS	40 LBS/ACRE
FALL (9/15 – 11/1)	WINTER RYE	112 LBS/ACRE
WINTER (11/1 – 4/1)	MULCH W/ DORMANT SEED	80 LBS/ACRE**
SPRING (4/1 – 7/1)	OATS	80 LBS/ACRE
	ANNUAL RYEGRASS	40 LBS/ACRE

**SEED RATE ONLY

<u>EROSION CONTROL MIX</u>

EROSION CONTROL MIX (ECM) SHALL MEET THE REQUIREMENTS PROVIDED IN THE LATEST REVISION OF MAINE DEP'S EROSION AND SEDIMENTATION CONTROL BMP MANUAL. ECM IS ACCEPTABLE FOR USE ON SLOPES OF GREATER THAN 3:1 BUT LESS THAN 2:1. ECM SHALL CONSIST OF WELL-GRADED ORGANIC COMPONENT 50 – 100% OF DRY WEIGHT, AND COMPRISED OF FIBROUS AND ELONGATED FRAGMENTS. ECM SHALL BE FREE FROM REFUSE, MATERIAL TOXIC TO PLANT GROWTH OR CONSTRUCTION DEBRIS. ECM SHALL BE EVENLY DISTRIBUTED AND APPLIED AT A THICKNESS OF 2" ON 3:1 SLOPES, WITH AN ADDITIONAL 1/2" PER 20' OF SLOPE FOR A MAXIMUM OF 100' IN LENGTH. SLOPES GREATER THAN 3:1, ECM SHALL BE APPLIED AT THICKNESS OF 4" OR 5" FOR SLOPES GREATER THAN 60' IN LENGTH.

NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN ONE AND ONE HALF TO ONE (1.5:1). EROSION CONTROL MIX IS AN ACCEPTABLE STABILIZATION MEASURE FOR SLOPES UP TO 3:1, WITH LIMITS THAT ARE COVERED BY NOTES ON THIS SHEET. SLOPES BETWEEN 3:1 AND 2:1 SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS, AND ALL SLOPES GREATER THAN 2:1 SHALL BE STABILIZED WITH RIPRAP. SEE SLOPE STABILIZATION DETAIL FOR ADDITIONAL INFORMATION.

<u>EROSION CONTROL DURING CONSTRUCTION</u>

<u>WINTER CONSTRUCTION</u>

1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15
2. OVERWINTER STABILIZATION OF DITCHES AND CHANNELS:
ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL GRASS LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. IF A DITCH OR CHANNEL IS NOT GRASS-LINED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.
    A. INSTALL A SOD LINING IN THE DITCH:
    A DITCH MUST BE LINED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES: PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING SOD AT THE BASE OF THE DITCH WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD FROM SLOUGHING DURING FLOW CONDITIONS. SEE THE PERMANENT VEGETATION BMP SECTION.
    B. INSTALL A STONE LINING IN THE DITCH:
    A DITCH MUST BE LINED WITH STONE RIPRAP BY NOVEMBER 15. A REGISTERED PROFESSIONAL ENGINEER MUST BE HIRED TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.
3. OVERWINTER STABILIZATION OF DISTURBED SLOPES:
ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDED AND MULCHED BY SEPTEMBER 1. THE DEPARTMENT WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS. BY OCTOBER 1 THE DISTURBED SLOPE MUST BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED MULCH OVER THE SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE SLOPE BY NOVEMBER 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP AS DESCRIBED IN THE FOLLOWING STANDARDS.
    A. STABILIZE THE SOIL WITH SOD:
    THE DISTURBED SLOPE MUST BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
    B. STABILIZE THE SOIL WITH EROSION CONTROL MIX:
    EROSION CONTROL MIX MUST BE PROPERLY INSTALLED BY NOVEMBER 15. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE. SEE THE EROSION CONTROL MIX NOTES FOR ADDITIONAL CRITERIA.
    C. STABILIZE THE SOIL WITH STONE RIPRAP:
    PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE DEVELOPMENT'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.
4. OVERWINTER STABILIZATION OF DISTURBED SOILS:
BY SEPTEMBER 15, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% MUST BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.
    A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION:
    BY OCTOBER 1, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 90% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED BELOW.
    B. STABILIZE THE SOIL WITH SOD:
    STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLINIG THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
    C. STABILIZE THE SOIL WITH MULCH:
    BY NOVEMBER 15, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL. PROVIDE NETTING ON ALL SLOPES GREATER THAN 8%.
5. MAINTENANCE:
IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS OR BEFORE THE NEXT STORM EVENT. MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. ONCE A WEEK AND BEFORE AND AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL, IN THE SPRING, INSPECT AND REPAIR ANY DAMAGES AND/OR BARE SPOTS. AN ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85 TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

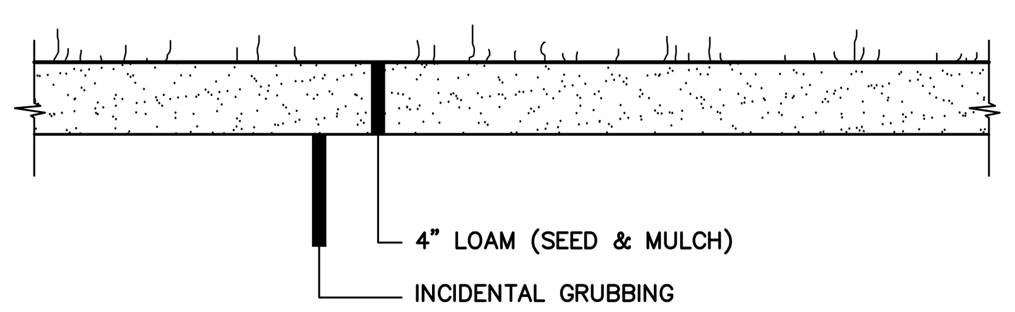
STABILIZATION SCHEDULE BEFORE WINTER:

SEPTEMBER 15	ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. ALL GRASS LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR AN EROSION CONTROL BLANKET
OCTOBER 1	IF THE SLOPE IS STABILIZED WITH AN EROSION CONTROL BLANKET AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND MULCHED.
NOVEMBER 15	ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.

