

CITY OF LEWISTON
PLANNING BOARD MEETING
Monday, July 14, 2014 – 5:30 P.M.
City Council Chambers – First Floor
Lewiston City Building
27 Pine Street, Lewiston

AGENDA

I. ROLL CALL

II. ADJUSTMENTS TO THE AGENDA

III. CORRESPONDENCE

IV. PUBLIC HEARINGS:

An application submitted by Platz Associates on behalf of the Greater Androscoggin Humane Society to construct a new facility at 56 Strawberry Avenue.

V. OTHER BUSINESS:

a) Any other business Planning Board Members may have relating to the duties of the Lewiston Planning Board.

VI. READING OF THE MINUTES: Motion to adopt the June 9, 2014 and June 23, 2014 draft minutes

VII. ADJOURNMENT



CITY OF LEWISTON



Department of Planning & Code Enforcement

TO: Planning Board
FROM: David Hediger, City Planner
DATE: July 10, 2014
RE: July 14, 2014 Planning Board Agenda Item IV(a)

An application submitted by Platz Associates on behalf of the Greater Androscoggin Humane Society to construct a new facility at 56 Strawberry Avenue.

Platz Associates on behalf of the Greater Androscoggin Humane Society has submitted an application to construct two ancillary buildings at 56 Strawberry Avenue. This vacant lot of 5.8 acres is located in the Urban Enterprise (UE) district in which humane societies are allowed as a permitted use. The property is located directly across the street from their existing shelter facility at 55 Strawberry Avenue which will remain and continue to be used in its current capacity. The applicant currently has an option to purchase 56 Strawberry Avenue and plans to construct two buildings. One building of 12,880 square feet will be used for the intake of animals and their observation and quarantine until being moved to the existing shelter across the street. The other 19,000 square feet building consists of 3,600 square feet for a doggie daycare and 15,400 square feet for training and obedience classes and special events. Each building will have an outdoor kennel area.

Staff has been working closely with the applicant's representative to address concerns and questions. The applicant has since provided revised plans and documentation referencing most of staff comments. Staff notes the following with respect to the proposed development:

- The applicant has referenced all of the applicable sections of the Zoning and Land Use Code including Article XIII, Section 4.
- The development will result in approximately 1.95 acres of impervious area. Total site disturbance will exceed one acre and is located within an area of the city subject to municipal stormwater regulations (MS4). The applicant has submitted a performance guarantee for post construction stormwater management pursuant to Article XII, Section 15e(3). Staff recommends as a condition of approval that prior to a certificate of occupancy being issued that evidence of said documentation recorded in the Androscoggin Registry of Deeds is provided regarding the maintenance and upkeep of the stormwater system pursuant to Lewiston MS4 stormwater requirements.
- The applicant has provided a stormwater design directing water to the Androscoggin River and the City's stormwater system. The applicant and Public Works are working together to address staff's comments with respect to the stormwater. An update will be provided at the meeting. If not resolved by the time of the meeting, staff is recommending as a condition of approval that no building permits be issued or site activity commence until the stormwater design has been reviewed to staff's satisfaction.

- As proposed, a portion of the sites stormwater is directed across an existing drainage swale onto the abutting property at 52 Strawberry Avenue to the Androscoggin River. The applicant has indicated drainage easements are in place. Prior to a certificate of occupancy being issued, evidence of a drainage easement should be provided to staff's satisfaction.
- The applicant has noted on Drawing C1 that no certificate of occupancy will be issued for this development until written verification by a professional engineer is provided to the city that all stormwater improvements have been completed in accordance with the approved plan.
- The property abuts the Androscoggin River. Therefore, portions of which are subject to shoreland zoning and flood zone provisions. Located in the UE district, the shoreland zoning setback is 25' from the river. The closest point of site clear is approximately 180' from the river, well exceeding the shoreland zoning provisions. No activity is proposed within the floodzone.
- An apparent encroachment of pavement and a concrete pad from the abutting property at 52 Strawberry Avenue will be removed, loam, and seeded as part of this project. With that completed, the site is proposed to meet all space and bulk requirements of the UE district.
- The applicant is proposing 101 parking spaces. Daily operations at the site will be limited to the doggie day care accommodating 20-30 dogs and the staff use of the animal intake building. The large parking area is proposed primarily to accommodate large classes and special events, likely to be held on weekends. Given use of the property and likely scheduling of classes and events, the site is not expected to generate more than 100 trips in a peak hour and therefore, does not require a traffic movement permit.
- Given the site's proximity and relationship to the current shelter directly across the street, pedestrians crossing Strawberry Avenue is expected. The applicant has made provisions to construct paved walkways on both sites to a new crosswalk to provide safe connectivity. Pedestrian crossing signs and a painted crosswalk will be included as part of the improvements.

No other concerns have been raised by city staff. Therefore, approval is recommended pursuant to Article XIII, Section 4 Zoning and Land Use Code with the following conditions:

1. Prior to a certificate of occupancy being issued, documentation regarding the maintenance and upkeep of the stormwater system pursuant to Lewiston MS4 stormwater requirement contained in Article XII, Section 15e(3) must be recorded in the Androscoggin Registry of Deeds. This must be noted on the site plan.
2. If not resolved by the time of the meeting, no building permits will be issued and no site activity shall commence until the stormwater design has been reviewed to staff's satisfaction.
3. No certificate of occupancy shall be issued for this development until written verification by a professional engineer is provided to the city that all stormwater improvements have been completed in accordance with the approved plan.
4. Prior to a certificate of occupancy being issued, evidence of a drainage easement across 52 Strawberry Avenue must be provided to staff's satisfaction.
5. If development has not occurred as defined within the scope of the Zoning and Land Use Code within two years, development review approval shall expire, pursuant to Article XIII, Section 11. This must be noted on the site plan.

ACTIONS NECESSARY

1. Make a motion to consider an application submitted by Platz Associates on behalf of the Greater Androscoggin Humane Society to construct two ancillary buildings at 56 Strawberry Avenue.
2. Obtain input on the application;
3. Make a determination that the application is complete;
4. Make finding that the application meets all of the necessary criteria contained in the Zoning and Land Use Code, including Article XIII, Section 4 of the Zoning and Land Use Code and to grant approval to the Greater Androscoggin Humane Society to construct a 12,880 and 19,000 square foot ancillary building with 101 parking spaces at 56 Strawberry Avenue (subject to any concerns raised by the Planning Board or staff).

July 10, 2014

Mr. David Hediger, City Planner
City of Lewiston
27 Pine Street
Lewiston, Maine 04240

Re: Greater Androscoggin Humane Society Ancillary Facility Development Review

Dear Mr. Hediger-

The greater Androscoggin Humane Society proposes to build two ancillary buildings on 5.8 acres of vacant undeveloped land located at 56 Strawberry Avenue. The new buildings will be across the street from the Humane Society's main shelter facility.

Building A is 12,880 square feet, including a garage for GAHS's two animal transport vans and an open kennel area with a paved surface, and will be used for intake of animals being brought to the shelter. The animals will be observed and quarantined, if necessary, before being moved to the regular shelter in GAHS's main building. The building will be accessible to staff only and not to the general public.

Building B is 19,000 square feet, of which 3,600 square feet will be used for doggie day care (no boarding), accommodating up to 20 - 30 dogs. An additional 3,325 square feet of outdoor unpaved kennel area will serve this area. The remaining 15,400 square feet in the building will be used for training and obedience classes and special events, such as shows and trial competitions, and will be mostly open space.

It is anticipated that there will be an average of about two special events per month, which will be held on weekends. Some of these may attract as many as 100 participants. Parking will be provided for 101 vehicles in order to accommodate the participants in the larger weekend special events.

Most of the disturbed area will be in the relatively flat front two-thirds of the lot. There will be some cut required into the hill that rises towards the rear of the lot.

The following materials are attached:

Development Review Application
Development Review Checklist
Approval Criteria Article XIII Sec. 4
Application Attachment: Additional Information
Response to Planning Dept. Comments

Response to Fire Dept. Comments

Performance Guarantee

"Agreement for the Purchase and Sale of Real Estate" as evidence of right, title and interest

Stormwater Management Plan Wright-Pierce June, 2014

Erosion and Sedimentation Control Plan and Inspection, Maintenance and Housekeeping Plan Wright-Pierce June, 2014

Plans:

C 100 Site Plan Platz Associates 7/10/14

C 101 Site Details Platz Associates 7/10/14

C-1 Proposed Grading & Drainage Plan Wright-Pierce 7/10/14

C-2 Proposed Site Utilities Plan Wright-Pierce 7/10/14

C-3 Soil Erosion and Sediment Control Plan Wright-Pierce 7/10/14

C-4 Details I Wright-Pierce 6/27/14

C-5 Details II Wright-Pierce 6/24/14

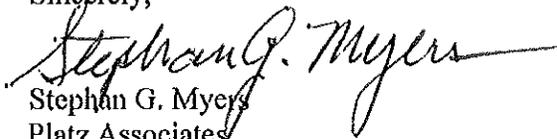
C-6 Erosion Control Notes and Details Wright-Pierce 6/24/14

C-7 Pre Development Drainage Plan Wright-Pierce 6/27/14

C-8 Post Development Drainage Plan Wright-Pierce 7/10/14

It is my understanding that this project will be reviewed at the July 14, 2014 Planning Board meeting. Please let me know if you have any questions or need more information.

Sincerely,



Stephan G. Myers

Platz Associates

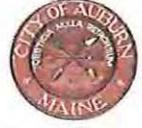
Project Representative for

Greater Androscoggin Humane Society



Development Review Application

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement



PROJECT NAME: Greater Androscoggin Humane Society Ancillary Facility

PROPOSED DEVELOPMENT ADDRESS: 56 Strawberry Ave.

PARCEL ID#: RE00013828

REVIEW TYPE: Site Plan/Special Exception Site Plan Amendment
 Subdivision Subdivision Amendment

PROJECT DESCRIPTION: New construction of 12,880 s.f. animal intake building, 19,000 s.f. training/doggie day care building, and associated parking.

CONTACT INFORMATION:

Applicant G.A.H.S.
 Name: Steven Dostie
 Address: 55 Strawberry Ave.
 Zip Code Lewiston 04240
 Work #: 786-4713
 Cell #:
 Fax #: 782-5521
 Home #:
 Email: steven@gahumane.org

Property Owner HBC Realty, Inc.
 Name: Allan Hahnel
 Address: PO Box 1061
 Zip Code Lewiston 04243
 Work #: 784-6477
 Cell #:
 Fax #:
 Home #:
 Email:

Project Representative
 Platz Associates
 Name: Steve Myers
 Address: Two Great Falls Plaza
 Zip Code Auburn, ME 04210
 Work #: 784-2941
 Cell #:
 Fax #: 784-3856
 Home #:
 Email: smyers@platzassociates.com

Other professional representatives for the project (surveyors, engineers, etc.),
 Wright-Pierce
 Name: Jan Wiegman
 Address: 99 Main St.
 Zip Code Topsham, ME 04086
 Work #: 319-1520
 Cell #: 576-0282
 Fax #:
 Home #:
 Email: jan.wiegman@wright-pierce.com

PROJECT DATA

The following information is required where applicable, in order to complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	0	sq. ft.
Proposed Total Paved Area	53,322	sq. ft.
Proposed Total Impervious Area	85,202	sq. ft.
Proposed Impervious Net Change	85,202	sq. ft.
Impervious surface ratio existing	0	% of lot area
Impervious surface ratio proposed	33.7	% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	0	sq. ft.
Proposed Building Footprint	12,880	19,000
Proposed Building Footprint Net change	31,880	sq. ft.
Existing Total Building Floor Area	31,880	sq. ft.
Proposed Total Building Floor Area	0	sq. ft.
Proposed Building Floor Area Net Change	31,880	sq. ft.
New Building	Yes	(yes or no)
Building Area/Lot coverage existing	0	% of lot area
Building Area/Lot coverage proposed	12.6	% of lot area

ZONING

Existing	UE
Proposed, if applicable	_____

LAND USE

Existing	Vacant
Proposed	Vet. Facility inc. Kennels and Humane Societies

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	NA
Proposed Number of Residential Units	_____
Subdivision, Proposed Number of Lots	_____

PARKING SPACES

Existing Number of Parking Spaces	0
Proposed Number of Parking Spaces	101
Required Number of Parking Spaces	77+
Number of Handicapped Parking Spaces	6

ESTIMATED COST OF PROJECT

\$3,500,000

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area	0	sq. ft.
Proposed Disturbed Area	156,816	sq. ft.
Proposed Impervious Area	85,202	sq. ft.

1. *If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.*
2. *If the proposed impervious area is greater than one acre including any impervious area created since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.*
3. *If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.*
4. *If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.*

TRAFFIC ESTIMATE SEE APPROVAL CRITERIA

Total traffic estimated in the peak hour-existing _____ passenger car equivalents (PCE)
(Since July 1, 1997)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) _____ passenger car equivalents (PCE)
If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the UE zoning district.
 2. Parcel Area: 5.8 acres / 252,648 square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	<u>5,000 s.f.</u>	<u>/ 252,648</u>
Street Frontage	<u>100 f.</u>	<u>/ 413 f.</u>
Min Front Yard	<u>10 f.</u>	<u>/ 27 f.</u>
Min Rear Yard	<u>10 f.</u>	<u>/ 230 f.</u>
Min Side Yard	<u>10 f.</u>	<u>/ 25 f.</u>
Max. Building Height	<u>80 f.</u>	<u>/ 14.f.</u>
Use Designation	<u>humane societies</u>	<u>/ humane societies</u>
Parking Requirement	<u>1 space/ per 200 square feet of floor area</u>	
Total Parking:	<u>77 +</u>	<u>/ 101 SEE APPLICATION ATTACHMENT</u>
Overlay zoning districts (if any):	<u>No</u>	<u>/ /</u>
Urban impaired stream watershed?	<u>YES/NO If yes, watershed name <u>No</u></u>	

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submission shall include payment of fee and fifteen (15) complete packets containing the following materials:

1. Full size plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

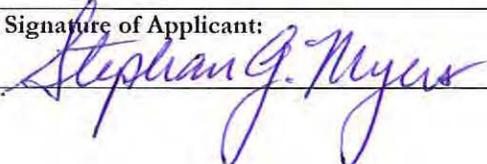
L/A's development review process and requirements have been made similar for convenience and to encourage development. Each City's ordinances are available online at their prospective websites:

Auburn: www.auburnmaine.org under City Departments/ Planning and Permitting/Land Use Division/Zoning Ordinance

Lewiston: <http://www.ci.lewiston.me.us/clerk/ordinances.htm> Refer to Appendix A of the Code of Ordinances

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant: 	Date: <u>7/9/14</u>
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Development Review Checklist

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement



THE FOLLOWING INFORMATION IS REQUIRED WHERE APPLICABLE TO BE SUBMITTED FOR AN APPLICATION TO BE COMPLETE

PROJECT NAME: Greater Androscoggin Humane Society Ancillary Facility

PROPOSED DEVELOPMENT ADDRESS and PARCEL #: 56 Strawberry Ave RE00013828

Required Information		Check Submitted		Applicable Ordinance	
		Applicant	Staff	Lewiston	Auburn
Site Plan					
	Owner's Names/Address	C100			
	Names of Development	C100			
	Professionally Prepared Plan	All			
	Tax Map or Street/Parcel Number	C100			
	Zoning of Property	C100			
	Distance to Property Lines	C100			
	Boundaries of Abutting land	C100			
	Show Setbacks, Yards and Buffers	C100			
	Airport Area of Influence (Auburn only)	N.A.			
	Parking Space Calcs	Attachment			
	Drive Openings/Locations	C100			
	Subdivision Restrictions	N.A.			
	Proposed Use	C100			
	PB/BOA/Other Restrictions	N.A.			
	Fire Department Review				
	Open Space/Lot Coverage	C100			
	Lot Layout (Lewiston only)				
	Existing Building (s)	N.A.			
	Existing Streets, etc.	C100			
	Existing Driveways, etc.	N.A.			
	Proposed Building(s)	C100			
	Proposed Driveways	C100			
Landscape Plan					
	Greenspace Requirements	N.A.			
	Setbacks to Parking	C100			
	Buffer Requirements	Approval Criteria			
	Street Tree Requirements	C100			
	Screened Dumpsters	C101			

	Additional Design Guidelines	N.A.			
	Planting Schedule	C101			
Stormwater & Erosion Control Plan					
	Compliance w/ chapter 500	This Application			
	Show Existing Surface Drainage	C-7			
	Direction of Flow	C-8			
	Location of Catch Basins, etc.	C-1, 8			
	Drainage Calculations	Stormwater Mngmnt Plan			
	Erosion Control Measures	Erosion & Sed. Control Plan, C-3-6			
	Maine Construction General Permit	Applied For			
	Bonding and Inspection Fees	Attachment			
	Post-Construction Stormwater Plan	C-8			
	Inspection/monitoring requirements	I, M, & HK Plan			
	Third Party Inspections (Lewiston only)	Attachment			
Lighting Plan					
	Full cut-off fixtures	C101			
	Meets Parking Lot Requirements	C101			
Traffic Information					
	Access Management	Approval Criteria			
	Signage	C100			
	PCE - Trips in Peak Hour	Approval Criteria			
	Vehicular Movements	Attachment			
	Safety Concerns	N.A.			
	Pedestrian Circulation	Approval Criteria			
	Police Traffic				
	Engineering Traffic				
Utility Plan					
	Water	C-2			
	Adequacy of Water Supply	Approval Criteria			
	Water main extension agreement	N.A.			
	Sewer	C-2			
	Available city capacity				
	Electric	C-2			
	Natural Gas	C-2			
	Cable/Phone	C-2			
Natural Resources					
	Shoreland Zone	Approval Criteria			
	Flood Plain	N.A.			
	Wetlands or Streams	N.A.			
	Urban Impaired Stream	N.A.			
	Phosphorus Check	N.A.			
	Aquifer/Groundwater Protection	N.A.			

	Applicable State Permits	N.A.			
	No Name Pond Watershed (Lewiston only)	N.A.			
	Lake Auburn Watershed (Auburn only)	N.A.			
	Taylor Pond Watershed (Auburn only)	N.A.			
Right Title or Interest					
	Verify	P & S			
	Document Existing Easements, Covenants, etc.				
Technical & Financial Capacity					
	Cost Est./Financial Capacity	Approval Criteria			
	Performance Guarantee	N.A.			
State Subdivision Law					
	Verify/Check	N.A.			
	Covenants/Deed Restrictions	N.A.			
	Offers of Conveyance to City	N.A.			
	Association Documents	N.A.			
	Location of Proposed Streets & Sidewalks	N.A.			
	Proposed Lot Lines, etc.	N.A.			
	Data to Determine Lots, etc.	N.A.			
	Subdivision Lots/Blocks	N.A.			
	Specified Dedication of Land	N.A.			
Additional Subdivision Standards					
	Single-Family Cluster (Lewiston only)	N.A.			
	Multi-Unit Residential Development (Lewiston only)	N.A.			
	Mobile Home Parks	N.A.			
	Private Commercial or Industrial Subdivisions (Lewiston only)	N.A.			
	PUD (Auburn only)	N.A.			
A jpeg or pdf of the proposed site plan		Submitted			
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving					

APPROVAL CRITERIA

Article XIII Sec. 4

(a) *Utilization of the site.* The front two-thirds of the site is relatively flat with no wetlands, floodplains or unique natural features. The back portion of the property rises up before dropping down to the Androscoggin River. The buildings and parking lot will be built on the front portion of the lot with only a small amount of cut into the hill. The existing natural drainage on the southwest side of the parcel will be utilized in the stormwater management plan. Therefore the proposed development plan reflects the natural capabilities of the site to support development.

(b) *Traffic movement into and out of the developed area.* The Animal Intake Building will generate no new traffic as the only vehicles that will come to the building are the animal transport vans. They will come to this building rather than to the existing building as they do now. If someone from the general public is bringing an animal to the shelter they will take it to the existing building as they currently would.