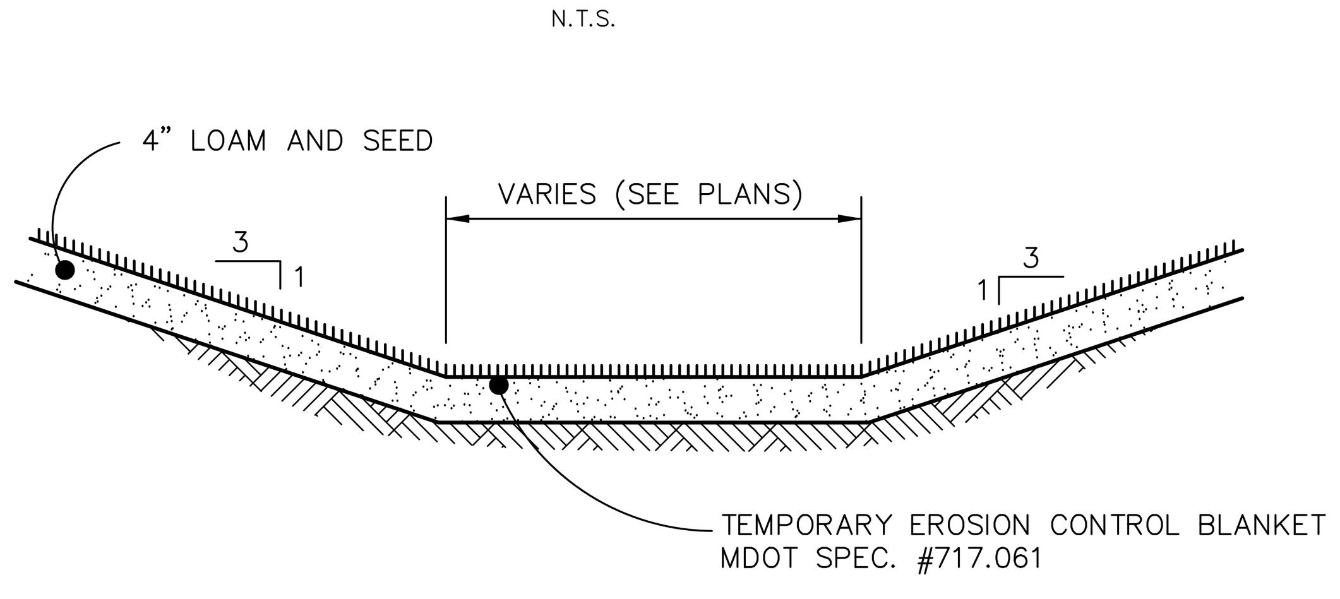
6. DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
7. AREAS WITHIN 75 FEET OF STREAMS, WETLANDS, AND OTHER PROTECTED NATURAL RESOURCES THAT ARE NOT STABILIZED WITH VEGETATION BY DEC. 1 SHALL BE MULCHED AND ANCHORED WITH NETTING. IF WORK CONTINUES IN THIS AREA DURING THE WINTER, A DOUBLE LINE OF SEDIMENT BARRIERS MUST BE USED.

<u>HOUSEKEEPING</u>

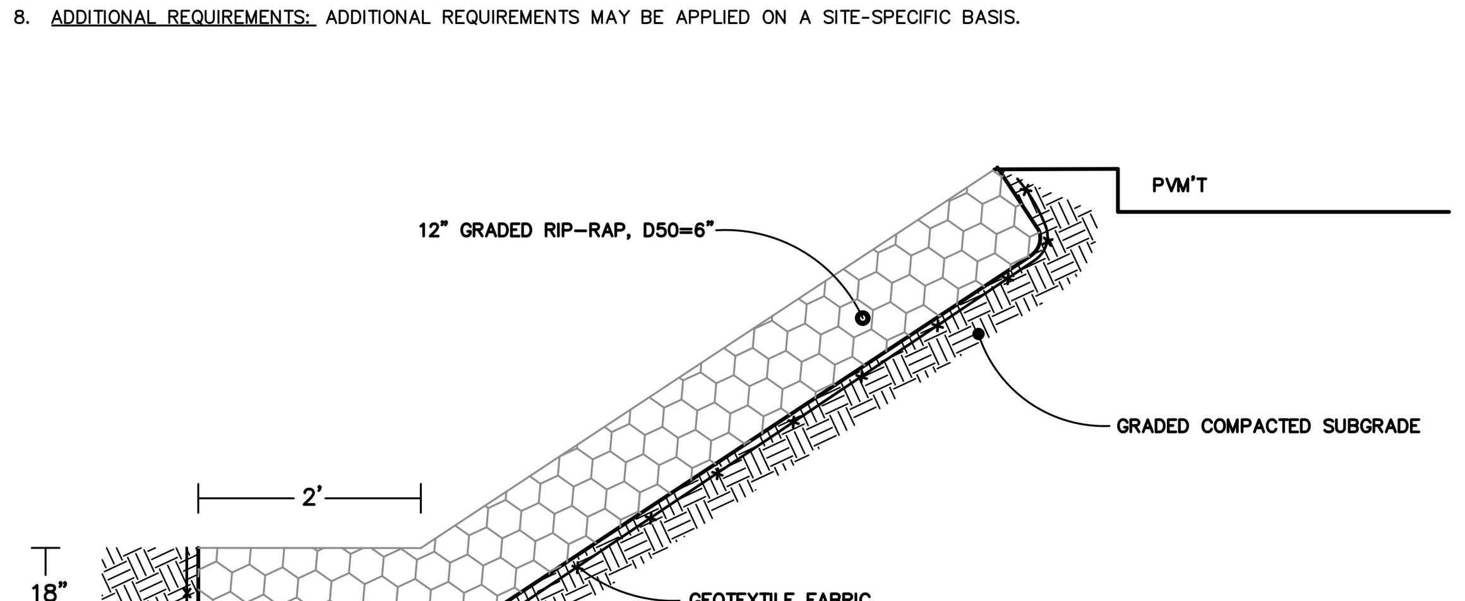
1. <u>SPILL PREVENTION:</u> CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS 1. ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
2. <u>GROUNDWATER PROTECTION:</u> DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY, AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
3. <u>FUGITIVE SEDIMENT AND DUST:</u> ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MY NOT BE USED FOR DUST CONTROL. ANY OFFSITE TRACKING OF MUD OR SEDIMENT SHALL BE VACUUMED IMMEDIATELY AND PRIOR TO THE NEXT SIGNIFICANT STORM EVENT.
4. <u>DEBRIS AND OTHER MATERIALS:</u> LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
5. <u>TRENCH OR FOUNDATION DE-WATERING:</u> TRENCH DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER MUST BE REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, AND MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
6. <u>NON-STORMWATER DISCHARGES:</u> IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:
    - DISCHARGES FROM FIREFIGHTING ACTIVITY;
    - FIRE HYDRANT FLUSHINGS;
    - VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
    - DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3) OF MAINE DEP 06-096 CHAPTER 500;
    - ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
    - PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
    - UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
    - UNCONTAMINATED GROUNDWATER OR SPRING WATER;
    - FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
    - UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5) MAINE DEP 06-096 CHAPTER 500);
    - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
    - LANDSCAPE IRRIGATION.
7. <u>UNAUTHORIZED NON-STORMWATER DISCHARGES:</u> THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C(6) MAINE DEP 06-096 CHAPTER 500. SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
    - WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
    - FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
    - SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
    - TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.
8. <u>ADDITIONAL REQUIREMENTS:</u> ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.