Doggie Day Care could generate up to 20 – 30 trips in the morning and afternoon Monday thru Friday, most over a two hour period. The weekday training and obedience classes will be held at various times during the day and evenings. Classes will typically have 10 – 30 participants arriving at the site.

Depending upon the event the maximum number of participants to a special event could be up to about 100. It is anticipated that there will be an average of two special events per month, but not every one will have the maximum number of participants.

The intersection of Main Street and Strawberry Avenue is the primary intersection leading to the site. This intersection was recently (in the past few years) reconfigured and a traffic light installed to ensure the highest possible level of service for Strawberry Avenue. Therefore adequate provision has been made for traffic movement of all types into and out of the developed area.

(c) *Access into the site.* There are two driveways into the site. The more northern driveway is one-way in only with a width of 20 feet. The only vehicles that will use this entrance are GAHS's animal transport vans. The southern is two-way in/out for vehicles using the parking lot and is 24 feet wide. Two existing street trees will be removed to provide adequate site distance. Both entrances are level with the road and are adequate to accommodate SU-30 vehicles. Therefore the project meets the criteria for safe and convenient vehicular access into the site.

(d) *Internal vehicular circulation.* Circulation in the parking lot is provided by 24 foot wide two-way drive lanes, thus allowing for an uninterrupted flow of traffic around the parking area, with lane markings indicating the two-way flow. The design of the parking lot allows for turning and backing of WB-40 vehicles and there is no need for backing out onto a street. Loading areas are provided adjacent to the training facility entrance into Building B. The parking lot and driveways will be surfaced with bituminous concrete.

This site layout design therefore meets the criteria of providing for the safe movement of passenger, service, and emergency vehicles through the site.

(e) *Pedestrian Circulation.* A crosswalk, with appropriate signage and stripping and crossing Strawberry Avenue, will link the proposed Ancillary Facility with the existing shelter across the street. On the existing site the crosswalk will connect with a new sidewalk that will intersect with the existing sidewalk leading to the main entrance. On the new site the crosswalk will connect with a new sidewalk that connects to the new parking lot. As the new sidewalks are not raised above the street level there is no need for handicapped ramps but there will be cast iron tactile warning plates set into the sidewalks. A sidewalk is provided adjacent to Building B. These components provide a system of pedestrian circulation within the site. There are no street sidewalks within the vicinity of the proposed development.

(f) *Stormwater management.* Please see the Stormwater Management Plan and drawings for a description of the provisions proposed for disposing of all stormwater collected on the parking areas, roofs, and other impervious surfaces through a stormwater drainage system which will not have adverse impacts on abutting or downstream properties and which meet the requirements of all applicable regulations.

(g) *Erosion Control.* Please see the Erosion and Sedimentation Control Plan and drawings for the measures that will be used for erosion and sediment control both during and post construction. Most of the development will occur on the flat part of the site with minimum cutting of the rear hill and there will be no retaining walls. Most of the rear one-third of the lot and its existing vegetation will be undisturbed.

(h) *Water supply.* Water will be provided via the existing city water service. The current GAHs facility uses an average of 130 cubic feet of water per quarter. It is anticipated that the proposed ancillary facilities will use a similar amount. Please see C-2 for the layout of water pipes on the site plan and C-4 and 5 for component details.

(i) *Sewage Disposal.* Sewage disposal will utilize the existing city sewer system. Please see drawing C-3 for the location of the on-site sewer system and C-4 and 5 for component details.

(j) *Utilities.* The development will be provided with electrical and telecommunications service. Two new poles on the north side of the lot will be set back 50 feet from the street. An above ground transformer will be set back 60 feet and will be screened with vegetation. All on-site utility lines will be underground.

(k) *Natural features.* The existing vegetation in the front two-thirds of the site where construction will take place is mostly grass, weeds and scrub. The vegetation on the back portion of the site, including the wooded area that drops down to the Androscoggin River, will remain untouched except for where there is a small amount of cut into the front of the hill.

(l) *Groundwater protection.* No activities on the site will impact either the quality or quantity of groundwater and in any case the area is serviced by city water so abutting properties do not use groundwater and it is not part of the public water supply system.

(m) *Water and air pollution.* The uses of the proposed development will not result in undo water or air pollution.

(n) *Exterior lighting.* All exterior lighting will be full cut off fixtures and will be provided as per drawing C-100.

(o) *Waste disposal.* Solid waste will be deposited into a dumpster inside a screened enclosure at the rear of the parking lot and disposed of by a commercial hauler. No hazardous waste will be generated on site.

(p) *Lot layout.* Not applicable.

(q) *Landscaping.* Existing street trees will continue to define the street edge and raised planting beds will break up the parking lot. Non-impervious surfaces will be grassed, much of this as part of the stormwater management system. Planting beds will be scattered though out the development to soften the appearance. The hill towards the rear of the parcel will be left in its current natural state.

(r) *Shoreland relationship.* The rear 88,960 square feet of the lot is located in the Shoreland Zone abutting the Androscoggin River. The only impervious surface that will be located in the Shoreland Zone are a small corner of the Doggie Day Care kennel and a small corner of the parking lot, a total of 853 square feet. The impervious surface ratio in the Shoreland Zone is 0.96%. There will be no structures or grading/filling within 75 feet of the Androscoggin River and the GAHS shall maintain the land within 50 feet at a minimum of the river in a natural vegetative state. The development will therefore not impact the shoreline of the Androscoggin River. However, the embankment leading down to the river is too steep to provide access to the river.

(s) *Open Space.* Not applicable.

(t) *Technical and financial capacity.* Applicant will use only professional engineers, architects, and contractors to construct the project. The estimated cost of the proposed project, including both buildings, parking lot, and site work is \$3.5 million, plus the cost of the land. GAHS has on hand the funds to purchase the property, which will be take place by the end of July. The Humane Society plans a fund raising campaign to raise the money needed to build the project. Construction will not begin until adequate funding is obtained.

(u) *Buffering.* The northeast side of the parcel is separated from the abutting undeveloped property by an existing fence located on the neighboring lot. The abutting property to the southwest is used for industrial outdoor storage and equipment/truck parking and is partially vacant. The southwest side of the GAHS parcel between the parking area and lot

line, which is 110 feet at the widest point, will be grassed and includes components of the stormwater management facilities.

(v) *Compliance with district regulations.* “Kennels and Humane Societies” are a permitted use in the Urban Enterprise zoning district. The lot exceeds the minimum lot size of 5,000 square feet and the minimum frontage of 100 feet and the height of the proposed buildings are less than the maximum allowed height. The minimum yard and setback requirements are not encroached upon and the lot coverage of 12.6% is less than the maximum ratio of 60% and the impervious surface of 33.7% is less than maximum ratio of 80%. This project therefore complies with the Urban Enterprise district regulations of Article XI.

(w) *Design consistent with performance standards.* The applicant has so designed the development as to make it probable that the development and its use will comply with the applicable performance standards of Article XII.

APPLICATION ATTACHMENT: Additional Information
Greater Androscoggin Humane Society Ancillary Facility

Parking Space Calculations

The Animal Intake Building (Building A) and Doggie Day Care (3,600 square feet of Building B) are not specifically listed or easily placed into any of the Article XII Section 17 (d) categories. The garage part of the Intake Building will house GAHS's two animal transport vans. The building is not accessible to the public and parking for any employees who will be in the building is already accommodated in the existing lot. Doggie Day Care will require space for drop-off and pick-up only. As not all dogs will be arriving at the same time it is estimated that spaces for five vehicles will be sufficient to meet this need, plus two spaces for employees.

The remaining 15,400 square feet of Building B to be used for training classes and special events can be categorized as "place of indoor assembly." No fixed seating will be provided, therefore one space per 200 square feet is required. This calculates to a requirement of 77 spaces. While the obedience and training classes, held during the day and evenings during weekdays, will typically have only 10 – 30 participants, it is anticipated that some of the larger weekend pet shows and trial competitions will attract around 100 participants. For this reason the parking lot is designed with 101 spaces.

Post-Construction Stormwater Management Plan Performance Guarantee

The accompanying Performance Guarantee will be executed and recorded upon approval of this application.

The GAHS shall retain a Qualified Post Construction Third-Party Inspector per the requirements of Article XIII Sec 15 (e) (1).



City of Lewiston
Planning & Code Enforcement

TO: Platz Associates
FROM: David Hediger, City Planner
DATE: July 7, 2014
RE: Human Society, 56 Strawberry Ave

Planning and Code Enforcement offer the following comments and concerns with respect to the above referenced project:

- The application/narrative should reference each of the development review criteria contained in Article XIII, Section 4. **Approval Criteria now included following Development Review Checklist.**
- C100 and 101: plan does not detail site lighting, light types, etc. Lighting must be full cut off fixtures. **Site lighting information now shown on C100 and C101.**
- C100: Details are needed to see what accommodations are being made for pedestrians crossing to the existing Humane Society facility at 55 Strawberry Ave. Crosswalks emptying directly into driveways or other areas where pedestrian safety is questionable needs to be avoided. The crosswalks will need to be at a safe landing on both sides of the street designed to meet current ADA standards including tactile warnings (the City requires cast iron plates set in concrete). Signage at the crosswalk and advanced signage will be required since this is a new crossing where one doesn't currently exist. Plans need to reflect this. **C100 now shows crosswalk joining new sidewalk on other side of Strawberry Avenue. As new sidewalks on both sides of street are level with roadway no tip-downs are required. Six square foot landings with tactile warning cast iron plates will be placed where the new sidewalks intersect the roadway. As shown on the revised C100 signage conforming to MUTCD guide lines is placed at the crosswalk and 125 feet before the crosswalk on each side of the street.**
- Sheet C1 (and subsequent sheets): existing gravel and concrete pad at 52 Strawberry Ave appear to encroach onto the Humane Societies property. This yard violation appears to be the result the lots reconfiguration. Impervious areas must be removed, loamed and seeded. **C-1 and subsequent sheets now show the existing gravel area to be loamed and seeded and the concrete pad removed.**
- Sheet C1 (and subsequent sheets): should be amended to show raised landscaped islands as shown on Sheet C100. **These sheets have been amended to show the raised landscaped islands in the parking lot.**
- Sheet C1 should clearly define area/length of proposed bituminous curbing. **The beginning and end of the proposed bituminous curbing is now shown on C-1.**
- Prior to a certificate of occupancy being issued a professional engineer must provide a stamped statement indicating all stormwater improvements have been completed in accordance with the approved plan. A note to this effect should be added to the plans. **A**

note to this effect has been added to C-1.

Additional comments may be provided upon further review. Please contact me with any questions.

Thank you.



Department of Public Works
David A. Jones, P.E., Director

DATE: July 9, 2014

TO: David Hediger, Planning Director

FROM: Ryan Barnes, P.E., Project Engineer

SUBJECT: 56 Strawberry Avenue
Humane Society

Lewiston Public Works has the following comments at this time upon reviewing the application, previous comments and responses have been repeated for clarity:

Plans:

1. Sheet C100 – Appropriate signage should be added at the crosswalk and advance of the sidewalk alerting motorists to the Strawberry Avenue Crosswalk.
2. Sheet C100 – The ADA Ramps crossing Strawberry Avenue shall have tactile warning panels.
3. Sheet C100 – The crosswalk is currently shown ending across the street without a proposed receiving ramp or sidewalk, these will need to be added in order to have a crossing at this location.
4. Sheet C100 – Appropriate signage shall be added to the northerly entrance indicating that it is enter only.
5. Sheet C101 – Detail 11 – ADA Ramps crossing Strawberry Avenue must have cast iron truncated dome panels placed in concrete.
6. Sheet C101 – Detail 1 – Asphalt build up in Strawberry Avenue shall be 3.0” of Hot Mix Asphalt 19.0mm and 1.5” of Hot Mix Asphalt 9.5mm.
7. Drawing C-1 – What is the purpose of the underdrain crossing the northerly portion of the site and entering the Cities Catchbasin?
8. Drawing C-2 – The water services to the two buildings shall be separated inside the City Right of Way with a separate shut off for each. If a 6” Fire line is added for either building it will require the shut off to be located within the city Right of Way as well.
9. Sheet C-2 – All connections to city Manholes and Catchbasins shall be cored and booted connections.
10. Sheet C-3 – Silt fence is shown up gradient of construction in some areas, this may cause ponding of water on adjacent parcels and should be evaluated for need.

The City of Lewiston does not discriminate against or exclude individuals from its municipal facilities, and/or in the delivery of its programs, activities and services based on an individual person's ethnic origin, color, religion, sex, age, physical or mental disability, veteran status, or inability to speak English. For more information about this policy, contact or call Compliance Officer Mike Paradis at (V) 207-513-3003, (TTY) 207-513-3007, or email mparadis@ci.lewiston.me.us.

Stormwater:

1. Please provide the 2 and 25 year pre and post stormwater calculations for review.
2. The plan indicates directing a large portion of the site water to the Cities closed drainage system that doesn't currently go there. It does not appear that the existing closed drainage system on Strawberry Avenue will be able to handle the increase in flow proposed for this development.
3. The plan indicates that the proposed culvert under the trail will be overtopped by the 10 year storm event. LPW is reviewing whether modifications are needed as part of the trail construction.
4. How will snow storage/disposal be handled at this site, storing snow in the structural BMPs is not acceptable as it could potentially impede the ability for them to treat/store water.

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**LEWISTON FIRE DEPARTMENT
Certified Fire Inspector \
Certified Fire Investigator
Paul Ouellette
Fire Prevention Bureau
Central Fire Station
2 College Street
Lewiston, ME 04240
(207) 513-3002 ext. 3605
Fax # (207) 784-6138
pouellette@ci.lewiston.me.us**

Site / Plans Review

Date: 7-9-2014

Project: **Greater Androscoggin Human Society**

Address: **56 Strawberry Ave.**

Project Concerns:

Following the site plan review for the two new GAHS buildings, there are concerns with the new building "B" with the large open floor space plan. The building will have an "assembly type use" that could accommodate more than 300 people. I did not see it noted anywhere on the plans, the building would need to be fully fire alarmed and sprinkled. **As noted on revised drawing C-2 both buildings will be sprinkled. Construction plans submitted for a building permit will include required fire alarms and sprinklers.**

Building "A", being a single story and used for staff only and not to the general public would not potentially require a fire alarm or sprinkler systems. However, there is a concern with the garage for the two transport vans that is attached to the shelter. A minimum of a 1-hour wall separation, from floor to the underside of the roof deck, along with a fire rated door, would be required for fire separation between the garage and kennel area.

When the building plans are available, I would need to see these plans to further review the egress and exiting capacity.

Construction plans submitted for a building permit will be designed to meet all applicable codes, including fire and egress/exiting capacity.

**PERFORMANCE GUARANTEE
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN**

Greater Androscoggin Humane Society
56 Strawberry Ave.
Lewiston, Maine

To the extent required by local ordinances and/or Maine state law, the Greater Androscoggin Humane Society, its successors, heirs, and assigns hereby acknowledge their obligations to operate, repair, maintain and replace the proposed Stormwater Management Facilities to be located at its proposed ancillary facilities situated at 56 Strawberry Avenue, Lewiston, Maine, indicated as Lot 2 in a Revised Subdivision Plan prepared by A.R.C.C. Land Surveyors, Inc. dated September 19, 2013 as referenced in a certain Agreement for the Purchase and Sale of Real Estate dated February 24, 2014 by and between HBC Realty, Inc ("Seller") and the Greater Androscoggin Humane Society ("Purchaser"). The Stormwater Management Facilities are depicted in Drawing C-8 Post Development Drainage Plan by Wright-Pierce dated June 27, 2014. Nothing in this guarantee shall obligate the Greater Androscoggin Humane Society to construct the Stormwater Management Facilities if it does not construct the proposed ancillary facilities. This performance guarantee shall be valid until the Greater Androscoggin Humane Society has legally relinquished ownership of the subject property.

The City of Lewiston shall have the ability to establish a special assessment, district, or other means upon the parties responsible for the post construction stormwater management plan to ensure resources are available to perform the repairs, maintenance, and replacement of the Stormwater Management Facilities.

The Stormwater Management Facilities at the subject property include: roof drip strips, storm drains, catch basins, outlet control structures, grassed soil filters, and rip rap. Repairs or replacement for these items will have a wide range of costs associated with each particular device.

Greater Androscoggin Humane Society

By:
It's:

STATE OF MAINE
_____, ss.

_____, 2014

Personally appeared before me the above-named _____ in his/her capacity as _____ for Greater Androscoggin Humane Society and acknowledged the foregoing to be his/her free act and deed in his/her capacity for Greater Androscoggin Humane Society.

Attorney at Law/Notary Public
Print Name:
My commission expires:
Seal:

AGREEMENT FOR THE
PURCHASE AND SALE OF REAL ESTATE

THIS AGREEMENT is made and entered into this 24 th day of February, 2014 by and between HBC Realty, Inc. of Lewiston, Maine (hereinafter called "Seller"), and the Greater Androscoggin Humane Society, of Lewiston, Maine (hereinafter called "Purchaser").

RECITALS

- A. Seller is the owner of a parcel of land in Lewiston, Maine, to be subdivided by seller, containing approximately five and eight-tenths (5:8) acres located on the northwesterly sideline of Strawberry Avenue in Lewiston, Maine, indicated as Lot 2 in a Revised Subdivision Plan prepared by A.R.C.C. Land Surveyors, Inc. dated September 19, 2013 (the "Property").
- B. Purchaser desires to purchase the Property; build and operate a facility to temporarily house animals; build and operate a facility to provide public animal training; and/or build and operate a facility to provide a dog daycare; and, to otherwise operate the facility as a supplement to its existing shelter operations (Hereinafter referred to as, "The Facility").

NOW THEREFORE

1. PURCHASE AND SALE. Seller agrees to sell and Purchaser agrees to buy, on the terms and conditions hereinafter set forth, the above-described Property.
2. PURCHASE PRICE. Subject to the adjustments and pro-rations hereinafter described, the Purchaser agrees to pay a total of [REDACTED] for the Premises, payable as follows:
 - (a.) [REDACTED] to be held in an interest bearing escrow account and applied pursuant to the terms of this Agreement. The Deposit shall be held by Brann & Isaacson, as "Escrow Agent", in an interest bearing escrow account; and,
 - (b.) The balance of [REDACTED] to be paid by Purchaser to Seller as follows:
 - i. At least one-half of the remainder, in an amount of at least [REDACTED] in cash or other immediately available funds or attorneys' trustee check, subject to the additional deposits contemplated herein and further subject to adjustments and pro-rations at Closing.
 - ii. The balance less any amount paid above to be payable over [REDACTED] years at an interest rate of [REDACTED] annual rate, with no penalty for early repayment, pursuant to a [REDACTED] self-amortizing term note from Purchaser to Seller to issue at closing (the "Note"). The Note shall be secured by a first

priority mortgage on the premises which shall be recorded in the Androscoggin County Registry of Deeds (the "Mortgage").

4. CLOSING. The closing shall take place no later than May 15, 2014, and following the satisfaction of all of Seller's obligations, and receipt of all approvals necessary for Purchaser to operate The Facility on the premises. The closing date may be altered as described hereinafter. Closing shall be conducted by and at Pejepscot Title Company located at 9 Bowdoin Mill Island in Topsham, Maine, or as the parties shall otherwise agree.

Seller agrees to execute and deliver to Purchaser at the Closing, such Affidavits and Certificates as are reasonably necessary for Purchaser's acquisition of the Premises, including without limitation a title Insurance "Owner's Affidavit" regarding mechanics liens and persons in possession, a quitclaim release deed together with the underground oil tank certification contemplated by 38 M.R.S.A. §563(6).

Each party shall pay for its own customary closing costs at or before closing.

5. RISK OF LOSS, DAMAGE AND INSURANCE. All risk of loss to the Property prior to the closing shall be borne by Seller.

6. DEFAULT AND REMEDIES. In the event that either party defaults hereunder, the non-defaulting party shall have all its rights at law or in equity, including the recovery of its costs and reasonable attorneys and paralegal fees. With the exception of any action seeking injunctive relief, any dispute arising out of this Agreement shall be resolved by binding arbitration before JAMS in Portland, Maine, pursuant to the then-prevailing Streamlined Arbitration Rules.

7. CONDITIONS TO THE PURCHASER'S OBLIGATIONS TO CLOSE. The obligations of Purchaser under this Agreement are subject to the following contingencies, any of which, if not met, shall entitle Purchaser to terminate this Agreement by giving Seller written notice of Purchaser's intention to do so within the dates specified below. Upon such termination the deposit and any additional deposits, subject to the terms herein, shall be returned to the Purchaser and the parties shall be relieved of all further obligations under this Agreement. Failure to give the notice within said time specified shall be deemed a waiver of any objection.

- (a) TITLE. Purchaser shall have thirty (30) days from the date of this Agreement, within which to examine title. Purchaser shall immediately notify Seller of any defects in title which may prevent Seller from conveying the Property in the manner described above, and Seller shall have an additional 30 days from delivery of Purchaser's notification of defect, within which Seller shall use commercially reasonable steps to cure the title defects. If Seller is not able to cure the title defects within 30 days from the date Seller is notified of such defects, Purchaser may, at its sole option, proceed to close or receive its Earnest Money deposit and the parties' obligations shall cease. If Purchaser fails to notify Seller of said title defects within 30 days of this Agreement, this contingency shall be deemed waived.

- (b) **INSPECTIONS** Purchaser may at its own expense cause to be performed the following inspections, the results of which must be reasonably satisfactory to Purchaser. All inspections shall be completed prior to May 15, 2014, or shall be deemed waived.

TYPE OF INSPECTION	YES	NO
a. Phase I Site Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Water/Sewer Connection	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Soil Contamination	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Test Pit Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Appraisal	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- (c) **FINANCING.** Seller shall be provided partial buyer-financing pursuant to the terms of Paragraph 2(b)(ii).
- (d) **NECESSARY CONDITIONS.** Purchaser's obligation to purchase is further subject to the below enumerated conditions being resolved satisfactorily to purchaser. Purchaser must provide notice to Seller of any of the following reasons is provided prior to May 15, 2014 or the below enumerated conditions shall be waived:
- i. The Purchaser shall be able to connect to water and sewer service sufficient to meet the demands of the facility in a means that reasonable and acceptable to the Purchaser;
 - ii. The Purchaser shall not be required to purchase the Property if it is unable to obtain an appraisal of the Property that values the Property at a price at or above the purchase price;
 - iii. The zoning district in which the land is located must allow Purchaser's intended use as a permitted use;
 - iv. That the results of all environmental and other examinations of the land (conducted at purchaser's expense) are acceptable to the purchaser;

8. **TAXES.** Real estate taxes for the then current fiscal year shall be pro-rated between Seller and Purchaser as of the Closing date.

9. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS.**

- a. **Water and Sewer.** Water and sewer charges, if any, made by the City of Lewiston, Maine, shall be pro-rated as of the date of Closing.

b. Transfer Tax. The Maine Real Estate Transfer Tax shall be paid by Seller and Purchaser in accordance with 36 M.R.S.A. §4641-A.

10. COMMISSION. It is agreed and understood by Seller and Purchaser that no real estate commission is due as the result of this Agreement to any real estate broker or salesperson. Each party agrees to indemnify and hold the other harmless with respect to any claim or any agent, broker or other person for any such commission or finder's fee based upon any agreement or commitment made by or on behalf of the indemnifying party.

11. SURVEYING AND TESTING. As part of and within the time limits for an inspection pursuant to Section 7 above, Purchaser or Purchaser's authorized representative may enter upon the Premises with all necessary equipment for the purpose of making any and all engineering or environmental studies, surveys, soil analyses or tests. Purchaser agrees that in entering upon the Premises for the aforesaid purposes, Purchaser will permit no waste nor make any changes or alterations to the Premises, except those reasonably necessary and incidental to the accomplishment of the aforesaid purposes (including the excavation of soil testing pits), and in any event, after such entry Purchaser will restore the Premises to a condition in a commercially reasonable state as it was prior to entry. Seller agrees to cooperate with Purchaser in Purchaser's applications for all permits and approvals necessary.

12. HAZARDOUS WASTE. Seller represents that no hazardous or toxic waste, substance, matter, or material, as those terms may be currently defined by applicable state, local, or federal law or have been placed or unlawfully stored or otherwise unlawfully located on the Premises. In the event any such waste, substance, matter or material is discovered at the Premises any time prior to the Closing, Purchaser may, at Purchaser's option, terminate this Agreement by written notice to Seller, in accordance herewith, whereupon Seller shall refund all sums paid by Purchaser, and the parties shall be relieved of all further obligation hereunder.

13. MISCELLANEOUS.

a. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the parties.

b. Purchaser may assign its rights under this Agreement to an entity which is controlled by Purchaser or Purchaser's principal without Seller's consent.

c. Any notice relating in any way to this Agreement shall be in writing and shall be sent by certified or overnight mail addressed as follows:

If to Seller:

HBC Realty, Inc.
Alan Hahnel, President
P.O. Box 1061
Lewiston, ME 04243-1061

Copy to:
Michael Malloy, Esq.
Brann & Isaacson
184 Main St.
Lewiston, ME 04243

If to Purchaser:

Greater Androscoggin Humane Society
Steven Dostie, Executive Director
55 Strawberry Ave.
Lewiston, ME 04240

Copy to:
Paul Brunetti, Esq.
Moncure & Barnicle
9 Bowdoin Mill Island
Topsham, Maine 04086

- d. This Agreement may not be modified, waived or amended except in a writing signed by the parties hereto. No waiver of any breach or term hereof shall be effective unless made in writing signed by the party having the right to enforce such a breach, and no such waiver shall be construed as a waiver of any subsequent breach. No course of dealing or delay or omission on the part of any party in exercising any right or remedy shall operate as a waiver thereof or otherwise be prejudicial thereto.
- e. Any and all prior and contemporaneous discussions, undertakings, agreements and understanding of the parties are merged in the Agreement, which alone fully and completely expresses their entire agreement.
- f. This Agreement shall be governed by and construed and enforced in accordance with the laws in effect in the State of Maine.
- g. If any provision of this Agreement shall to any extent be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby and every other provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.
- h. Any captions appearing in this Agreement have been inserted only as a matter of convenience and in no way do they define, limit, construe or describe the scope or intent of this Agreement, nor do they in any way affect this Agreement.
- i. This Agreement may be simultaneously executed in duplicate counterparts each of which when so executed and delivered shall be an original and each shall constitute once and the same instrument.

IN WITNESS WHEREOF, Seller and Purchaser have executed this Agreement as of the date first above written.

WITNESS:

Eric H. Smith

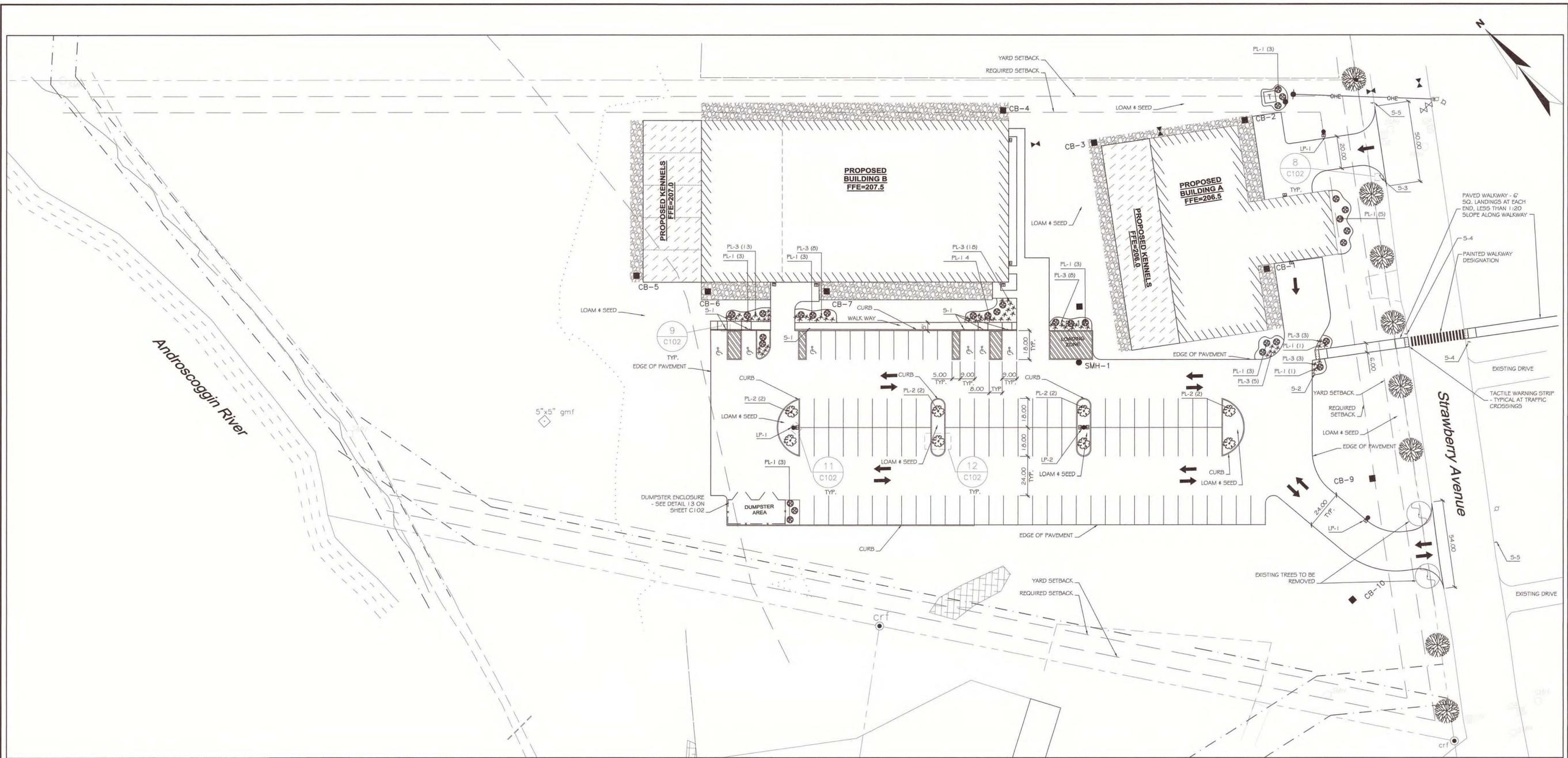
Seller, HBC Realty, Inc.
Alan R. Hahnel

By: Alan R. Hahnel
Its President

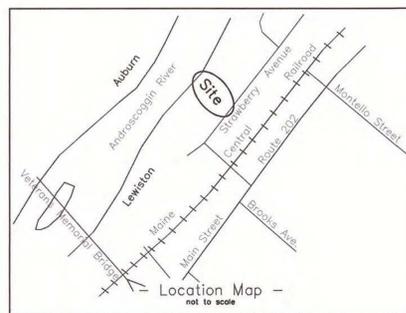
Eric H. Smith

Purchase: Greater Androscoggin Humane Society
Steven Dostle

By: Steven Dostle
Its Executive Director



PLAN
SCALE: 1"=30'



FOR PERMITTING PURPOSES ONLY

Planting Schedule		
PL-1	SHRUB	Rhododendron "Golden lights"
PL-2	TREE	Cornus florida - Flowering dogwood
PL-3	ANNUAL	Breyli Black Hosta

Sign Schedule	
S-1	"HANDICAP PARKING SPACE"
S-2	"ONE WAY"
S-3	"SERVICE ENTRANCE ONLY"
S-4	"YIELD TO PEDESTRIANS"
S-5	"PEDESTRIAN CROSSING AHEAD"

NOTE: S-5 SIGNS TO BE LOCATED 125' EACH SIDE IF CROSS WALK. STREET SIGNAGE WILL CONFORM TO MUTCD GUIDE LINES.

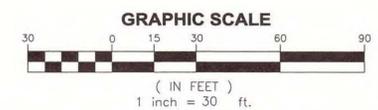
Lighting Schedule & Notes	
LP-1	SINGLE HEAD FIXTURE
LP-2	DOUBLE HEAD FIXTURE

Parking lot lighting will be as follows:
Concrete base, Pole mounted, LED, Full cut off, fixtures.
Similar or equal to "Beacon - Viper-Large (LED)"

Site Information	
Project: Greater Androscoggin Humane Society Ancillary Facility Location: 56 Strawberry Ave. Map 191 Lot 22 Applicant: Greater Androscoggin Humane Society 55 Strawberry Ave. Lewiston, ME 04240 Current Property Owner: HBC Realty, Inc. PO Box 1061 Lewiston, ME 04243 Zoning: Urban Enterprise Current Use: undeveloped land Proposed Use: animal intake, including kennels; doggie day care, including kennels; animal training facility	
Lot Size:	252,650 s.f. 5.8 acres
Existing Bldgs:	0 s.f.
Prop. Building A	12,880 s.f.
Prop. Building B	19,000 s.f.
Total Prop. Bldg.	31,880 s.f.
Lot Coverage:	12.6 %
Existing Paving:	0 s.f.
Prop. Paving:	53,322 s.f.
Total Prop. Imp.	85,202 s.f. 1.96 acres
Imper. Ratio:	33.7 %
Disturbed Area:	158,466 s.f. 3.6 acres
Parking Spaces:	101

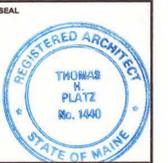
Approved by the City of Lewiston Planning Board

Chair Person: _____
Approval Date: _____
Signature Date: _____



PLATZ ASSOCIATES
Architects - Engineers
Construction Managers
Tel 207-784-2941
Fax 207-784-3856
Two Great Falls Plaza, Auburn, Maine 04210

GREATER ANDROSCOGGIN HUMANE SOCIETY
ANCILLARY FACILITY
LEWISTON, ME



DRAWING STATUS	
<input type="checkbox"/>	OFFICE REVIEW
<input type="checkbox"/>	CLIENT REVIEW
<input type="checkbox"/>	PERMIT REVIEW
<input checked="" type="checkbox"/>	BID SET
<input type="checkbox"/>	CONTRACT DRAWING
<input type="checkbox"/>	CONSTRUCTION

No drawing shall be registered as a construction document unless it bears a blue inked registration seal.

SHEET TITLE
SITE LAYOUT & PARKING PLAN

JOB NO. 20143

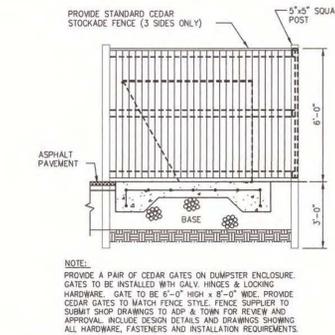
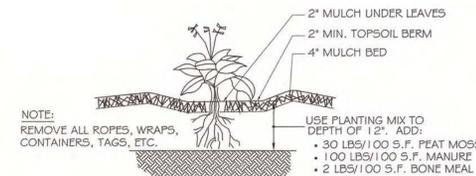
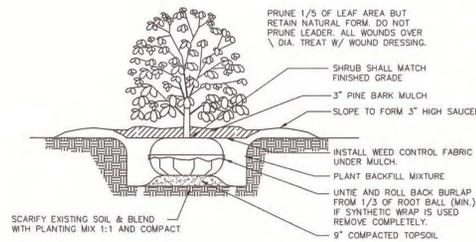
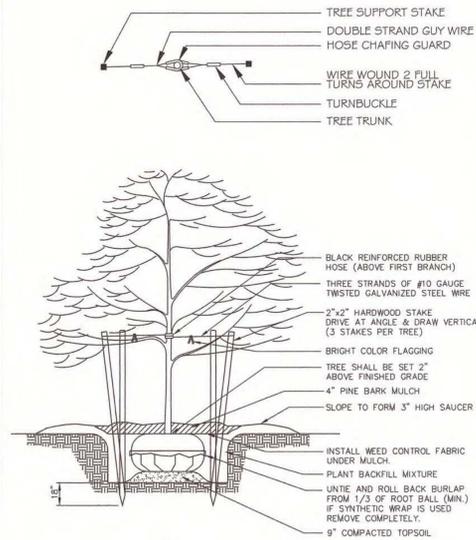
DRAWN BY LBT CHECKED BY

SCALE AS NOTED

ORIGINAL DATE 07-10-2014

REVISION DATE *** **

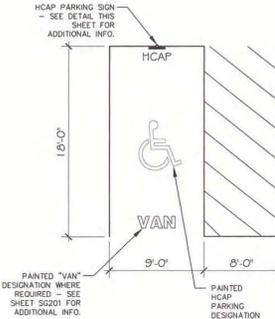
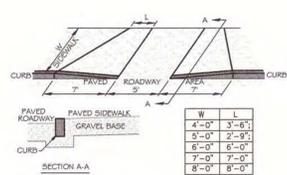
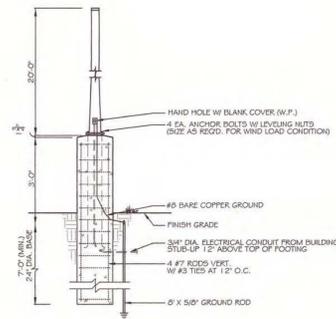
SHEET
C100



16 TYPICAL SHRUB PLANTING DETAIL
C101 SCALE: N.T.S.

15 TYPICAL ANNUAL PLANTING DETAIL
C101 SCALE: N.T.S.

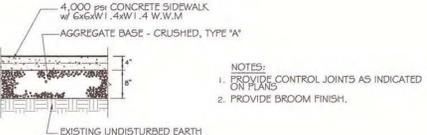
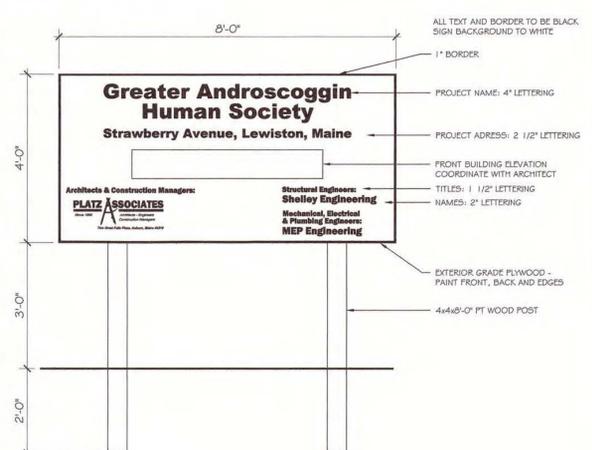
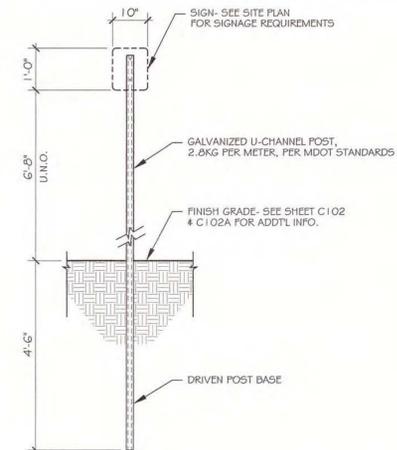
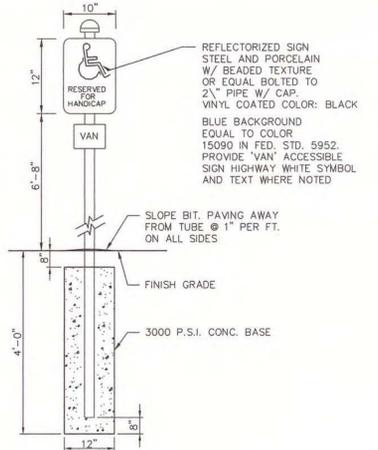
14 DUMPSTER ENCLOSURE DETAIL
C101 SCALE: N.T.S.