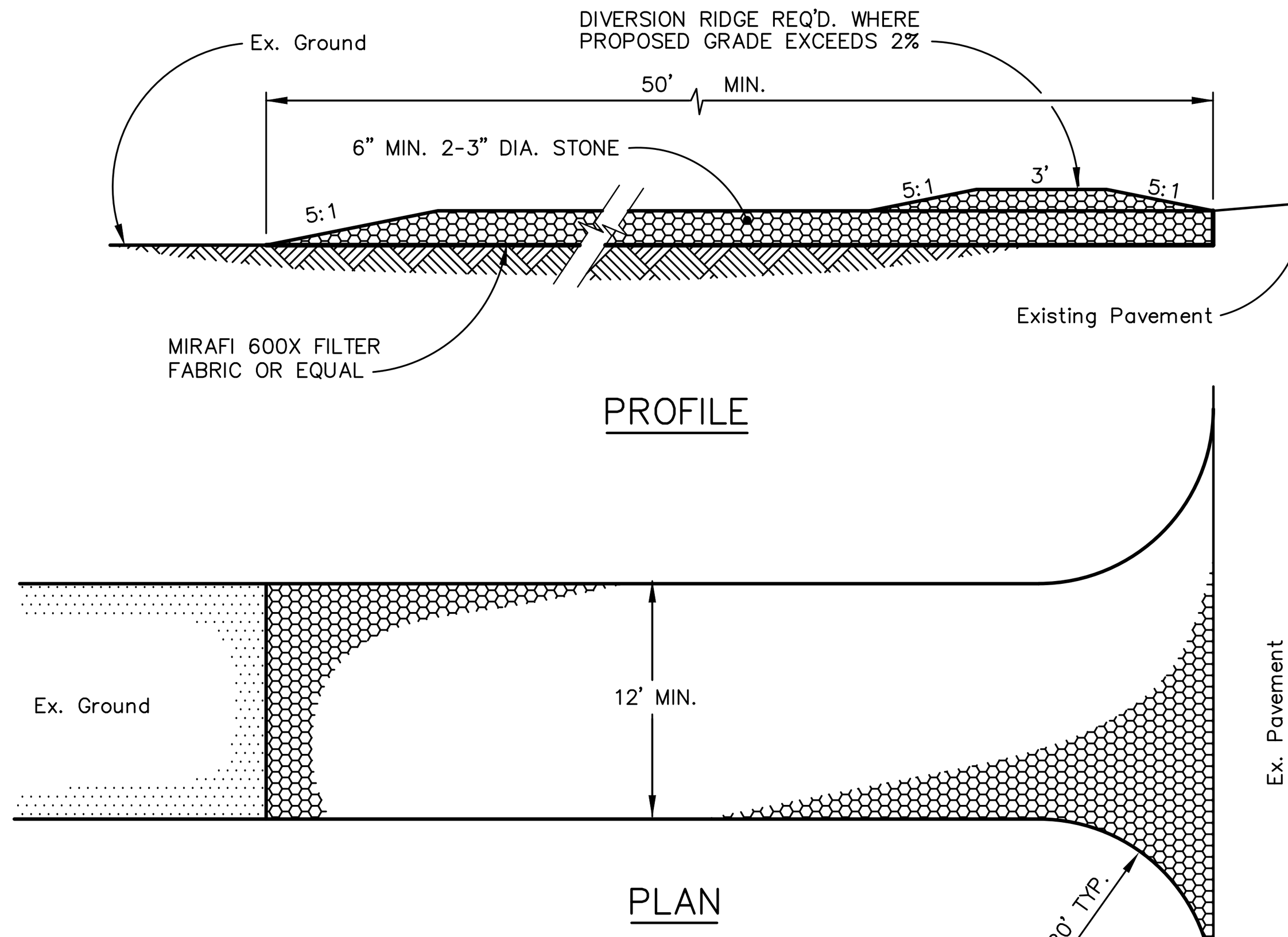
TYPICAL LOAM DETAIL
N.T.S.



VEGETATED DITCH DETAIL
NTS



RIP-RAP 1.5:1 SLOPES
N.T.S.