11 SITE LIGHTING POLE BASE DETAIL
C101 SCALE: N.T.S.

10 TYPICAL HANDICAP RAMP DETAIL
C101 SCALE: N.T.S.

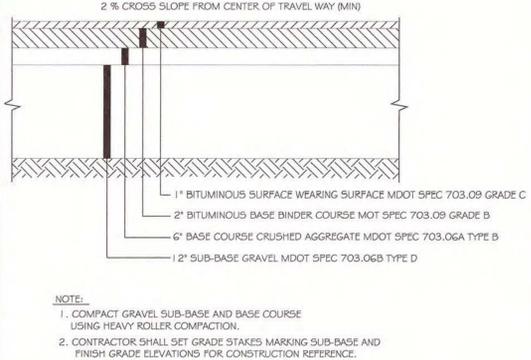
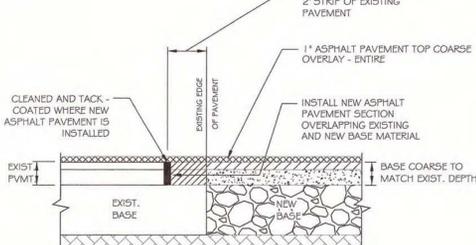
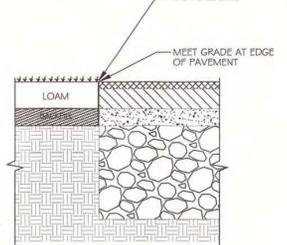
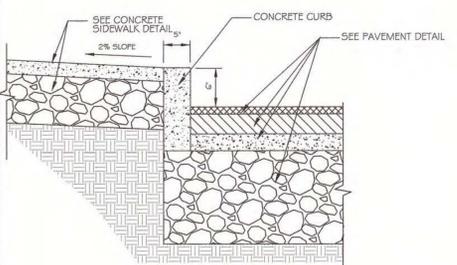
9 HANDICAP PARKING STALL
C101 SCALE: N.T.S.



8 TYPICAL SITE SIGN DETAIL
C101 SCALE: N.T.S.

7 SITE PROJECT SIGN DETAIL
C101 SCALE: N.T.S.

6 TYP. CONCRETE WALK DETAIL
C101 SCALE: N.T.S.



3 ASPHALT PAVEMENT EDGE DETAIL
C101 SCALE: N.T.S.

2 TYPICAL PAVEMENT SPLICE DETAIL
C101 SCALE: N.T.S.

1 TYP. ASPHALT PAVEMENT DETAIL
C101 SCALE: N.T.S.

13 RESERVED
C101 SCALE: N.T.S.

12 TYPICAL TREE PLANTING DETAIL
C101 SCALE: N.T.S.

10 RESERVED
C101 SCALE: N.T.S.

9 HANDICAP PARKING SIGN DETAIL
C101 SCALE: N.T.S.

5 RESERVED
C101 SCALE: N.T.S.

4 TYP. CONCRETE CURB DETAIL
C101 SCALE: N.T.S.

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GREATER ANDROSCOGGIN HUMANE SOCIETY
ANCILLARY FACILITY
LEWISTON, ME



DRAWING STATUS

<input type="checkbox"/>	OFFICE REVIEW
<input type="checkbox"/>	CLIENT REVIEW
<input checked="" type="checkbox"/>	PERMIT REVIEW
<input type="checkbox"/>	BID SET
<input type="checkbox"/>	CONTRACT DRAWING
<input type="checkbox"/>	CONSTRUCTION

No drawing shall be recognized as a construction document unless it bears a blue inked registration seal.

SHEET TITLE: **SITE DETAILS**

JOB NO.: **20143**

DRAWN BY: **TRN** CHECKED BY: _____

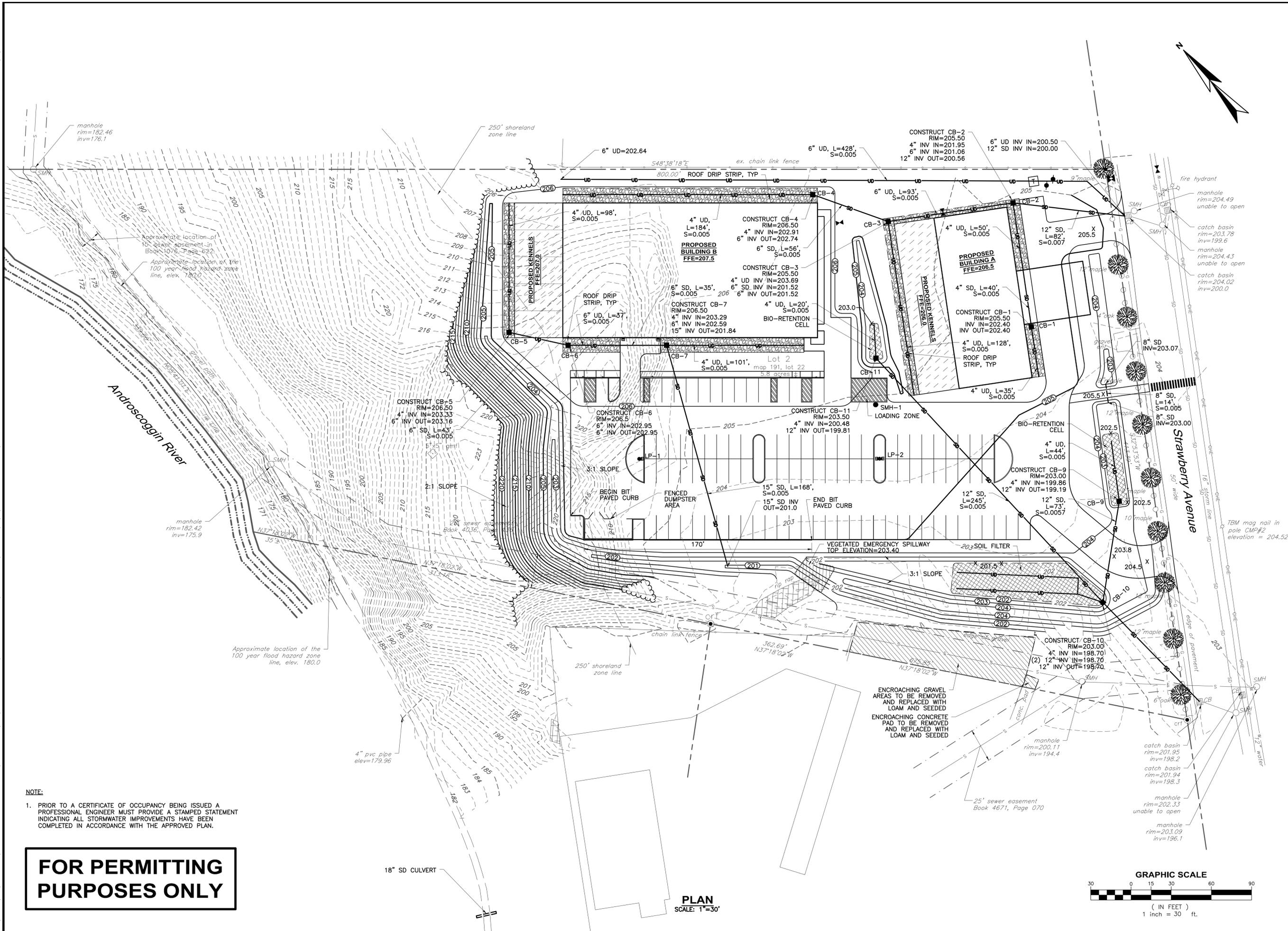
SCALE: **AS NOTED**

ORIGINAL DATE: **07-10-2014**

REVISION DATE: _____

C101

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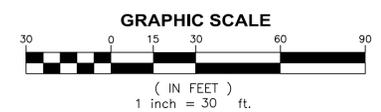


NOTE:

- PRIOR TO A CERTIFICATE OF OCCUPANCY BEING ISSUED A PROFESSIONAL ENGINEER MUST PROVIDE A STAMPED STATEMENT INDICATING ALL STORMWATER IMPROVEMENTS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN.

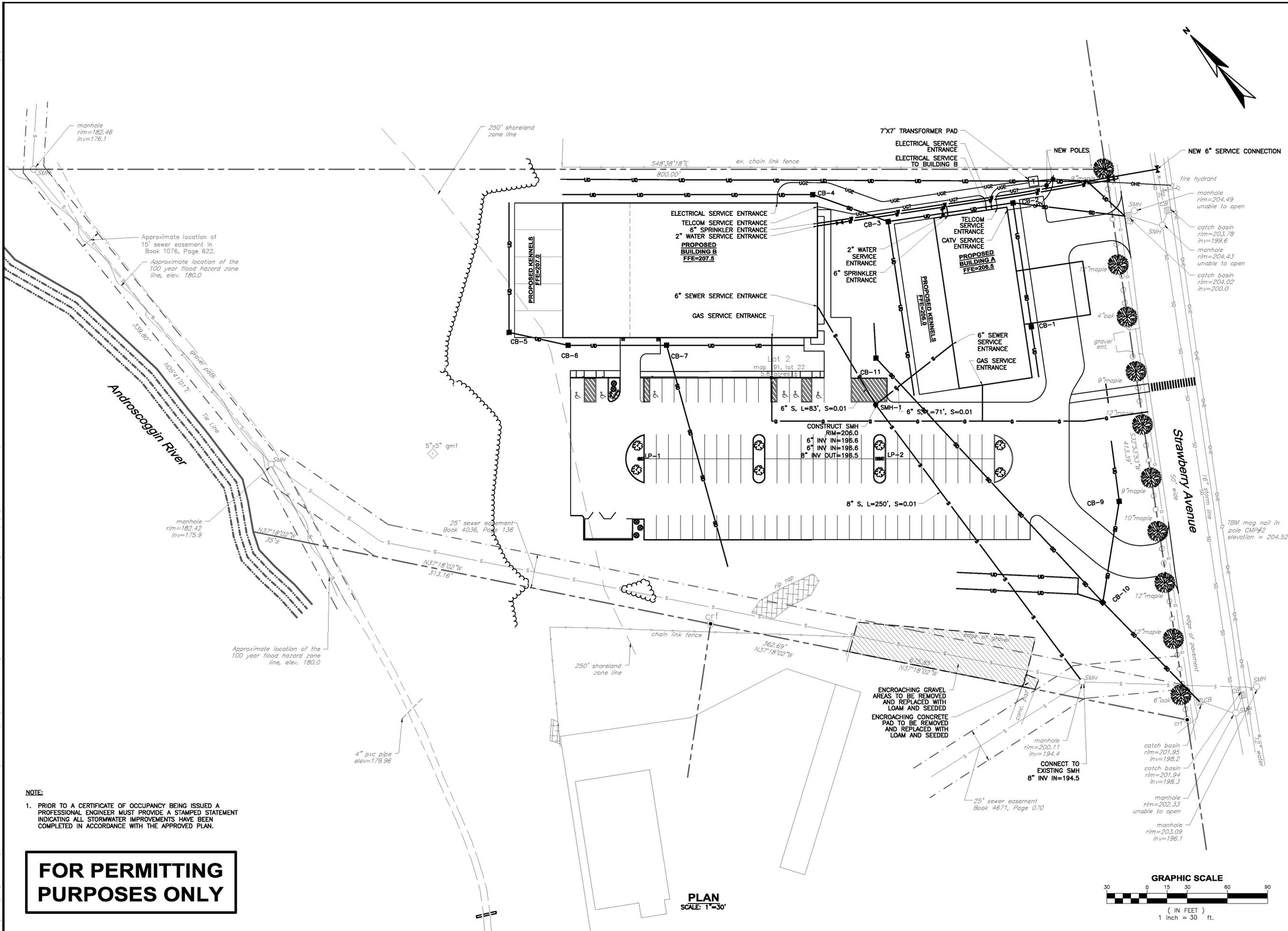
FOR PERMITTING PURPOSES ONLY

PLAN
SCALE: 1"=30'



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CAD COORD: MRL	
CHECKED BY: JWB	ISSUED FOR PERMITTING: JWB 6/14
DATE: 7-10-14	RESPONSE TO COMMENTS: JWB 7/14
APPROVED BY: JWB	
DATE: 7-10-14	
PROJECT NO: 12978A	

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GREATER ANDROSCOGGIN HUMANE SOCIETY BUILDING ADDITION LEWISTON, ME	PROPOSED GRADING & DRAINAGE PLAN DRAWING C-1

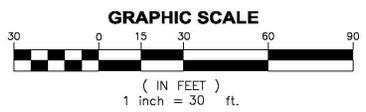


NOTE:

1. PRIOR TO A CERTIFICATE OF OCCUPANCY BEING ISSUED A PROFESSIONAL ENGINEER MUST PROVIDE A STAMPED STATEMENT INDICATING ALL STORMWATER IMPROVEMENTS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN.

FOR PERMITTING PURPOSES ONLY

PLAN SCALE: 1"=30'



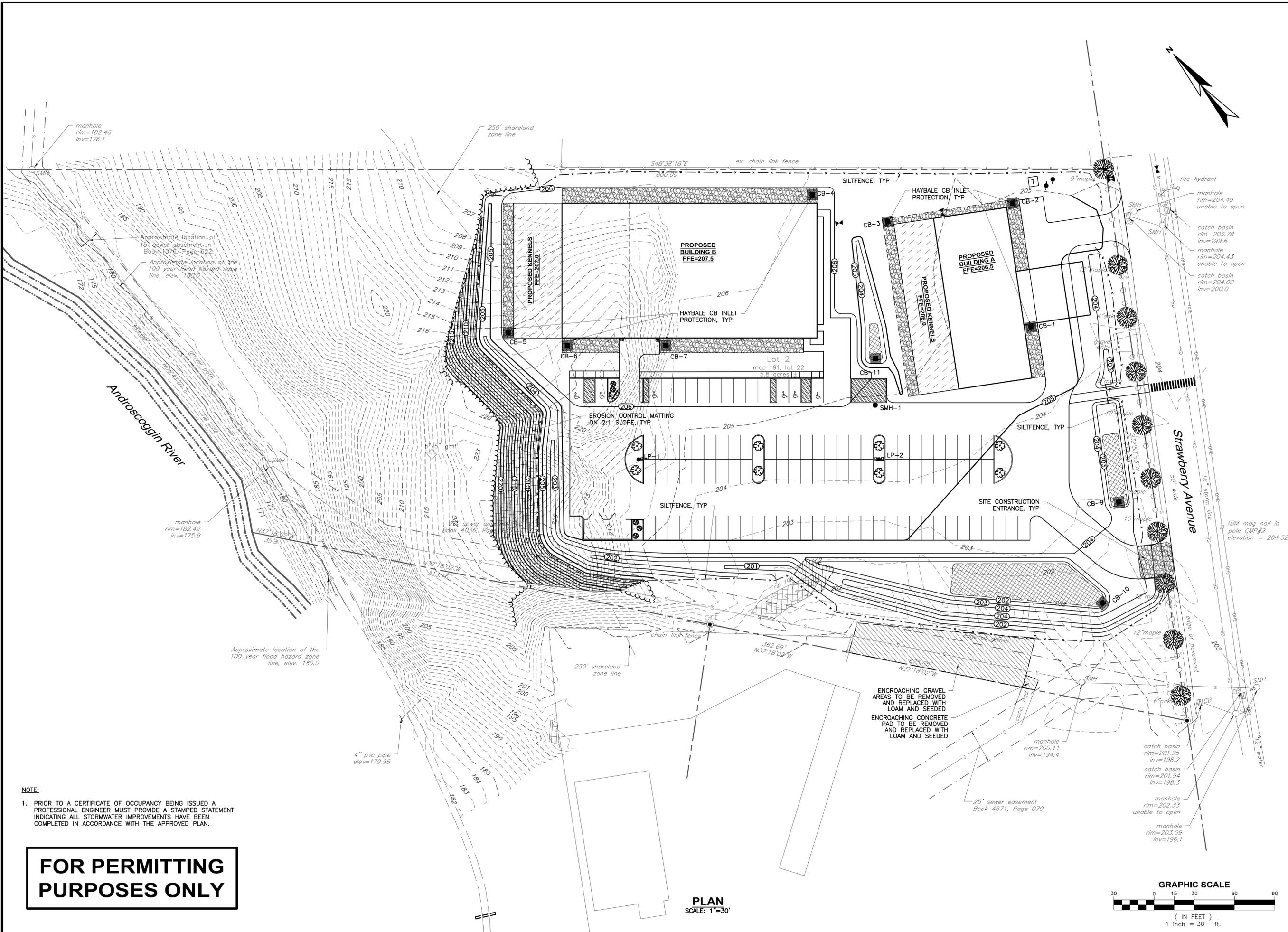
DESIGNED BY	JBW	DATE	
CAD COORD.	MRL		
CHECKED BY	JBW	ISSUED FOR PERMITTING	JBW 6/14
DATE	7-10-14	RESPONSE TO COMMENTS	JBW 7/14
APPROVED BY	JBW		
DATE	7-10-14		
PROJECT NO.	12978A		

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GREATER ANDROSCOGGIN HUMANE SOCIETY BUILDING ADDITION LEWISTON, ME PROPOSED SITE UTILITIES PLAN
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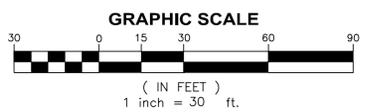
DRAWING C-2



NOTE:
 1. PRIOR TO A CERTIFICATE OF OCCUPANCY BEING ISSUED A PROFESSIONAL ENGINEER MUST PROVIDE A STAMPED STATEMENT INDICATING ALL STORMWATER IMPROVEMENTS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN.

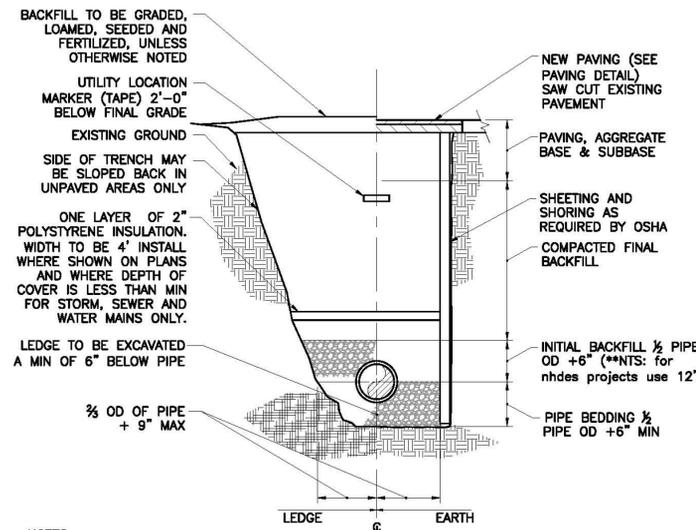
FOR PERMITTING PURPOSES ONLY

PLAN
 SCALE: 1"=30'



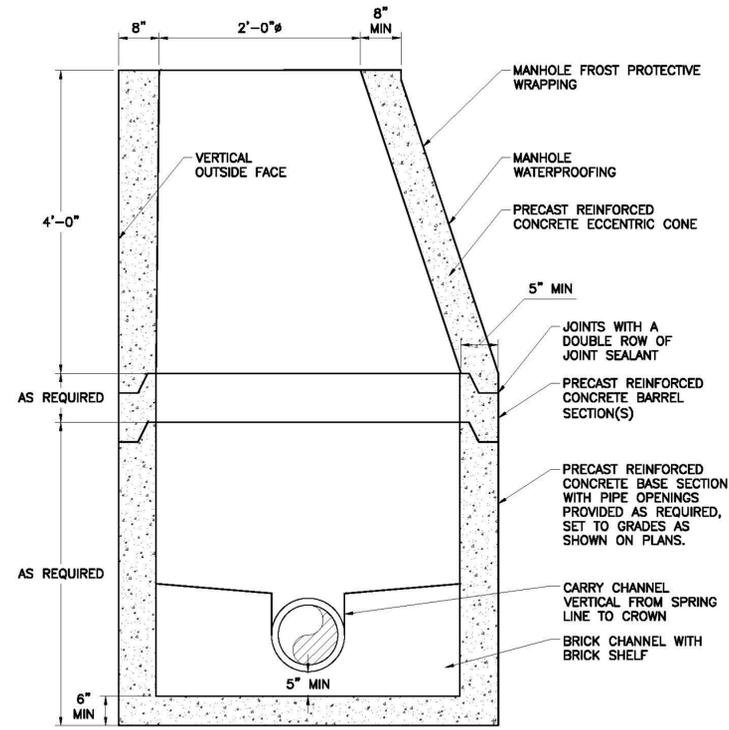
DESIGNED BY: JWB	DATE:
CAD COORD: MRL	
CHECKED BY: JWB	ISSUED FOR PERMITTING
DATE: 7-10-14	JWB 6/14
APPROVED BY: JWB	RESPONSE TO COMMENTS
DATE: 7-10-14	JWB 7/14
PROJECT NO: 12978A	

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GREATER ANDROSCOGGIN HUMANE SOCIETY BUILDING ADDITION LEWISTON, ME	SOIL EROSION AND SEDIMENT CONTROL PLAN
DRAWING C-3	



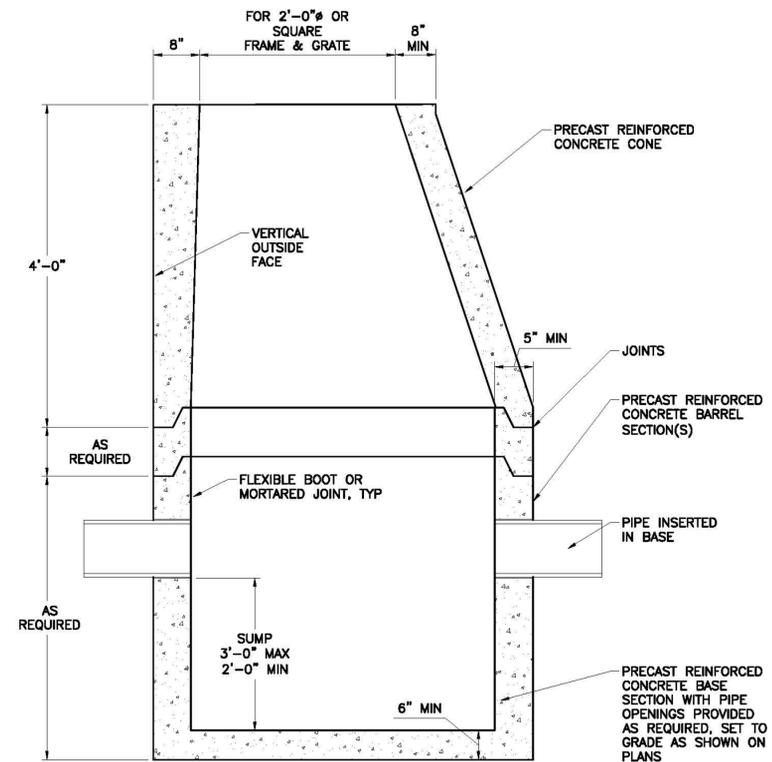
- NOTES:**
1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
 2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNLED ALONG BEDDING/INITIAL BACKFILL.
 3. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.

PIPE TRENCH
SCALE: "NTS"



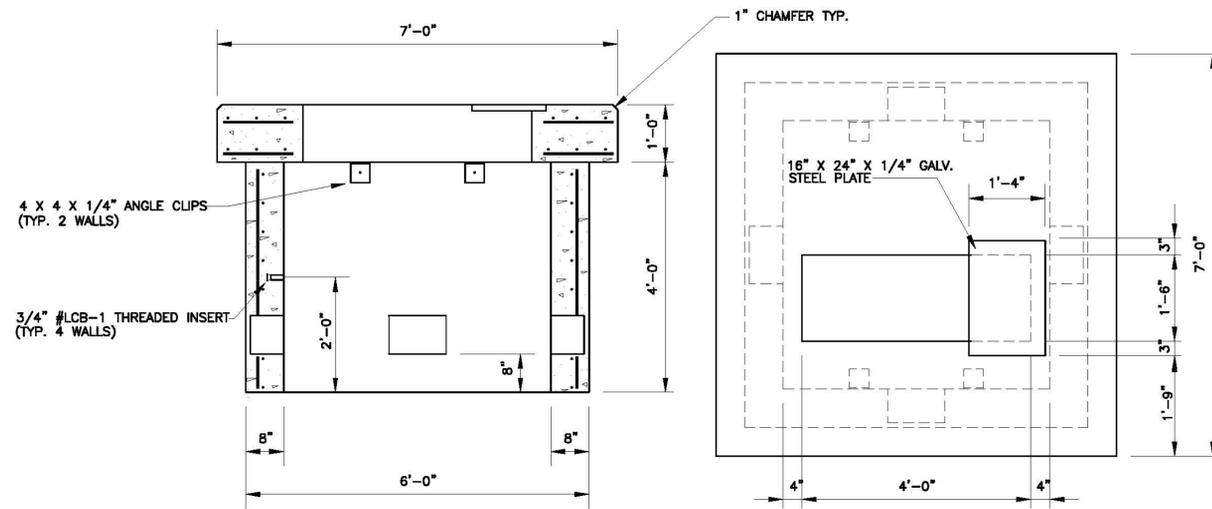
- NOTES:**
1. MANHOLE CHANNELS REQUIRING A CHANGE IN DIRECTION ARE TO BE BUILT ON A SMOOTH CURVE OF THE LONGEST POSSIBLE RADIUS. IF SIDE PIPES ENTER CHANNEL, SHAPE TO RECEIVE ADDED SIDE FLOW.
 2. USE A FLAT SLAB TOP MANHOLE WHEN THE HEIGHT DIFFERENCE BETWEEN THE HIGHEST INVERT AND RIM IS LESS THAN 6'-0" AND WHEN MANHOLE DIAMETER IS GREATER THAN 4'-0".

TYPICAL 4-FT MANHOLE
SCALE: "NTS"



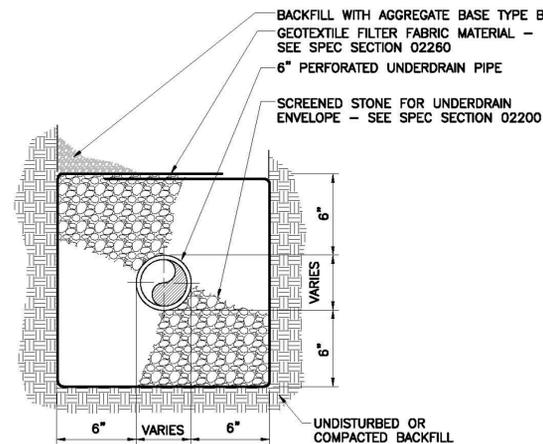
NOTE: USE FLAT SLAB TOP CATCH BASIN WHERE REQUIRED TO MATCH GRADE

4-FT CATCH BASIN
SCALE: NTS

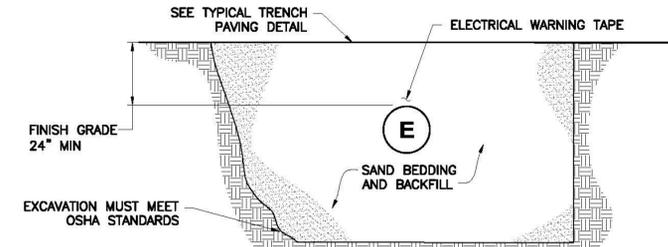


TRANSFORMER PAD DETAIL
SCALE: NTS

- NOTES:**
1. CONCRETE: 4,000 PSI AFTER 28 DAYS.
 2. REINFORCING: PAD #4'S @ 12" O.C. E.W. E.F. BASE 1-MAT OF #4'S @ 12" O.C.
 3. AS PER CENTRAL MAINE POWER COMPANY SPECIFICATIONS.
 4. 1-8" X 12" KNOCKOUT PROVIDED EACH WALL.

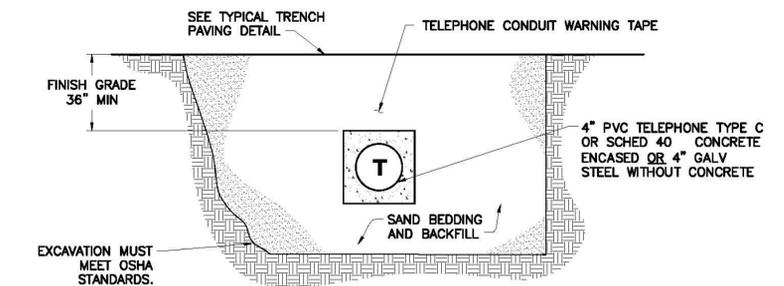


UNDERDRAIN BEDDING
SCALE: NTS



- NOTES:**
1. ALL CONDUITS TO BE 1/2" PVC OR STEEL MEETING THE REQUIREMENTS OF THE NEC.
 2. CONCRETE ENCASE CONDUITS UNDER STREETS AND WHERE REQUIRED AS NOTED IN THE SPECIFICATIONS.

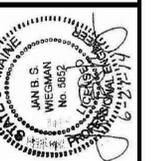
SINGLE ELECTRICAL CONDUIT TRENCH SECTION
SCALE: NTS



SINGLE TELEPHONE CONDUIT TRENCH SECTION
SCALE: NTS

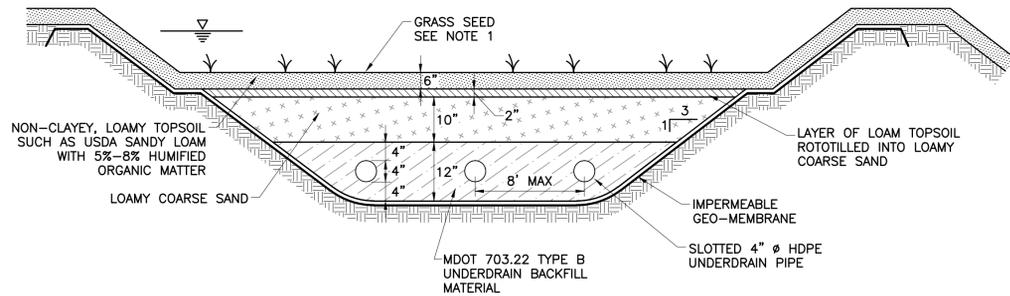
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DATE	6/14
ISSUED FOR PERMITTING	JBW 6/14
DESIGNED BY	JBW
CAD CHECKED BY	MRL
CHECKED BY	JBW
DATE	6-27-14
APPROVED BY	JBW
DATE	6-27-14
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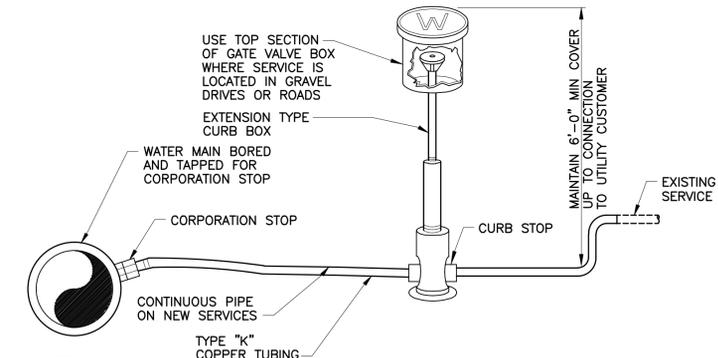


NOTES:

1. GRASS SEED MIXTURE SHALL BE DROUGHT TOLERANT CONSERVATION MIX.
2. PLACE FILTER MEDIA AND LOAM TOPSOIL ONLY AFTER SITE HAS BEEN STABILIZED.
3. UNDERDRAIN PIPE SHALL SLOPE AT 0.0050 MIN. (SEE DRAWING C-3)

POND CONSTRUCTION NOTES:

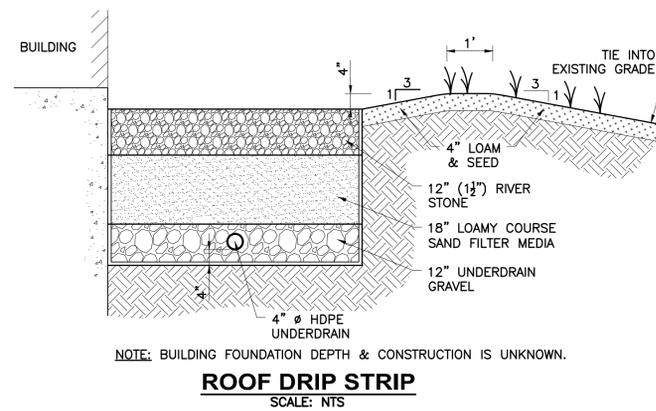
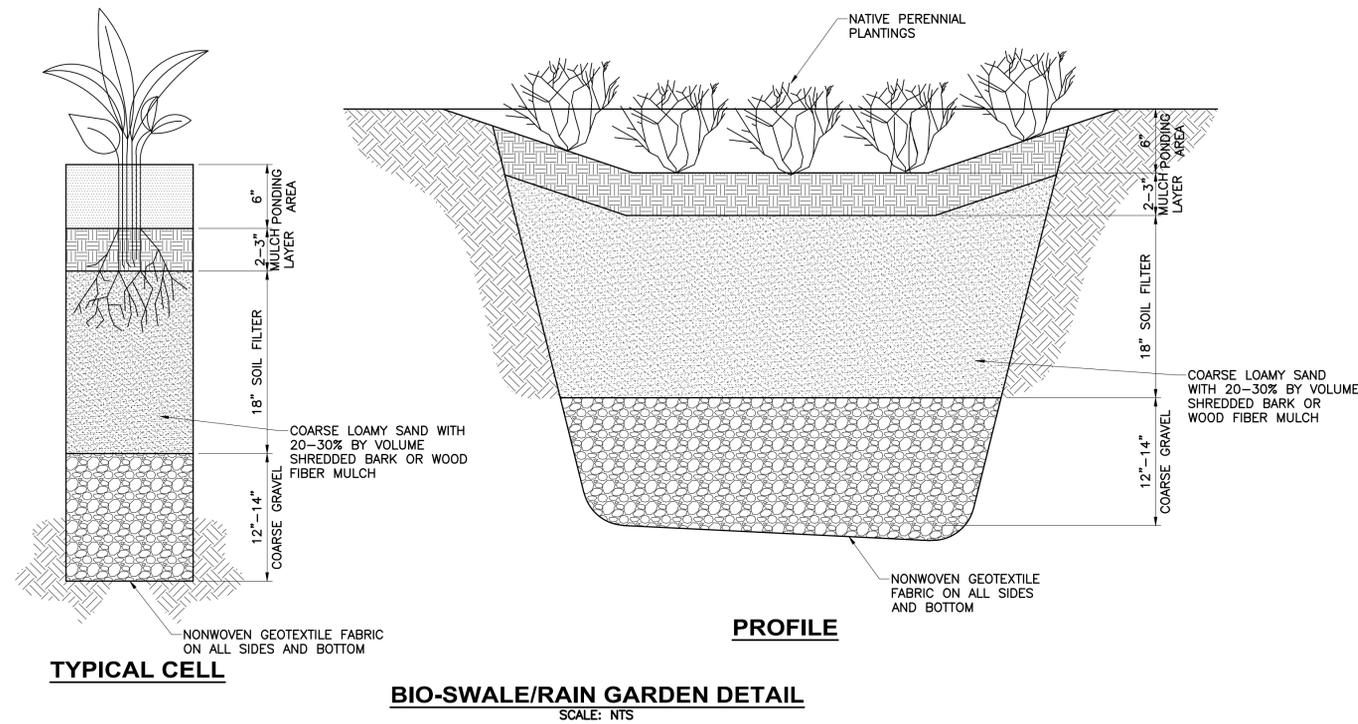
1. CONSTRUCTION OVERSIGHT: INSPECTION OF THE FILTER BASINS SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:
 - AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED;
 - AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA;
 - AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED;
 - AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
2. TESTING AND SUBMITTALS: ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS. THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MATERIAL. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:
 - SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE USED FOR THE FILTER MATERIAL AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
 - PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996A) ON THE UNDERDRAIN BEDDING MATERIAL.
 - PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90- 92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.



NOTES:

1. WATER SERVICE CONNECTIONS TO BE 1" DIAMETER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. WATER MAINS OR SERVICES WITHIN 5 FEET HORIZONTALLY OR 4 FEET VERTICALLY OF ANY CULVERT OR STORM DRAIN PIPE SHALL HAVE INSULATION, SEE CULVERT/STORM DRAIN CROSSING DETAIL.

WATER SERVICE CONNECTION
NTS



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DESIGNED BY: JBW	DATE: 6/14
CAD COORD: MRL	ISSUED FOR PERMITTING
CHECKED BY: JBW	DATE: 6/24-14
APPROVED BY: JBW	DATE: 6-24-14
PROJECT NO: 12978A	

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GREATER ANDROSCOGGIN HUMANE SOCIETY
 BUILDING ADDITION
 LEWISTON, ME

DRAWING
 C-5

DETAILS II

EROSION AND SEDIMENTATION CONTROL NOTES

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 "MAINE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES", MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION DATED MARCH 2003.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES ARE SHOWN ON THE SITE PLAN.

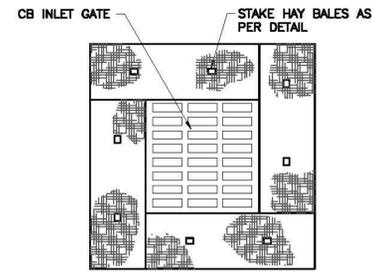
- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES", MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, DATED MARCH 2003.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
- SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
- INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY 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 PERMANENTLY STABILIZED.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS.
- IF FINAL SEEDING AND SODDING IS NOT EXPECTED PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY ANNUAL RYEGRASS SEEDING AND MULCHING ON ROUGH GRADED SUBSOIL TO PROTECT THE SITE AND DELAY PERMANENT LOAMING, FINE GRADING, AND SEEDING OR SODDING UNTIL SPRING.
- WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
- 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.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
- STABILIZATION SCHEDULE BEFORE WINTER:
 - SEPTEMBER 15** ALL DISTURBED AREAS MUST BE SEED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEED AND MULCHED. SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEED AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCHED.
 - OCTOBER 1** ALL GRASS-LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR EROSION CONTROL BLANKET.
 - 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.
 - DECEMBER 1** ALL DISTURBED AREAS WHERE THE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED BY VEGETATION, MUST BE PROTECTED FOR OVER-WINTER.

EROSION CONTROL - WINTER CONSTRUCTION

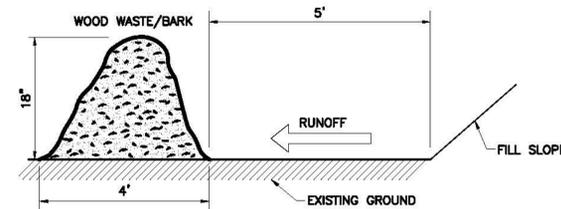
- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- 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 LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MUST BE STABILIZED WITH MULCH. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- THE APPLICATION OF MULCH TO FINE GRADED AREAS WILL BE STABILIZED AS FOLLOWS:
 - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK OR WOOD CELLULOSE FIBER.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GRATER THAN 8%.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING WINTER CONSTRUCTION PERIODS ALL SNOW SHALL BE REMOVED FROM AREAS OF MULCHING PRIOR TO PLACEMENT.

EROSION CONTROL - WETLAND NOTES

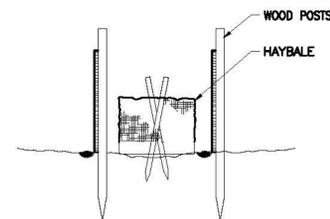
- WETLANDS AND SURFACE WATERS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- IF THE WORK INCLUDES CROSSING OF WETLANDS AND/OR STREAMS, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS WORKING IN THESE AREAS
- ANY WETLAND CROSSING WORK SHALL BE COMPLETED BETWEEN THE PERIOD OF MAY 1 AND SEPTEMBER 30
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION WITHIN OR ADJACENT TO WETLAND AREAS.
- WETLAND VEGETATIVE LAYERS SHALL BE REMOVED AND SALVAGED FOR RESTORATION OF THE DISTURBED AREAS.
- STORAGE AREAS FOR WETLAND MATERIALS SHALL BE PROPERLY PROTECTED AGAINST EROSION.
- SEEDING OF THE DISTURBED AREAS WITHIN WETLAND AREAS SHALL UTILIZE MIXTURES APPROPRIATE FOR WETLAND AREAS AS OUTLINED IN THE SPECIFICATIONS.