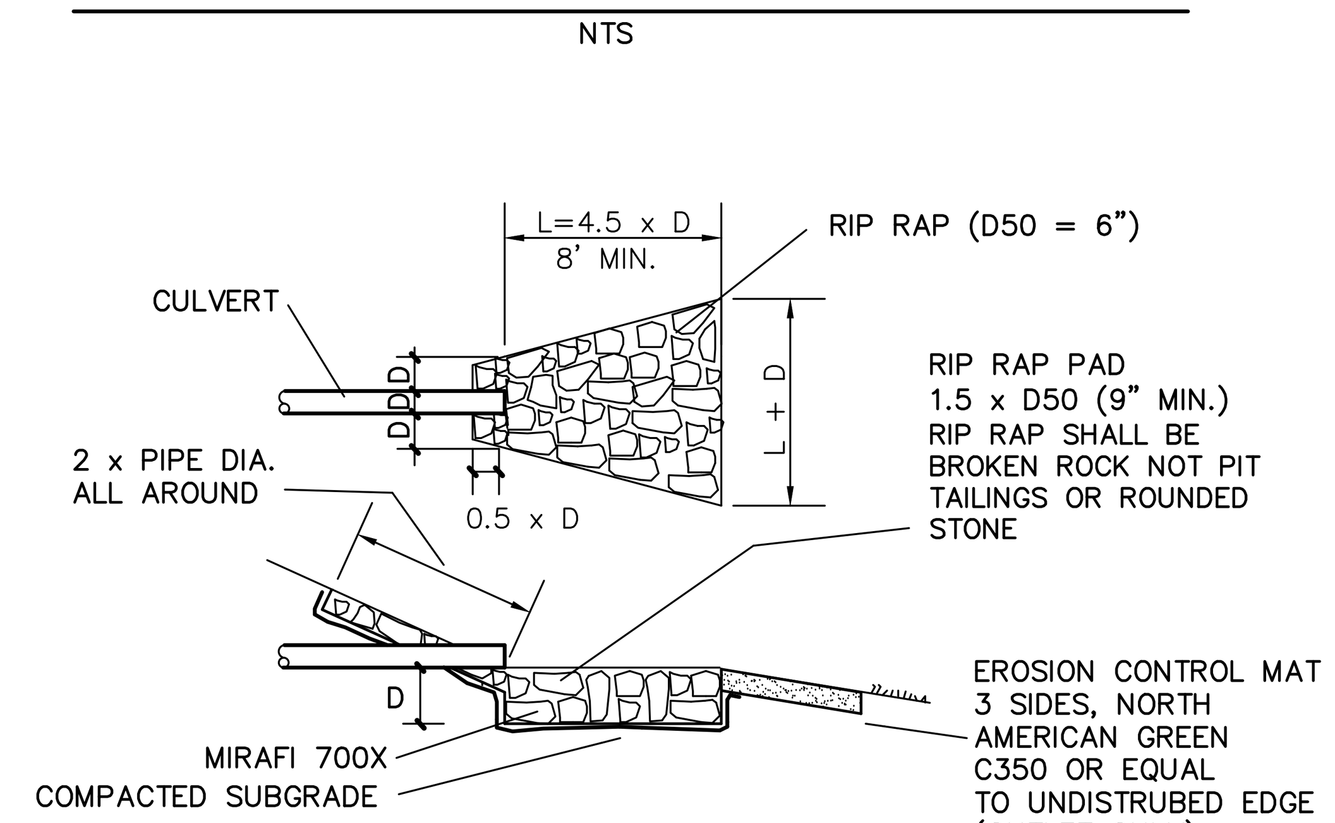
NOTES:

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

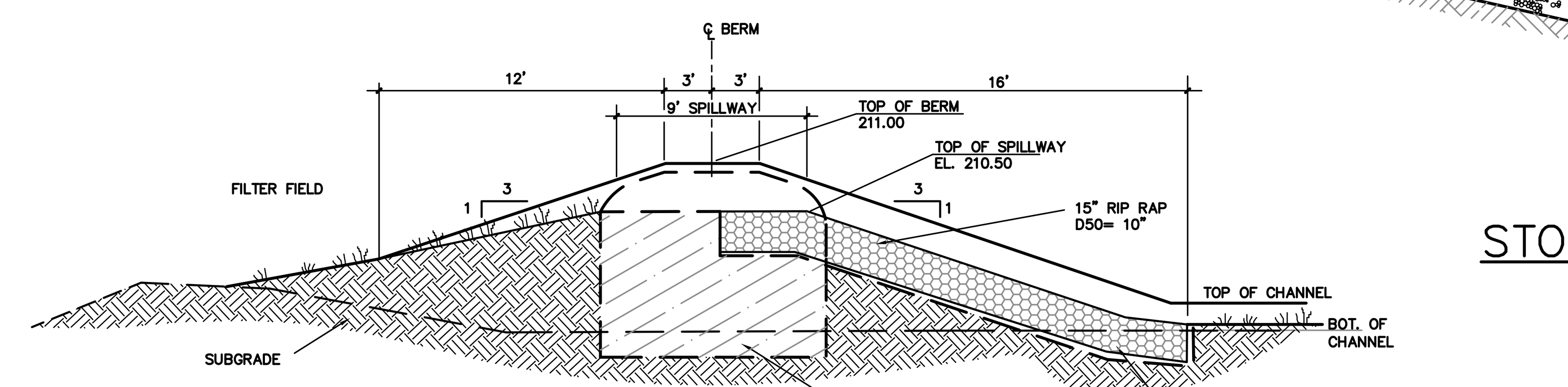
WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY.

WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

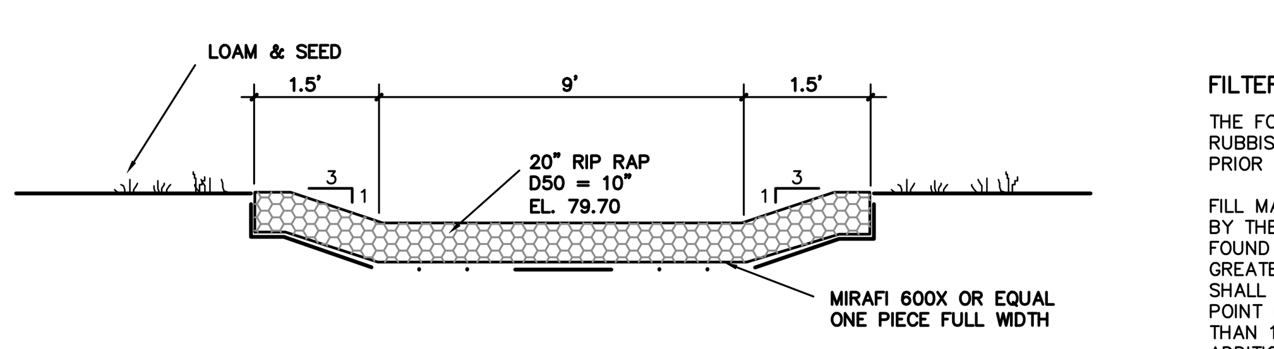
STABILIZED CONSTRUCTION ENTRANCE
NTS



PIPE INLET/OUTLET PROTECTION
N.T.S.



SPILLWAY LONGITUDINAL SECTION
N.T.S.