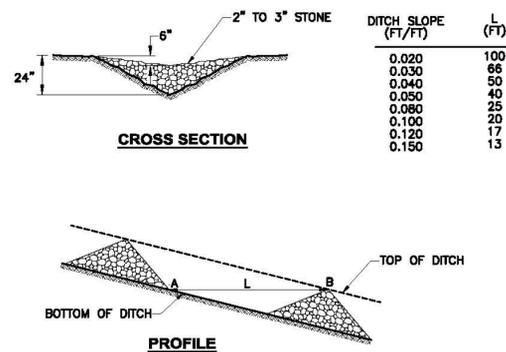
HAY BALE CB INLET PROTECTION
SCALE: "NTS"
NOTE: EMBED HAYBALES MINIMUM OF 4".



WOOD WASTE/BARK FILTER BERM
SCALE: "NTS"

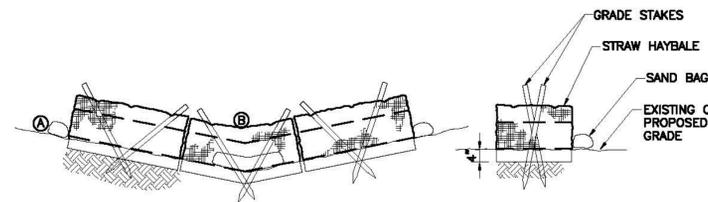


COMBINATION SILT FENCE AND HAY BALE BARRIER
SCALE: "NTS"

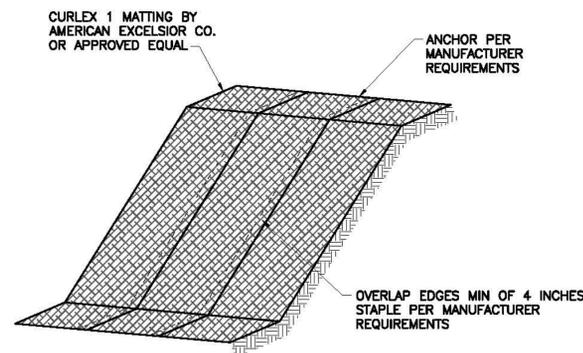


STONE CHECK DAM DETAIL
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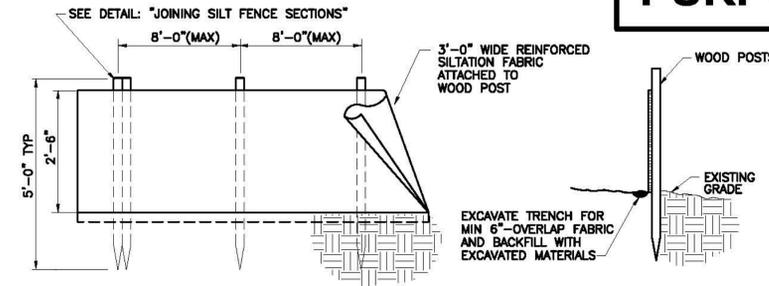
DITCH SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13



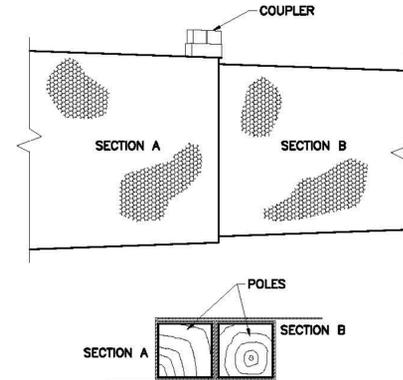
STRAW HAY BALE CHECK DAM
SCALE: "NTS"



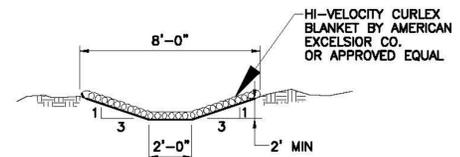
EROSION CONTROL MATTING - SLOPES
SCALE: "NTS"
INSTALL ON SLOPES 3:1 OR GREATER



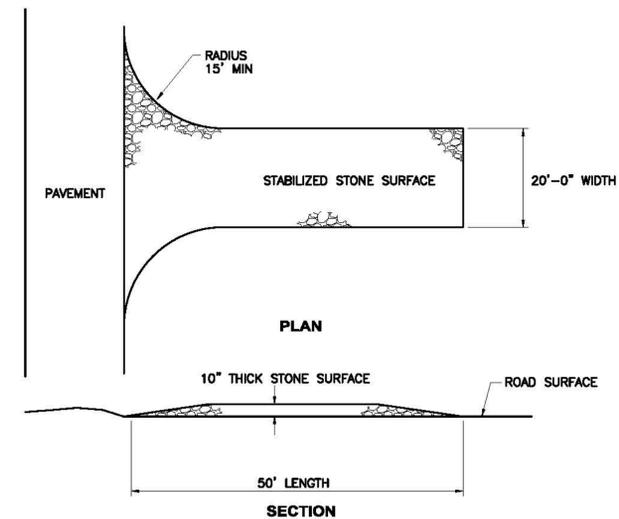
SILT FENCE INSTALLATION DETAIL
SCALE: "NTS"



JOINING SILT FENCE SECTIONS
SCALE: "NTS"



EROSION CONTROL MATTING - DITCHES
SCALE: "NTS"



STABILIZED CONSTRUCTION ENTRANCE
SCALE: "NTS"
(TEMPORARY, TO BE REMOVED PRIOR TO FINAL SITE PAVING)

FOR PERMITTING PURPOSES ONLY

SUBMISSIONS/REVISIONS
 NO. DATE
 1. ISSUED FOR PERMITTING JWB 6/14
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DESIGNED BY: JWB
 CAD CORP.: MRL
 CHECKED BY: JWB
 DATE: 6-24-14
 APPROVED BY: JWB
 DATE: 6-24-14
 PROJECT NO.: 12978A

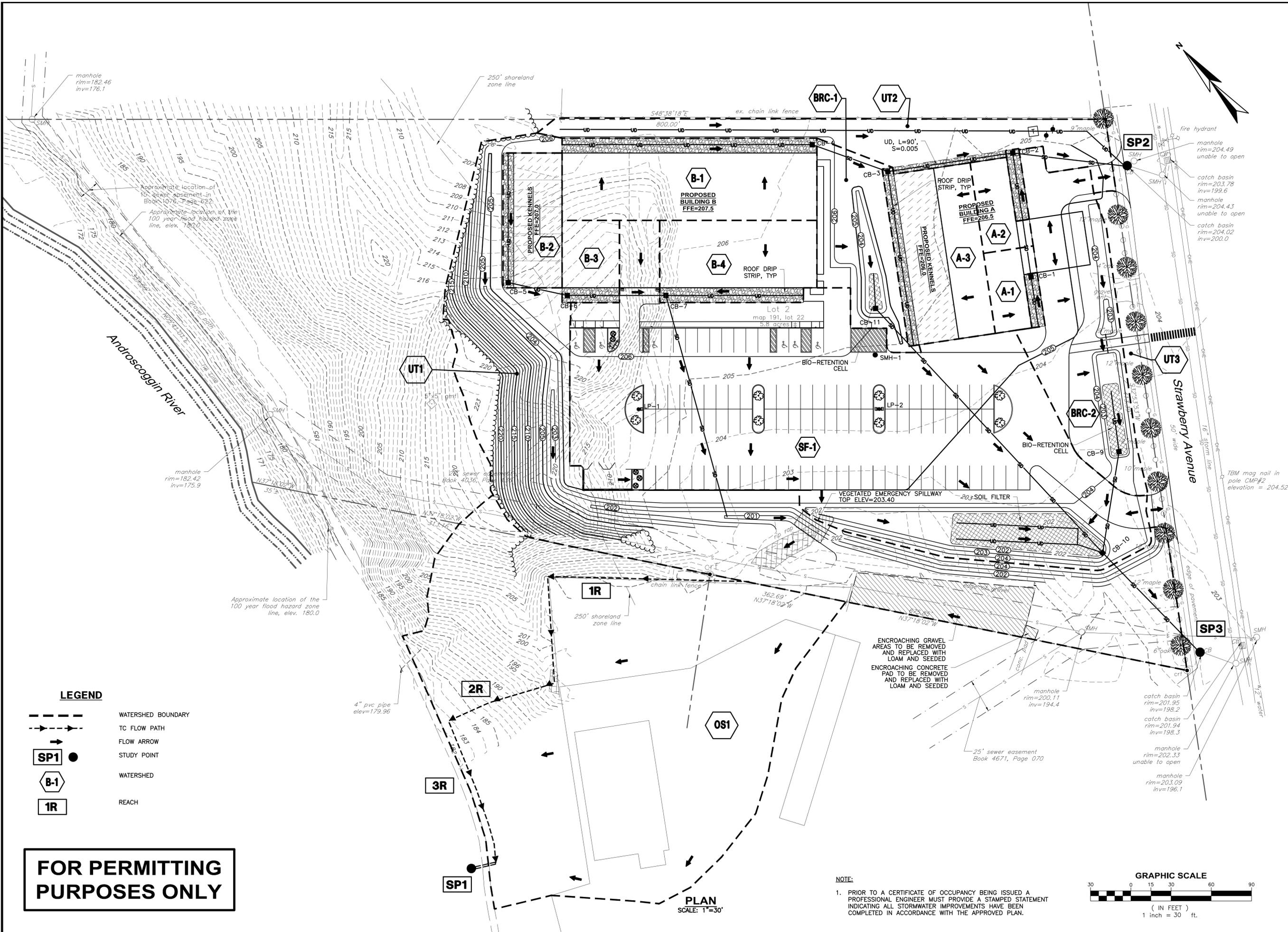
STATE OF MAINE
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 JAN B S
 WRIGHT-PIERCE
 NO. 12978A

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GREATER ANDROSCOGGIN HUMANE SOCIETY
 BUILDING ADDITION
 LEWISTON, ME

EROSION CONTROL NOTES AND DETAILS

DRAWING
 C-6



DESIGNED BY: JWB	DATE:
CAD COORD: MRL	
CHECKED BY: JWB	ISSUED FOR PERMITTING
DATE: 7-10-14	RESPONSE TO COMMENTS
APPROVED BY: JWB	
DATE: 7-10-14	
PROJECT NO: 12978A	

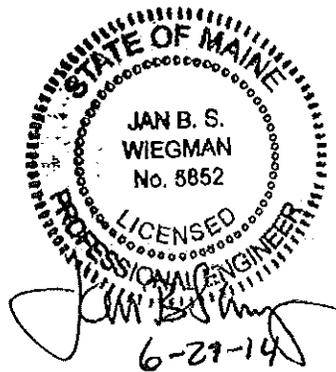
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GREATER ANDROSCOGGIN HUMANE SOCIETY
 BUILDING ADDITION
 LEWISTON, ME
 POST DEVELOPMENT DRAINAGE PLAN
 DRAWING
 C-8

**GREATER ANDROSCOGGIN HUMANE SOCIETY
56 STRAWBERRY AVENUE
LEWISTON, MAINE**

STORMWATER MANAGEMENT PLAN

JUNE 2014



Prepared by:

**Wright-Pierce
99 Main Street
Topsham, ME 04086
T. (207) 725-8721
F. (207) 729-8414**

WRIGHT-PIERCE 
Engineering a Better Environment

STORMWATER MANAGEMENT PLAN

Greater Androscoggin Humane Society
56 Strawberry Avenue
Lewiston, Maine

1.1 INTRODUCTION

This Stormwater Management Plan has been prepared to address the stormwater runoff impacts for stormwater quality associated with the development of the Greater Androscoggin Humane Society (GAHS) Intake and Adoption Facility at 56 Strawberry Avenue.

2.1 EXISTING CONDITIONS

The 3.6 acre area proposed for development is part of an undeveloped site that has been previously used as a gravel pit. The easterly grassed portion of the site has been graded relatively flat for approximately 280 feet from the roadway to wooded slopes that rise to a crest and fall off towards the Androscoggin River. The site is across the street from the GAHS facility and is in a relatively commercial/industrial setting. There are utilities along Strawberry Avenue and a sewer line that traverses the southern and western boundaries of the property. There is also a drainage swale that drains the site and discharges to the Androscoggin River.

The existing development on the site consists of:

- 135,500 square feet of graded vacant land; and
 - 117,150 square feet of brush and wooded areas.
- 252,650 square feet of total area

The stormwater management plan will address the stormwater quality treatment for the site. In the proposed condition the majority of the site will drain to the City's stormdrain system which outlets to the Androscoggin River, the remaining portion of the site will continue to drain via a drainage swale to the River, located approximately 280 feet to the west of the area of the site proposed for development. Because the outfall of the storm drain system is the Androscoggin River the flooding standard will not need to be met. We will satisfy the City of Lewiston that the

flows we are proposing from the site will be accommodated by their stormdrain system. In order to demonstrate the system impact to the City we have prepared a hydrological model of the site.

2.1.1 Land Cover

See “2.1 Existing Conditions”, above.

2.1.2 Site Topography

The site grassed portion of the site drains generally towards the southeast where stormwater is collected in a depressed area. A rip rapped lip acts as an outlet for this area and allows water to flow in the swale along the southern boundary line the discharges to the west in the Androscoggin River. A portion of the swale crosses over abutting land. It is our understanding that an easement is in place that will allow for the continued discharge of stormwater through the swale to the Androscoggin River.

The western portion of the site drains directly to the Androscoggin River. There is a public stormwater system in Strawberry Avenue.

2.1.3 Surface Water Features

The Androscoggin River forms the western boundary of the site. The site drainage discharges to the river via a swale that flows westerly along the southern boundary of the site. A portion of the swale flows across an abutting property and is part of a drainage easement for the property.

2.1.4 Soils

The soils at the site are predominantly Adams type soils which are well drained. Much of the site that will be developed has been disturbed previously by a gravel mining operation. A soils map has been attached to show the soils that are mapped for the site.

3.1 PROPOSED CONDITIONS

The construction of the two new buildings and parking and maneuvering area will disturb approximately 3.6 acres (158,466 square feet) of the site. Included in the disturbed area are the stormwater management measures.

The proposed development will consist of:

- 31,880 square feet of structures;
- 53,322 square feet of walkways; paved access and parking
85,202 square feet of impervious (1.9 ac.), and
- 59,009 square feet of lawns and landscaped areas; and
- 14,255 square feet of stormwater BMPs
73,264 square feet of pervious area (1.7 ac.)

The proposed stormwater flows from the site will be managed by routing the treated flows to the storm drain system and the excess flow to the drainage swale, directly to the Androscoggin River. The City's storm drain system in Strawberry Avenue drains to the Androscoggin River.

3.1.1 Alteration to Land Cover

The site will be developed from the current state of grass and tree cover to one that is developed with buildings, paved parking and access and landscaped areas. Stormwater treatment will be provided for the water quality volume of runoff from the alterations in land cover. Runoff in excess of the water quality volume will be directed to the swale that carries runoff to the Androscoggin River at the West of the site.

3.1.2 Downstream Waterbodies

Surface runoff from the development is directed into the City's storm drain system. The storm drain system discharges into the Androscoggin River. Higher flows will be directed to the swale along the southern boundary of the site and directed to the Androscoggin River.

4.1 REGULATORY REQUIREMENTS

4.1.1 City of Lewiston

The proposed project will require Development Review approval by the City of Lewiston Planning Board. According to the "Zoning and Land Use Code of the City of Lewiston, Maine," (the "Code"), "Sec. 4. Approval Criteria, (f) Stormwater Management" of Appendix A – Zoning and Land Use Code, Article XIII. Development Review and Standards, "...*All projects including one acre or more of disturbed land shall meet the requirements of this subsection 4(f) and the requirements of the Site Location of Development Law, 38 MRSA, 481--490, the Maine Stormwater Management Law, 38 M.R.S.A. Section 420-D, and regulations promulgated there under...*".

4.1.2 Maine Department of Environmental Protection (MDEP)

The MDEP Rules Chapter 500 describes stormwater management requirements for new development and redevelopment projects which involve modification to an existing Site Location of Development Permit (SLDP). These rules describe performance standards divided into five major categories: Basic Standards, General Standards, Phosphorous Standards, Urban Impaired Stream Standards and Flooding Standards.

- A. Basic Standards: For projects that disturb one acre or more, the proposed project must meet the Basic Standards.
- B. General Standards: For projects that disturb one acre or more and creates one acre or more of impervious area, the proposed project must meet the General Standards.
- C. Phosphorous Standards: A project is subject to the phosphorous standards when it is in the watershed of a lake most at risk as identified in Chapter 502. This project is not in the watershed of a lake that is identified as being Most at Risk in Chapter 502 and therefore the project is not subject to the Phosphorous Standards.

- D. Urban Impaired Stream Standard: Stormwater from this project is not tributary to an "Urban Impaired Stream" as defined by MDEP Chapter 502 and, therefore is not subject to the Urban Impaired Stream Standards.
- E. Flooding Standard: Required for projects creating three acres or more of impervious area or amendments to Site Location of Development Permits. The proposed project does not meet this threshold.

4.2 WATER QUALITY TREATMENT

4.2.1 General Considerations

Stormwater quality treatment for the project will be provided through a variety of stormwater treatment measures. The measures consist of seven roof line drip strips, an underdrained soil filter and two underdrained bioretention cells. The roof line drip strips are located at the roof lines while the underdrained filters capture runoff from relatively small watersheds. Generally the building runoff is captured and treated through roof line drip strips around the perimeter of the buildings. Runoff from the walkways and landscaped areas are treated by underdrained bioretention cells down gradient of these areas and the main parking area is treated by the underdrained soil filter. The treatment systems and the associated contributing drainage areas are shown on the attached Post Development Drainage Plan. The details for the treatment systems are shown on the attached plan set.

4.2.2 BMP Design Considerations

- A. The underdrained soil filters were designed and sized in accordance with "Section 7.1.3 General Design Criteria", of MDEP Volume III. BMP Technical Design Manual:
- a. Treatment Volume - A grassed underdrained soil filter (USF) must detain and filter a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped developed area.
 - b. Filter Area - The surface area of the filter must be no less than the sum of 5% of the impervious area and 2% of the landscaped area draining to the filter;
 - c. Basin Size - The size of a filter bed should never exceed 3,000 sq. ft. in basin bottom area; and

- d. Peak Storage Depth Of The Channel Protection Volume - May not exceed 18 inches and should be designed to drain dry within 24 to 48 hours.

B. The roof line drip strip filters were designed and sized in accordance with “Section 7.6.3 General Design Criteria”, of MDEP Volume III. BMP Technical Design Manual

- a. Treatment Volume – A roofline drip strip filter must detain and filter a runoff volume equal to 1.0 inch times the roof area. Such a filter may only be used for roof runoff;
- b. Treatment Storage – the reservoir bed of the filter must consist of crushed rocks with a porosity of 40%;
- c. Treatment Filter – Foundation backfill may be used as the filter media as long as the material is a mineral soil with between 4 and 7% fines.

4.2.3 Required and Proposed Project Stormwater Runoff Quality Treatment

- 1. As it applies to the redeveloped portion of the project site, the General Standards require that the stormwater management system control runoff from no less than 95% of the impervious area and no less than 80% of the developed area that is impervious or landscaped;

The following **Table 1** shows the treatment measures with their drainage areas, treatment volumes and required treatment volumes and demonstrates that each of the proposed treatment measures is sized appropriately to accommodate the stormwater from the site.

Table 1 Treatment Measures and Sizing

No.	Filter Type	Impervious Area (s.f.)	Vegetated Area (s.f.)	Required Treatment Volume (c.f.)	Provided Treatment Volume (c.f.)
A-1	Drip Strip Filter	2070	0	173	192
A-2	Drip Strip Filter	2250	0	188	200
A-3	Drip Strip Filter	7360	0	584	614
B-1	Drip Strip Filter	9500	0	792	836
B-2	Drip Strip Filter	3600	0	300	320
B-3	Drip Strip Filter	2150	0	179	189
B-4	Drip Strip Filter	5350	0	446	470
BRC-1	Bio-Retention Cell	438	5678	227	306
BRC-2	Bio-Retention Cell	6361	7850	792	805
SF-1	Underdrained Filter	43521	9317	3937	6959

The following **Table 2** tabulates the site areas and breaks out the impervious and vegetated by treated and non-treated to determine the percentages of treated areas.

Table 2 Treatment Percentages for the Site

	Areas (SF)
Overall Area	158,466
Proposed Impervious Area	85,202
Treated Impervious Area	82,600
% Impervious Area Treated	96.9
Proposed Vegetated Area	73,264
Proposed Developed Area (Vegetated and Impervious Areas)	158,466
Treated Developed Area	105,445
% Developed Area Treated	66.5

By incorporating the ten treatment measures into the project's stormwater management system, the required standard of 95% treatment of the project's impervious area is exceeded, by achieving 96.9% treatment. The stormwater management system treats approximately 66.5% of the developed area that is impervious or landscaped (vegetated).

4.3 RUNOFF ANALYSIS

Because the site drains directly to the Androscoggin River the applicant requests a waiver from the runoff analysis standard.

5.1 CONCLUSIONS

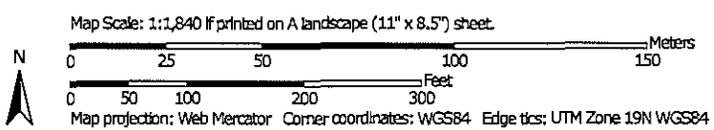
By incorporating the proposed BMPs presented in this report, and by limiting as much as practicable the amount of impervious surfaces, runoff from the proposed site will receive treatment/control that meets the applicable Basic and General Standards of Chapter 500, Stormwater Management.

5.2 MAINTENANCE & PROTECTION OF STORMWATER SYSTEM

According to Appendix A – Zoning and Land Use Code, Article XIII. Development Review and Standards, “Sec. 15. Post-construction stormwater management standards”, of the City’s Code, the applicant shall prepare and receive approval of a Post-Construction Stormwater Management Plan developed in accordance with the applicable standards of the Code.

Long-term responsibilities for maintenance and protection of the project’s stormwater drainage system, stormwater treatment systems, paved areas and permanent erosion and sedimentation control measures will be assumed by the applicant. A Maintenance Plan has been developed for the project and the components of the plan are detailed in “Section 14. Basic Standards Submissions” of this application.

Soil Map—Androscoggin and Sagadahoc Counties, Maine
(GAHS Project Area)



Soil Map—Androscoggin and Sagadahoc Counties, Maine
(GAHS Project Area)

MAP LEGEND

Area of Interest (AOI)			Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow	Background	
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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: <http://websoilsurvey.nrcs.usda.gov>
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: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 14, Dec 3, 2013

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

Date(s) aerial images were photographed: Jun 20, 2010—Aug 29, 2010

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.

Map Unit Legend

Androscoggin and Sagadahoc Counties, Maine (ME606)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AaB	Adams loamy sand, 0 to 8 percent slopes	1.5	25.8%
AaC	Adams loamy sand, 8 to 15 percent slopes	1.0	17.9%
AaD	Adams loamy sand, 15 to 30 percent slopes	0.9	15.7%
GP	Sand and gravel pits	2.3	39.8%
NgB	Ninigret fine sandy loam, 0 to 8 percent slopes	0.0	0.7%
Totals for Area of Interest		5.7	100.0%

ADDENDUM

**ADDENDUM TO
STORMWATER MANAGEMENT PLAN**

**Greater Androscoggin Humane Society
56 Strawberry Avenue
Lewiston, Maine**

1.1 INTRODUCTION

This Addendum to the project Stormwater Management Plan has been prepared to address the stormwater runoff impacts for stormwater quantity associated with the development of the Greater Androscoggin Humane Society (GAHS) Intake and Adoption Facility at 56 Strawberry Avenue. This addendum looks at the impact to the water leaving the site at three points. The existing and proposed stormwater runoff impacts will be quantified at three Study Points:

Study Point 1 is the location of a proposed 18-inch diameter culvert to be installed under the proposed riverside trail running along the easterly shore of the Androscoggin River. The runoff will then be directed into the River.

Study Point 2 is the existing catch basin located on the westerly side of Strawberry Avenue at the northeasterly corner of the project property.

Study Point 3 is the existing catch basin located on the westerly side of Strawberry Avenue at the southeasterly corner of the project property. The two study point catch basins are connected to the City's stormdrain system in Strawberry Avenue which ultimately discharges into a man-made ditch that outlets into the Androscoggin River.

2.1 EXISTING CONDITIONS

The two drainage areas draining to Study Point 1 are Drainage Area 1, which includes the easterly portion of the project property and Drainage Area 2, which includes the northwesterly corner of the developed adjoining property to the south and the wooded area extending westerly to the existing trail.

Runoff from Drainage Area 1 is collected by a drainage swale that runs from east to west along the division between the two drainage areas to a stone spreader. From the stone spreader the runoff is discharged into the wooded area of Drainage Area 2, running westerly down a gradual slope to the existing trail running north and south parallel to the Androscoggin River. The runoff then runs southerly along the easterly side of the existing trail to a drainage run that runs westerly via an eroded channel through the trail down a steep slope to the River. Existing Conditions Study Point 1 is the eroded channel crossing the existing trail which is the site of the proposed 18-inch diameter culvert.

Drainage Area 1 consists of:

- 142,628 square feet of grass land;
 - 39,955 square feet of brush and wooded areas; and
 - 4,352 square feet of gravel areas
- 186,935 square feet of total area

Runoff from Drainage Area 2 is directed via overland flow to the Study Point 1.

Drainage Area 2 consists of:

- 30,083 square feet of pavement;
 - 21,145 square feet of brush and wooded areas; and
 - 5,638 square feet of roofs
- 56,866 square feet of total area

In the Existing Condition, neither Study Point 2 or Study Point 3 receive any runoff from the proposed project site. Note that in the 10 year storm event the flow at the proposed culvert at the trail will over top the trail.

Reference is made to the accompanying Pre Development Drainage Plan.

3.1 PROPOSED CONDITIONS

The construction of the two new buildings, the parking and maneuvering areas and the stormwater management measures will disturb approximately 3.6 acres (158,466 square feet) of the site.

In the Proposed Condition, runoff to Study Point 1 will be composed of:

- 11,100 square feet of new roofs;
- 2,450 square feet of trench drains;
- 42,867 square feet of new grass areas;
- 4,352 square feet of gravel;
- 30,083 square feet of pavement;
- 5,638 square feet of roofs; and
- 33,260 square feet of brush and wooded areas;
129,750 square feet of total area

Runoff to Study Point 2 will include:

- 20,780 square feet of new roofs;
- 4,032 square feet of trench drains
- 9,552 square feet of new grass areas; and
- 339 square feet of new pavement;
34,703 square feet of total area

Runoff to Study Point 3 will include:

- 3,600 square feet of new roofs;
- 8,476 square feet of filters;
- 23,417 square feet of new grass areas; and
- 46,834 square feet of new pavement;
82,327 square feet of total area

Reference is made to the accompanying Post Development Drainage Plan.

3.1.1 Stormwater Runoff Rates

Stormwater runoff rates to the three Study Points for the 24-hour, 10-year storm event (4.6 inches) were computed using the computer program HydroCAD. Pertinent calculation sheets for the existing and proposed conditions are attached. The following Table 1 summarizes the expected flow rates.

**TABLE – 1
PRE-DEVELOPMENT VS POST-DEVELOPMENT
PEAK FLOW RATES SUMMARY TABLE**

Study Point	10-Year Storm		
	Pre (cfs)	Post (cfs)	Diff. (cfs)
1	11.09*	5.91	-5.18
2	0	1.51	+1.51
3	0	1.78	+1.78

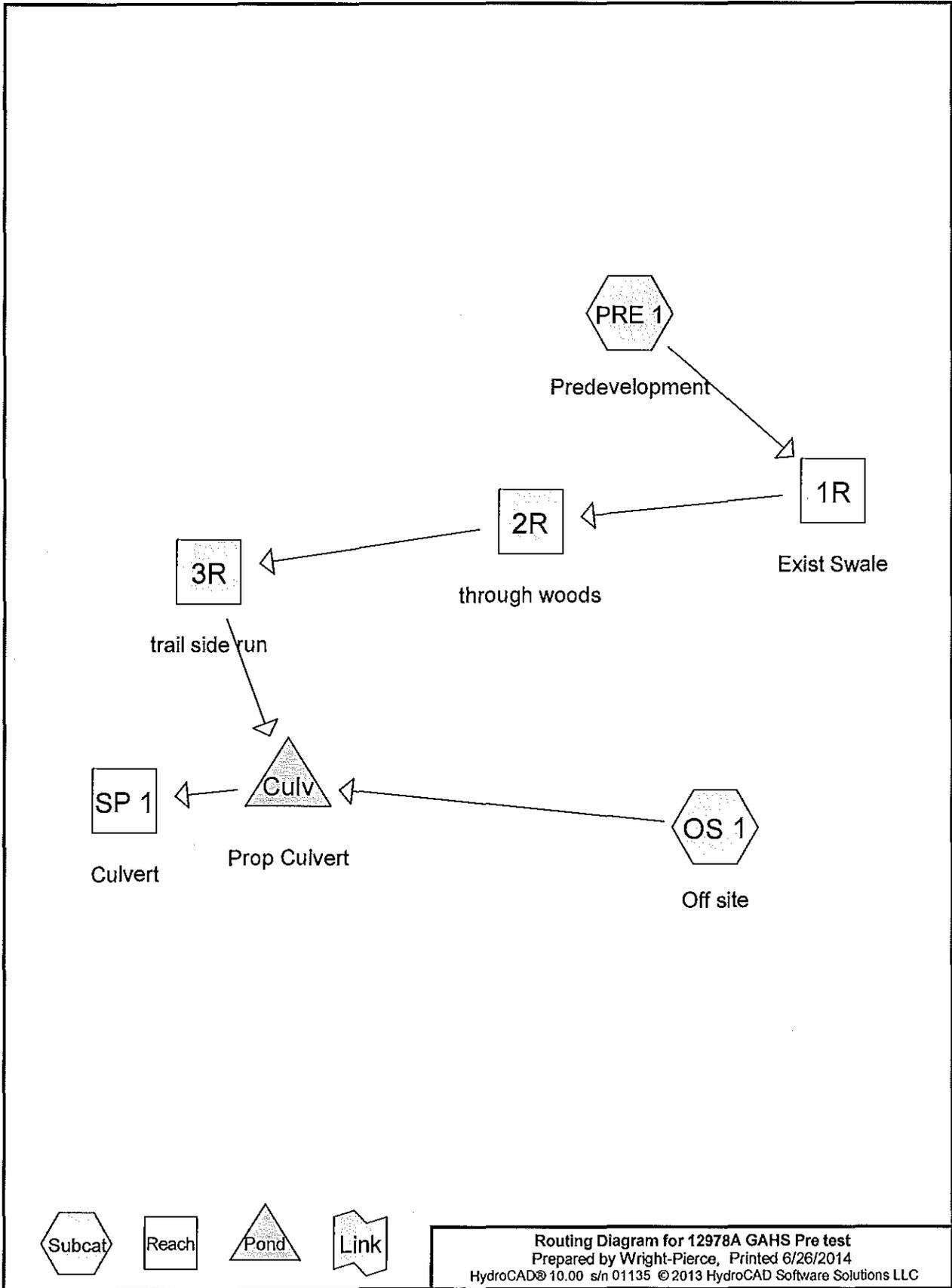
*Calculations indicate flows at the culvert will overtop the trail.

5.1 CONCLUSIONS

By incorporating the proposed BMPs and routing portions of the stormwater to the City system in Strawberry Avenue as presented in this report, and by limiting as much as practicable the amount of impervious surfaces, runoff from the proposed site will receive treatment/control that meets the applicable Basic and General Standards of Chapter 500, Stormwater Management. A reduction in the flow to the proposed culvert under the trail will also result in no overtopping of the proposed trail in the 10 year storm event.

HYDRO CAD
Pre & Post Development

Pre-Development



12978A GAHS Pre test

Prepared by Wright-Pierce

HydroCAD® 10.00 s/n 01135 © 2013 HydroCAD Software Solutions LLC

Printed 6/26/2014

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.116	79	50-75% Grass cover, Fair, HSG C (PRE 1)
0.158	61	>75% Grass cover, Good, HSG B (PRE 1)
0.100	96	Gravel surface, HSG C (PRE 1)
0.691	98	Paved roads w/curbs & sewers, HSG C (OS 1)
0.129	98	Roofs, HSG C (OS 1)
1.403	55	Woods, Good, HSG B (OS 1, PRE 1)

Time span=0.00-50.00 hrs, dt=0.05 hrs, 1001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment OS 1: Off site Runoff Area=56,866 sf 62.82% Impervious Runoff Depth=2.72"
Flow Length=307' Tc=11.0 min CN=82 Runoff=3.50 cfs 0.296 af

Subcatchment PRE 1: Predevelopment Runoff Area=186,935 sf 0.00% Impervious Runoff Depth=2.05"
Flow Length=210' Tc=4.4 min CN=74 Runoff=10.53 cfs 0.733 af

Reach 1R: Exist Swale Avg. Flow Depth=0.97' Max Vel=3.61 fps Inflow=10.53 cfs 0.733 af
n=0.030 L=244.0' S=0.0123 '/' Capacity=11.04 cfs Outflow=10.35 cfs 0.733 af

Reach 2R: through woods Avg. Flow Depth=0.67' Max Vel=0.91 fps Inflow=10.35 cfs 0.733 af
n=0.400 L=85.0' S=0.1765 '/' Capacity=23.77 cfs Outflow=10.11 cfs 0.733 af

Reach 3R: trail side run Avg. Flow Depth=0.67' Max Vel=4.53 fps Inflow=10.11 cfs 0.733 af
n=0.030 L=99.0' S=0.0253 '/' Capacity=22.60 cfs Outflow=10.08 cfs 0.733 af

Reach SP 1: Culvert Inflow=11.09 cfs 1.026 af
Outflow=11.09 cfs 1.026 af

Pond Culv: Prop Culvert Peak Elev=181.95' Storage=1,301 cf Inflow=13.37 cfs 1.029 af
Primary=11.09 cfs 1.026 af Secondary=0.59 cfs 0.003 af Outflow=11.65 cfs 1.029 af

Summary for Subcatchment OS 1: Off site

Runoff = 3.50 cfs @ 12.16 hrs, Volume= 0.296 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

Area (sf)	CN	Description
30,083	98	Paved roads w/curbs & sewers, HSG C
21,145	55	Woods, Good, HSG B
5,638	98	Roofs, HSG C
56,866	82	Weighted Average
21,145		37.18% Pervious Area
35,721		62.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	140	0.3140	0.24		Sheet Flow, SF
					Woods: Light underbrush n= 0.400 P2= 3.00"
1.4	167	0.0150	1.97		Shallow Concentrated Flow, SCF
					Unpaved Kv= 16.1 fps
11.0	307	Total			

Summary for Subcatchment PRE 1: Predevelopment

Runoff = 10.53 cfs @ 12.07 hrs, Volume= 0.733 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

Area (sf)	CN	Description
4,352	96	Gravel surface, HSG C
39,955	55	Woods, Good, HSG B
6,902	61	>75% Grass cover, Good, HSG B
135,726	79	50-75% Grass cover, Fair, HSG C
186,935	74	Weighted Average
186,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	40	0.3250	0.19		Sheet Flow, SF
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	170	0.0410	3.26		Shallow Concentrated Flow, SCF
					Unpaved Kv= 16.1 fps
4.4	210	Total			

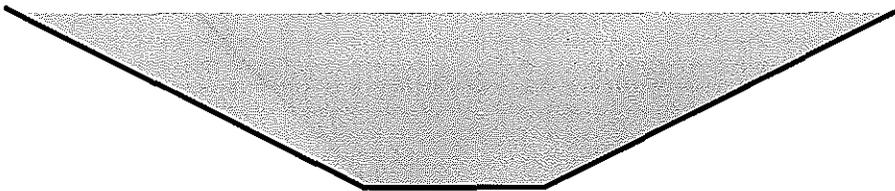
Summary for Reach 1R: Exist Swale

Inflow Area = 4.291 ac, 0.00% Impervious, Inflow Depth = 2.05" for ANDRO 10YR event
Inflow = 10.53 cfs @ 12.07 hrs, Volume= 0.733 af
Outflow = 10.35 cfs @ 12.09 hrs, Volume= 0.733 af, Atten= 2%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 3.1 min

Peak Storage= 698 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 11.04 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 ' Top Width= 5.00'
Length= 244.0' Slope= 0.0123 ' / '
Inlet Invert= 200.00', Outlet Invert= 197.00'



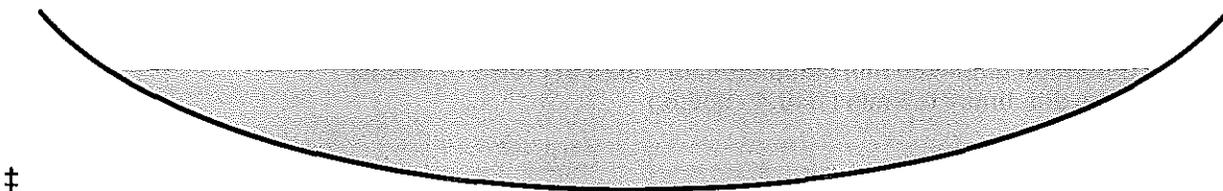
Summary for Reach 2R: through woods

Inflow Area = 4.291 ac, 0.00% Impervious, Inflow Depth = 2.05" for ANDRO 10YR event
Inflow = 10.35 cfs @ 12.09 hrs, Volume= 0.733 af
Outflow = 10.11 cfs @ 12.11 hrs, Volume= 0.733 af, Atten= 2%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.91 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 5.1 min

Peak Storage= 941 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 23.77 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 85.0' Slope= 0.1765 ' / '
Inlet Invert= 197.00', Outlet Invert= 182.00'



‡

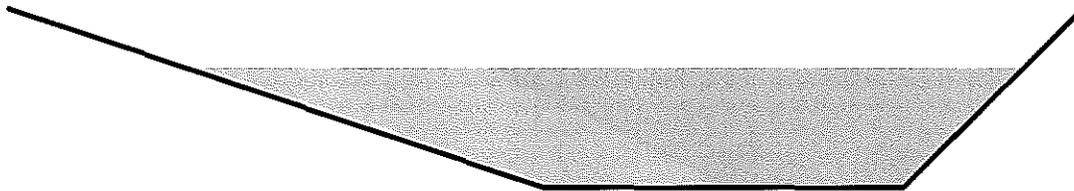
Summary for Reach 3R: trail side run

Inflow Area = 4.291 ac, 0.00% Impervious, Inflow Depth = 2.05" for ANDRO 10YR event
 Inflow = 10.11 cfs @ 12.11 hrs, Volume= 0.733 af
 Outflow = 10.08 cfs @ 12.11 hrs, Volume= 0.733 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.53 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 1.41 fps, Avg. Travel Time= 1.2 min

Peak Storage= 219 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.67'
 Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 22.60 cfs

2.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
 Side Slope Z-value= 3.0 1.0 '/' Top Width= 6.00'
 Length= 99.0' Slope= 0.0253 '/'
 Inlet Invert= 182.00', Outlet Invert= 179.50'