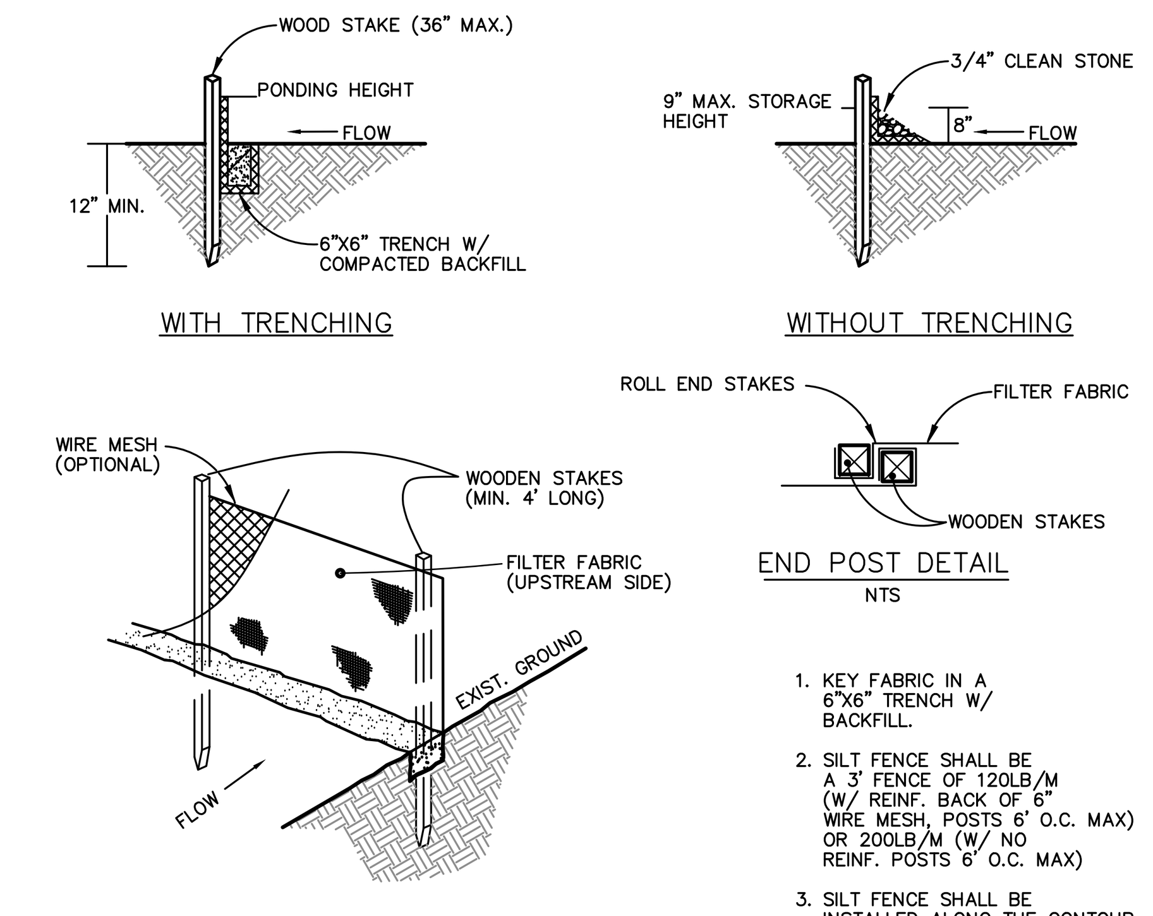
SPILLWAY TRANSVERSE SECTION
N.T.S.

FILTER FIELD NOTES:

THE FOUNDATION AREA SHALL BE CLEARED OF TREES, LOGS, ROOTS BRUSH, BOULDERS, SOD, RUBBISH & TOPSOIL. THE ENGINEER SHALL OBSERVE & APPROVE THE EMBANKMENT SUBGRADE PRIOR TO PLACING ANY FILL TO DETERMINE SUITABILITY & POSSIBLE NEED FOR A CUTOFF TRENCH.

FILL MATERIAL FOR THE EMBANKMENT SHALL CONSIST OF SILT AND/OR CLAY MATERIAL APPROVED BY THE ENGINEER. THE CONTRACTOR SHOULD NOTE THAT ACCEPTABLE MATERIAL MAY NOT BE FOUND ON-SITE. ALL FILL MATERIAL SHALL BE FREE OF SOD, ROOTS, FROZEN SOIL, STONES GREATER THAN 6" IN DIA. & OTHER OBJECTIONABLE MATERIAL. ALL SNOW, ICE, OR FROZEN FILL SHALL BE REMOVED PRIOR TO ADDING ADDITIONAL FILL. FILLING SHALL COMMENCE IN THE LOWEST POINT OF THE CUTOFF TRENCH AND/OR DAM & CONTINUE IN HORIZONTAL LIFTS NO GREATER THAN 12". 92% MODIFIED PROCTOR DENSITIES SHALL BE OBTAINED IN EACH LIFT PRIOR TO ADDITIONAL LIFTS. THE DISTRIBUTION & GRADATION OF THE FILL SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS, OR LAYERS OF SUBSTANTIALLY DIFFERENT MATERIALS ARE PLACED IN THE LAYERS IN THE EMBANKMENT. FILL WITHIN 5' OF THE DISCHARGE PIPE & STRUCTURE SHALL BE COMPACTED TO 95% MODIFIED PROCTOR.

RIPRAP SPILLWAY DETAIL
NTS

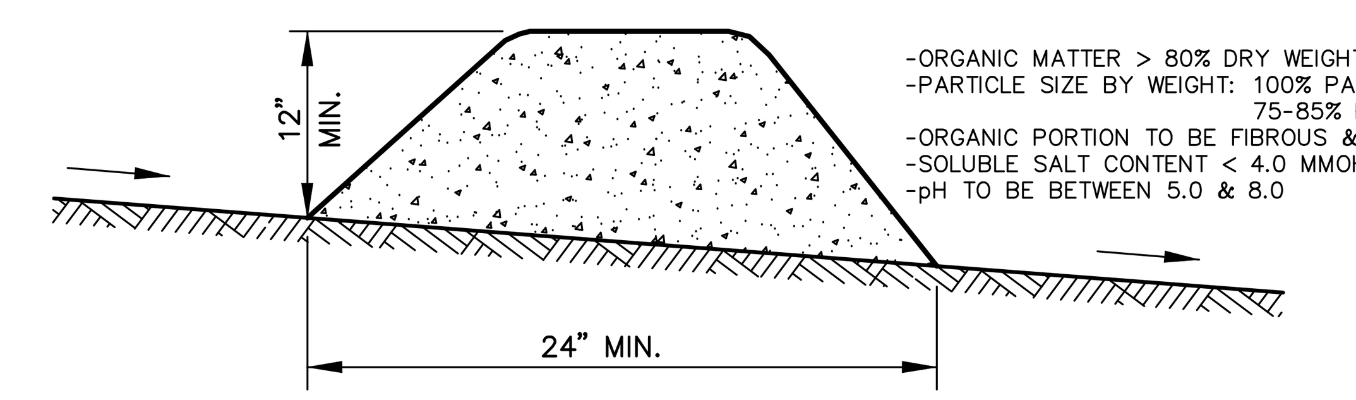


1. KEY FABRIC IN A 6"X6" TRENCH W/ BACKFILL.
2. SILT FENCE SHALL BE A 3' FENCE OF 120LB/M (W/ REINF. BACK OF 6" WIRE MESH, POSTS 6' O.C. MAX) OR 200LB/M (W/ NO REINF. POSTS 6' O.C. MAX)
3. SILT FENCE SHALL BE INSTALLED ALONG THE CONTOUR WITH THE ENDS TURNED UP SLOPE.

SILT FENCE DETAIL
N.T.S.

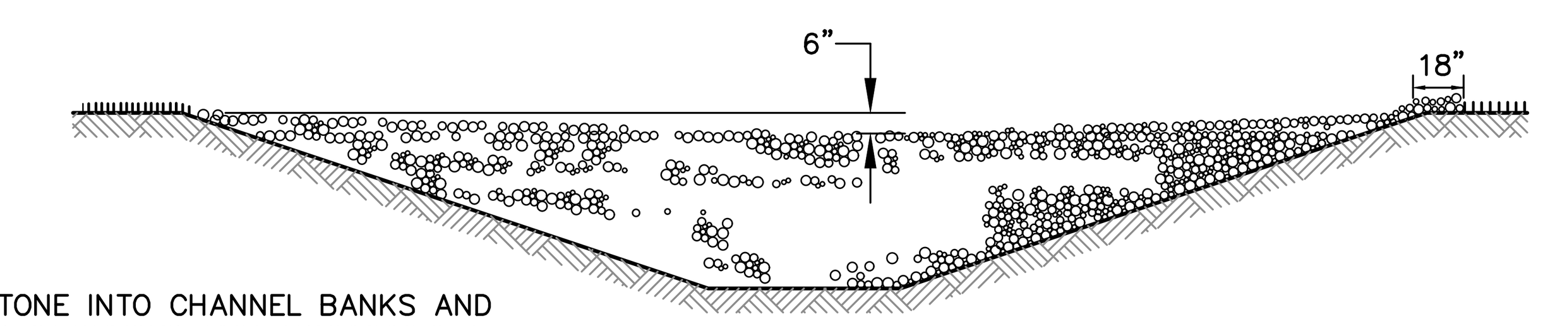
PLACE BARRIER ALONG RELATIVELY LEVEL CONTOUR.
ECM BERM PROHIBITED AT THE BASE OF SLOPES > 8% OR WHERE THERE IS FLOWING WATER.
SEE MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS FOR INSTALLATION INSTRUCTIONS.

EROSION CONTROL MIX SHOULD CONTAIN A WELL GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. ECM SHOULD BE FREE OF REFUSE, PHYSICAL CONTAMINATES, AND MATERIAL TOXIC TO PLANT GROWTH.



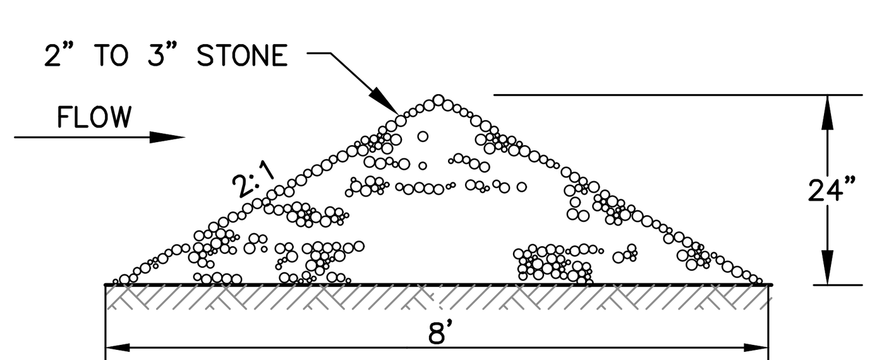
- ORGANIC MATTER > 80% DRY WEIGHT
- PARTICLE SIZE BY WEIGHT: 100% PASSING 6" SCREEN
  75-85% PASSING 0.75" SCREEN
- ORGANIC PORTION TO BE FIBROUS & ELONGATED
- SOLUBLE SALT CONTENT < 4.0 MMOHS/CM.
- pH TO BE BETWEEN 5.0 & 8.0

EROSION CONTROL MIX BERM
NTS



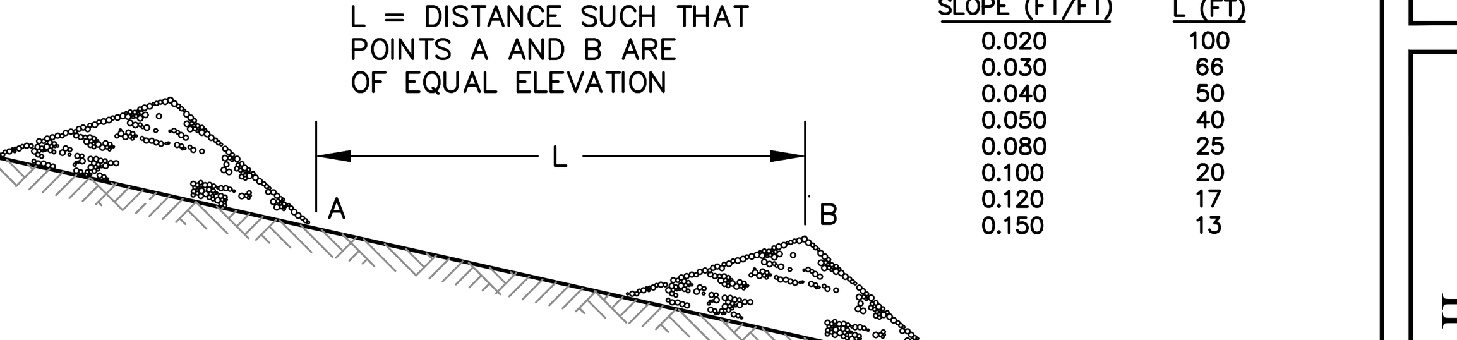
NOTE:
KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" (0.5m) TO PREVENT FLOW AROUND DAM.

ELEVATION



CROSS SECTION

L = DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

SPACING

STONE CHECK DAM DETAIL
NTS

REVISION		
NO.	DATE	DESCRIPTION
1	8/23/23	Submitted Draft for Client Review
2	10/20/23	Revised per Fire Marshall Comments
3	11/16/23	Revised per Fire Marshall & Town Comments
4	12/4/23	Revised per Development Review Meeting w/ Town
5	12/12/23	Revised per Fire Marshall Comments
6	3/8/24	Submitted Site Plan to Town

STATE OF MAINE ANDREW S. MORRELL No. 13285 LICENSED PROFESSIONAL ENGINEER

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Windham School Age Childcare Assoc., Inc.
P.O. Box 839
Windham, Maine 04062

DETAILS II

NATURAL WONDERS DAYCARE
184 POPE ROAD
WINDHAM, MAINE

DESIGNED	DATE
W. Pelkey	Aug. 2023
DRAWN	SCALE
Dept.	1" = 25'
CHECKED	JOB. NO.
A. Morrell	23147

SHEET
5

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NAD 83

N/F
George J. &
Janice L. Hillman
Bk. 13110, Pg. 57

N/F
Isabelle &
Lloyd Gilman
Bk. 24743, Pg. 282

N/F
Bruce A. Worrey
Bk. 39433, Pg. 297

N/F
Bruce A. Worrey
Bk. 39433, Pg. 297

AP#1

AP#2

20' SHALLOW

150' SHEET

120' SHEET

POPE ROAD

BgB (C)

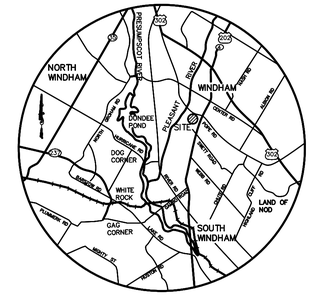
Sn (D)

PsB (C)

WrB (C)

BuB (C/D)

PbB (C)



LOCATION MAP
SCALE: 1" = 2 MILES

1. TOPOGRAPHY: BH2M
ROBERT C. LIBBY JR. PLS#2190
28 STATE STREET
GORHAM, MAINE

2. SOILS MAPPING: CUMBERLAND COUNTY MEDIUM INTENSITY SOILS MAPS

3. TEST PITS: NORMA HARRIS, SE #348
HARRIS SEPTIC SOLUTIONS

4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.

LEGEND

SYMBOL	DESCRIPTION
12	POND
12	DRAINAGE SUB AREA
R12	REACH
	DRAINAGE AREA BOUNDARY
	TIME OF CONCENTRATION ROUTE
	LIMIT OF WETLANDS
64	EXISTING CONTOUR
64	PROPOSED CONTOUR

PRE DEVELOPMENT FLOWS

ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1 (SA-1)	0.93 CFS	2.27 CFS	3.48 CFS
AP-2 (SA-2)	0.38 CFS	0.90 CFS	1.37 CFS
COMBINED	1.31 CFS	3.17 CFS	4.85 CFS

Scale: 1" = 25'
25' 0 25' 50'

ONSITE SOILS LEGEND

SYMBOL	DESCRIPTION
	SOIL BOUNDARY LINES
	LIMIT OF WETLANDS

SLOPE DESIGNATION
A = 0 – 3%
B = 3– 8%
C = 8 – 20%
D = 20%+

ONSITE SOIL LEGEND
HYDROLOGIC SOIL GROUP

SOIL	GROUP
PbB	C
PbC	C
BuB	C/D
BgB	C
WrB	C
Sn	D

SOIL DESIGNATION
AdB(A)
SLOPE DESIGNATION
HYDROLOGIC SOIL GROUP
HYDROLOGIC SOIL

REVISION NO.	DATE	DESCRIPTION
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STATE OF MAINE
ANDREW S. MORRELL
No. 12185
REGISTERED PROFESSIONAL LAND SURVEYOR

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FOR
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PRE DEVELOPMENT WATERSHED
NATURAL WONDERS DAYCARE
184 POPE ROAD
WINDHAM, MAINE

DESIGNED	DATE
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DRAWN	SCALE
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SHEET
A

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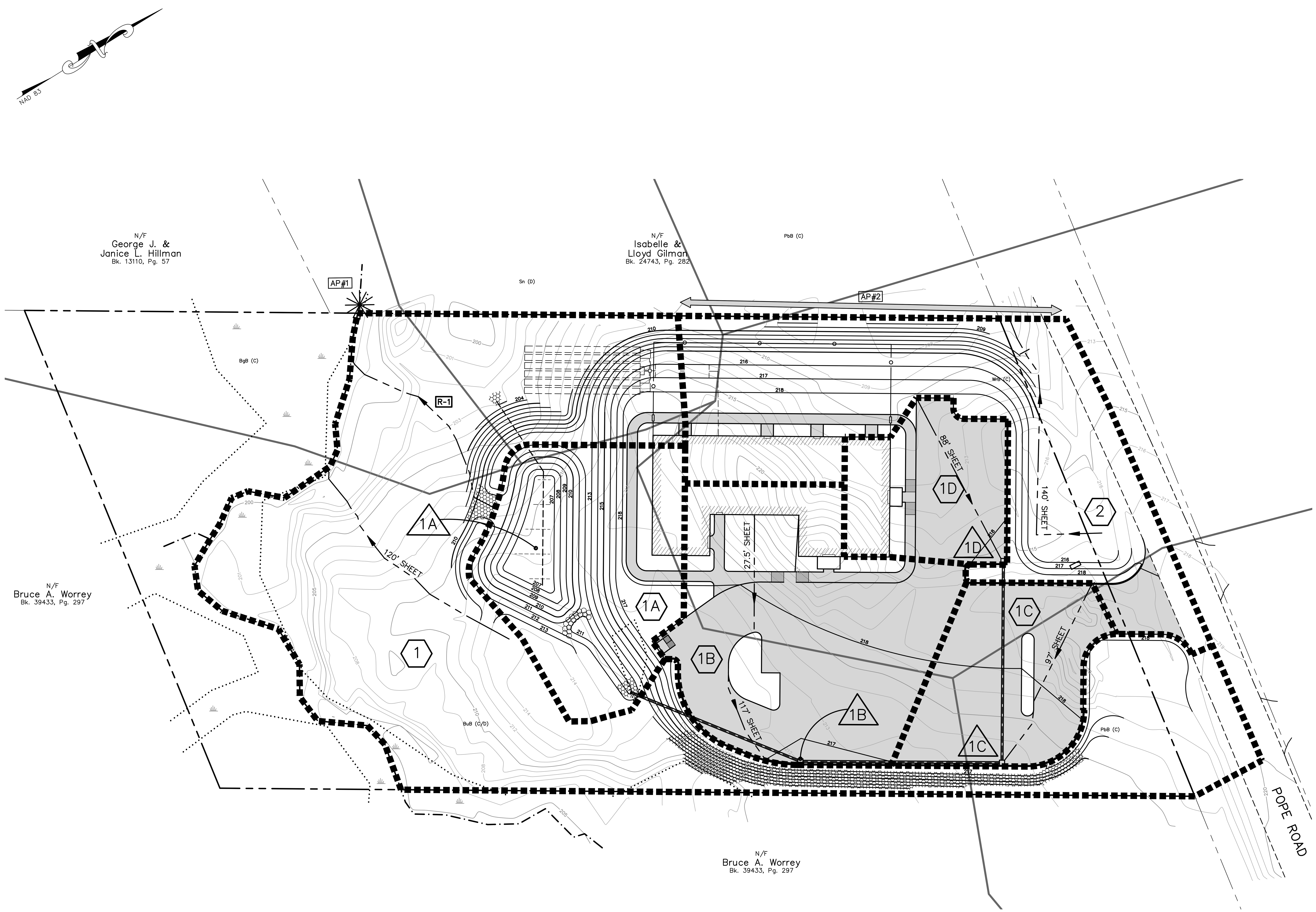

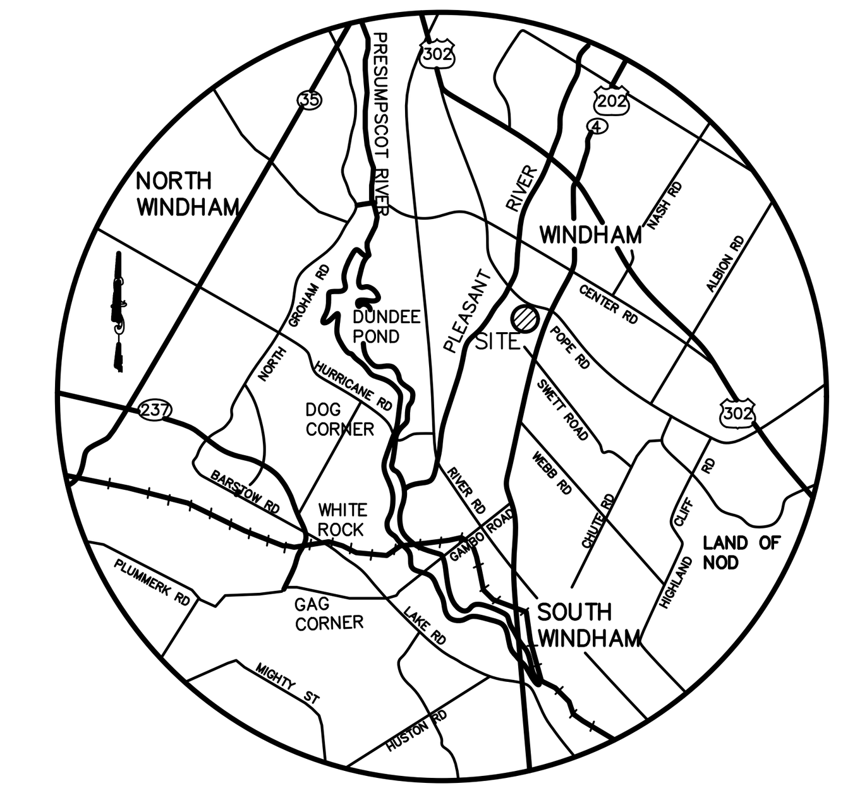

LOCATION MAP
SCALE: 1" = 2 MILES

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HARRIS SEPTIC SOLUTIONS
4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.

LEGEND

SYMBOL	DESCRIPTION
(triangle 12)	POND
(hexagon 12)	DRAINAGE SUB AREA
R12	REACH
	DRAINAGE AREA BOUNDARY
	TIME OF CONCENTRATION ROUTE
	LIMIT OF WETLANDS
64	EXISTING CONTOUR
64	PROPOSED CONTOUR

POST DEVELOPMENT FLOWS
FLOW RATE = POST (PRE)

ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1 (SA-1)	0.77 (0.93) CFS	1.75 (2.27) CFS	3.15 (3.48) CFS
AP-2 (SA-2)	0.60 (0.38) CFS	1.18 (0.90) CFS	1.66 (1.37) CFS
COMBINED	1.37 (1.31) CFS	2.93 (3.17) CFS	4.81 (4.85) CFS

DEVELOPMENT OF THE PROPOSED PROJECT WILL CREATE A CONDITION WHERE PEAK FLOWS OF STORMWATER FROM THE PROJECT SITE EXCEED THE PEAK FLOWS OF STORMWATER PRIOR TO UNDERTAKING THE PROJECT AT ANALYSIS POINT #2. THIS INCREASE IS MINOR AND DUE TO THE DECREASE IN PEAK FLOWS AT ANALYSIS POINT #1 IN THE POST DEVELOPMENT STATE, THE CHANGES ARE WELL WITHIN THE CAPACITY OF THE DOWNSTREAM CONDITIONS. THE DEVELOPMENT OF THIS PROJECT WILL NOT CREATE ANY ADVERSE IMPACTS TO DOWNSTREAM CONDITIONS.

Scale: 1" = 25'
25' 0 25' 50'

Tc SUMMARY
(FOR THOSE NOT LABELED ON THE PLAN)

SUBCATCHMENT	Tc ROUTE
SA-1A	6 MIN. DIRECT ENTRY

ONSITE SOILS LEGEND

SYMBOL	DESCRIPTION
	SOIL BOUNDARY LINES
	LIMIT OF WETLANDS

SLOPE DESIGNATION
A = 0 – 3%
B = 3– 8%
C = 8 – 20%
D = 20%+

ONSITE SOIL LEGEND
HYDROLOGIC SOIL GROUP

SOIL	GROUP
PbB	C
PbC	C
BuB	C/D
BgB	C
WrB	C
Sn	D

SOIL DESIGNATION
AdB(A)
SLOPE DESIGNATION
HYDROLOGIC SOIL GROUP
HYDROLOGIC SOIL

REVISION

NO.	DATE	DESCRIPTION
1	8/23/23	Submitted Draft for Client Review
2	10/20/23	Revised per Fire Marshall Comments
3	11/16/23	Revised per Fire Marshall & Town Comments
4	12/4/23	Revised per Development Review Meeting w/ Town
5	12/12/23	Revised per Fire Marshall Comments
6	3/8/24	Submitted Site Plan to Town

STATE OF MAINE
ANDREW S. MORRELL
No. 13285
LICENSED PROFESSIONAL ENGINEER

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Windham School Age Childcare Assoc., Inc.
P.O. Box 839
Windham, Maine 04062

PRE DEVELOPMENT WATERSHED

NATURAL WONDERS DAYCARE

184 POPE ROAD
WINDHAM, MAINE

DESIGNED	DATE
W. Pelkey	Aug. 2023
DRAWN	SCALE
Dept.	1" = 25'
CHECKED	JOB. NO.
A. Morrell	23147

SHEET
B