**Summary for Reach SP 1: Culvert**

Inflow Area = 5.597 ac, 14.65% Impervious, Inflow Depth = 2.20" for ANDRO 10YR event
 Inflow = 11.09 cfs @ 12.18 hrs, Volume= 1.026 af
 Outflow = 11.09 cfs @ 12.18 hrs, Volume= 1.026 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs

Summary for Pond Culv: Prop Culvert

Inflow Area = 5.597 ac, 14.65% Impervious, Inflow Depth = 2.21" for ANDRO 10YR event
 Inflow = 13.37 cfs @ 12.12 hrs, Volume= 1.029 af
 Outflow = 11.65 cfs @ 12.19 hrs, Volume= 1.029 af, Atten= 13%, Lag= 4.1 min
 Primary = 11.09 cfs @ 12.18 hrs, Volume= 1.026 af
 Secondary = 0.59 cfs @ 12.20 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
 Peak Elev= 181.95' @ 12.18 hrs Surf.Area= 1,709 sf Storage= 1,301 cf

Plug-Flow detention time= 0.5 min calculated for 1.028 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (840.4 - 839.8)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,394 cf	Custom Stage Data (Irregular) Listed below (Recalc)

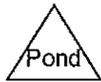
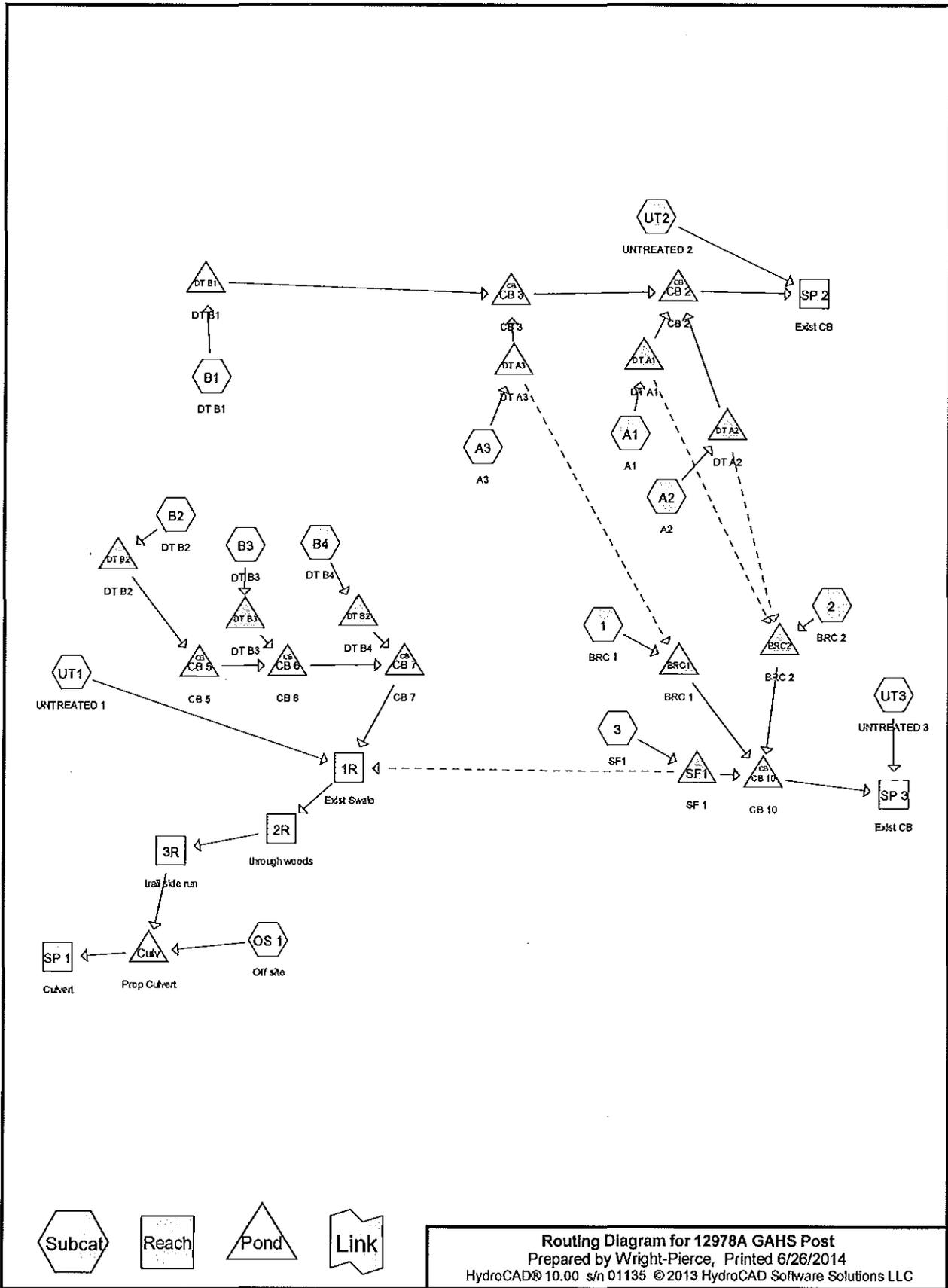
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	10	10.0	0	0	10
180.00	35	28.0	11	11	65
182.00	1,790	427.0	1,384	1,394	14,519

Device	Routing	Invert	Outlet Devices
#1	Primary	179.50'	18.0" Round Culvert L= 20.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 179.50' / 179.00' S= 0.0250 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	181.90'	50.0' long x 12.0' 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) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=11.00 cfs @ 12.18 hrs HW=181.92' TW=0.00' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 11.00 cfs @ 6.22 fps)

Secondary OutFlow Max=0.56 cfs @ 12.20 hrs HW=181.93' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.56 cfs @ 0.42 fps)

Post-Development



Routing Diagram for 12978A GAHS Post
 Prepared by Wright-Pierce, Printed 6/26/2014
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12978A GAHS Post

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.741	74	>75% Grass cover, Good, HSG C (1, 2, 3, UT1, UT2, UT3)
0.021	74	BRC 1 (1)
0.039	74	BRC 2 (2)
0.011	30	DT A1 (A1)
0.009	30	DT A2 (A2)
0.024	30	DT A3 (A3)
0.048	30	DT B1 (B1)
0.018	30	DT B2 (B2)
0.011	30	DT B3 (B3)
0.027	30	DT B4 (B4)
0.108	96	Gravel surface, HSG C (UT1, UT2)
0.008	98	Paved parking, HSG C (UT3)
0.691	98	Paved roads w/curbs & sewers, HSG C (OS 1)
1.067	98	Pavement (1, 2, 3)
0.815	98	Roofs (2, 3, A1, A2, A3, B1, B2, B3, B4)
0.129	98	Roofs, HSG C (OS 1)
0.135	74	SF1 (3)
0.764	55	Woods, Good, HSG B (OS 1, UT1)

Time span=0.00-50.00 hrs, dt=0.10 hrs, 501 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: BRC 1	Runoff Area=7,018 sf 6.24% Impervious Runoff Depth=2.13" Tc=0.0 min CN=75 Runoff=0.42 cfs 0.029 af
Subcatchment 2: BRC 2	Runoff Area=13,560 sf 45.04% Impervious Runoff Depth=3.00" Tc=0.0 min CN=85 Runoff=1.14 cfs 0.078 af
Subcatchment 3: SF1	Runoff Area=58,726 sf 74.11% Impervious Runoff Depth=3.70" Tc=0.0 min CN=92 Runoff=5.86 cfs 0.416 af
Subcatchment A1: A1	Runoff Area=2,550 sf 81.18% Impervious Runoff Depth=3.00" Tc=0.0 min CN=85 Runoff=0.22 cfs 0.015 af
Subcatchment A2: A2	Runoff Area=2,250 sf 82.22% Impervious Runoff Depth=3.10" Tc=0.0 min CN=86 Runoff=0.20 cfs 0.013 af
Subcatchment A3: A3	Runoff Area=8,422 sf 87.39% Impervious Runoff Depth=3.39" Tc=0.0 min CN=89 Runoff=0.79 cfs 0.055 af
Subcatchment B1: DT B1	Runoff Area=11,590 sf 81.97% Impervious Runoff Depth=3.10" Tc=0.0 min CN=86 Runoff=1.01 cfs 0.069 af
Subcatchment B2: DT B2	Runoff Area=4,400 sf 81.82% Impervious Runoff Depth=3.10" Tc=0.0 min CN=86 Runoff=0.38 cfs 0.026 af
Subcatchment B3: DT B3	Runoff Area=2,623 sf 81.97% Impervious Runoff Depth=3.10" Tc=0.0 min CN=86 Runoff=0.23 cfs 0.016 af
Subcatchment B4: DT B4	Runoff Area=6,527 sf 81.97% Impervious Runoff Depth=3.10" Tc=0.0 min CN=86 Runoff=0.57 cfs 0.039 af
Subcatchment OS 1: Off site	Runoff Area=56,866 sf 62.82% Impervious Runoff Depth=2.72" Flow Length=307' Tc=11.0 min CN=82 Runoff=3.28 cfs 0.296 af
Subcatchment UT1: UNTREATED 1	Runoff Area=59,334 sf 0.00% Impervious Runoff Depth=1.89" Tc=0.0 min CN=72 Runoff=3.13 cfs 0.215 af
Subcatchment UT2: UNTREATED 2	Runoff Area=9,891 sf 0.00% Impervious Runoff Depth=2.13" Tc=0.0 min CN=75 Runoff=0.59 cfs 0.040 af
Subcatchment UT3: UNTREATED 3	Runoff Area=3,023 sf 12.17% Impervious Runoff Depth=2.29" Tc=0.0 min CN=77 Runoff=0.20 cfs 0.013 af
Reach 1R: Exist Swale	Avg. Flow Depth=0.55' Max Vel=2.62 fps Inflow=3.38 cfs 0.296 af n=0.030 L=244.0' S=0.0123 '/' Capacity=11.04 cfs Outflow=3.04 cfs 0.296 af
Reach 2R: through woods	Avg. Flow Depth=0.38' Max Vel=0.62 fps Inflow=3.04 cfs 0.296 af n=0.400 L=85.0' S=0.1765 '/' Capacity=23.77 cfs Outflow=2.94 cfs 0.296 af

Reach 3R: trail side run	Avg. Flow Depth=0.34' Max Vel=3.19 fps Inflow=2.94 cfs 0.296 af n=0.030 L=99.0' S=0.0253 ' Capacity=22.60 cfs Outflow=2.96 cfs 0.296 af
Reach SP 1: Culvert	Inflow=5.91 cfs 0.592 af Outflow=5.91 cfs 0.592 af
Reach SP 2: Exist CB	Inflow=1.51 cfs 0.166 af Outflow=1.51 cfs 0.166 af
Reach SP 3: Exist CB	Inflow=1.78 cfs 0.536 af Outflow=1.78 cfs 0.536 af
Pond BRC1: BRC 1	Peak Elev=203.54' Storage=324 cf Inflow=0.42 cfs 0.029 af Outflow=0.24 cfs 0.029 af
Pond BRC2: BRC 2	Peak Elev=203.10' Storage=981 cf Inflow=1.14 cfs 0.078 af Outflow=0.85 cfs 0.078 af
Pond CB 10: CB 10	Peak Elev=199.54' Inflow=1.73 cfs 0.522 af 12.0" Round Culvert n=0.013 L=99.0' S=0.0051 ' Outflow=1.73 cfs 0.522 af
Pond CB 2: CB 2	Peak Elev=201.13' Inflow=1.03 cfs 0.126 af 12.0" Round Culvert n=0.013 L=82.0' S=0.0068 ' Outflow=1.03 cfs 0.126 af
Pond CB 3: CB 3	Peak Elev=203.96' Inflow=0.85 cfs 0.108 af 6.0" Round Culvert n=0.013 L=93.0' S=0.0049 ' Outflow=0.85 cfs 0.108 af
Pond CB 5: CB 5	Peak Elev=203.52' Inflow=0.17 cfs 0.026 af 6.0" Round Culvert n=0.013 L=43.0' S=0.0049 ' Outflow=0.17 cfs 0.026 af
Pond CB 6: CB 6	Peak Elev=203.35' Inflow=0.26 cfs 0.042 af 6.0" Round Culvert n=0.013 L=72.0' S=0.0050 ' Outflow=0.26 cfs 0.042 af
Pond CB 7: CB 7	Peak Elev=202.20' Inflow=0.45 cfs 0.081 af 15.0" Round Culvert n=0.013 L=200.0' S=0.0050 ' Outflow=0.45 cfs 0.081 af
Pond Culv: Prop Culvert	Peak Elev=180.74' Storage=139 cf Inflow=6.07 cfs 0.592 af Primary=5.91 cfs 0.592 af Secondary=0.00 cfs 0.000 af Outflow=5.91 cfs 0.592 af
Pond DT A1: DT A1	Peak Elev=205.54' Storage=241 cf Inflow=0.22 cfs 0.015 af Primary=0.21 cfs 0.010 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.010 af
Pond DT A2: DT A2	Peak Elev=205.53' Storage=235 cf Inflow=0.20 cfs 0.013 af Primary=0.13 cfs 0.008 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.008 af
Pond DT A3: DT A3	Peak Elev=205.60' Storage=775 cf Inflow=0.79 cfs 0.055 af Primary=0.76 cfs 0.039 af Secondary=0.00 cfs 0.000 af Outflow=0.76 cfs 0.039 af
Pond DT B1: DT B1	Peak Elev=206.54' Storage=919 cf Inflow=1.01 cfs 0.069 af Outflow=0.30 cfs 0.069 af

12978A GAHS Post

Type III 24-hr ANDRO 10YR Rainfall=4.60"

Prepared by Wright-Pierce

Printed 6/26/2014

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Pond DT B2: DT B2

Peak Elev=205.57' Storage=102 cf Inflow=0.38 cfs 0.026 af
Outflow=0.17 cfs 0.026 af

Pond DT B3: DT B3

Peak Elev=206.52' Storage=198 cf Inflow=0.23 cfs 0.016 af
Outflow=0.09 cfs 0.016 af

Pond DT B4: DT B4

Peak Elev=206.53' Storage=507 cf Inflow=0.57 cfs 0.039 af
Outflow=0.19 cfs 0.039 af

Pond SF1: SF 1

Peak Elev=203.13' Storage=7,764 cf Inflow=5.86 cfs 0.416 af
Primary=1.30 cfs 0.416 af Secondary=0.00 cfs 0.000 af Outflow=1.30 cfs 0.416 af

Summary for Subcatchment 1: BRC 1

Runoff = 0.42 cfs @ 12.01 hrs, Volume= 0.029 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	438	98	Pavement
	5,678	74	>75% Grass cover, Good, HSG C
*	902	74	BRC 1
	7,018	75	Weighted Average
	6,580		93.76% Pervious Area
	438		6.24% Impervious Area

Summary for Subcatchment 2: BRC 2

Runoff = 1.14 cfs @ 12.00 hrs, Volume= 0.078 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	4,507	98	Pavement
*	1,600	98	Roofs
*	1,686	74	BRC 2
	5,767	74	>75% Grass cover, Good, HSG C
	13,560	85	Weighted Average
	7,453		54.96% Pervious Area
	6,107		45.04% Impervious Area

Summary for Subcatchment 3: SF1

Runoff = 5.86 cfs @ 12.00 hrs, Volume= 0.416 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	41,521	98	Pavement
*	2,000	98	Roofs
	9,317	74	>75% Grass cover, Good, HSG C
*	5,888	74	SF1
	58,726	92	Weighted Average
	15,205		25.89% Pervious Area
	43,521		74.11% Impervious Area

Summary for Subcatchment A1: A1

Runoff = 0.22 cfs @ 12.00 hrs, Volume= 0.015 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	2,070	98	Roofs
*	480	30	DT A1
	2,550	85	Weighted Average
	480		18.82% Pervious Area
	2,070		81.18% Impervious Area

Summary for Subcatchment A2: A2

Runoff = 0.20 cfs @ 12.00 hrs, Volume= 0.013 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	1,850	98	Roofs
*	400	30	DT A2
	2,250	86	Weighted Average
	400		17.78% Pervious Area
	1,850		82.22% Impervious Area

Summary for Subcatchment A3: A3

Runoff = 0.79 cfs @ 12.00 hrs, Volume= 0.055 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	7,360	98	Roofs
*	1,062	30	DT A3
	8,422	89	Weighted Average
	1,062		12.61% Pervious Area
	7,360		87.39% Impervious Area

Summary for Subcatchment B1: DT B1

Runoff = 1.01 cfs @ 12.00 hrs, Volume= 0.069 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	9,500	98	Roofs
*	2,090	30	DT B1
	11,590	86	Weighted Average
	2,090		18.03% Pervious Area
	9,500		81.97% Impervious Area

Summary for Subcatchment B2: DT B2

Runoff = 0.38 cfs @ 12.00 hrs, Volume= 0.026 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	3,600	98	Roofs
*	800	30	DT B2
	4,400	86	Weighted Average
	800		18.18% Pervious Area
	3,600		81.82% Impervious Area

Summary for Subcatchment B3: DT B3

Runoff = 0.23 cfs @ 12.00 hrs, Volume= 0.016 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	2,150	98	Roofs
*	473	30	DT B3
	2,623	86	Weighted Average
	473		18.03% Pervious Area
	2,150		81.97% Impervious Area

Summary for Subcatchment B4: DT B4

Runoff = 0.57 cfs @ 12.00 hrs, Volume= 0.039 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

	Area (sf)	CN	Description
*	5,350	98	Roofs
*	1,177	30	DT B4
	6,527	86	Weighted Average
	1,177		18.03% Pervious Area
	5,350		81.97% Impervious Area

Summary for Subcatchment OS 1: Off site

Runoff = 3.28 cfs @ 12.17 hrs, Volume= 0.296 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

Area (sf)	CN	Description
30,083	98	Paved roads w/curbs & sewers, HSG C
21,145	55	Woods, Good, HSG B
5,638	98	Roofs, HSG C
56,866	82	Weighted Average
21,145		37.18% Pervious Area
35,721		62.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	140	0.3140	0.24		Sheet Flow, SF
1.4	167	0.0150	1.97		Woods: Light underbrush n= 0.400 P2= 3.00"
					Shallow Concentrated Flow, SCF
					Unpaved Kv= 16.1 fps
11.0	307	Total			

Summary for Subcatchment UT1: UNTREATED 1

Runoff = 3.13 cfs @ 12.01 hrs, Volume= 0.215 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

Area (sf)	CN	Description
42,867	74	>75% Grass cover, Good, HSG C
4,352	96	Gravel surface, HSG C
12,115	55	Woods, Good, HSG B
59,334	72	Weighted Average
59,334		100.00% Pervious Area

Summary for Subcatchment UT2: UNTREATED 2

Runoff = 0.59 cfs @ 12.01 hrs, Volume= 0.040 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

Area (sf)	CN	Description
9,552	74	>75% Grass cover, Good, HSG C
339	96	Gravel surface, HSG C
9,891	75	Weighted Average
9,891		100.00% Pervious Area

Summary for Subcatchment UT3: UNTREATED 3

Runoff = 0.20 cfs @ 12.01 hrs, Volume= 0.013 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type III 24-hr ANDRO 10YR Rainfall=4.60"

Area (sf)	CN	Description
2,655	74	>75% Grass cover, Good, HSG C
368	98	Paved parking, HSG C
3,023	77	Weighted Average
2,655		87.83% Pervious Area
368		12.17% Impervious Area

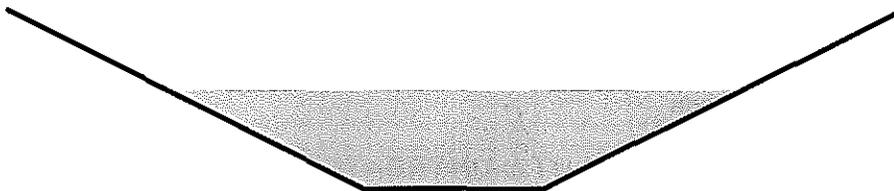
Summary for Reach 1R: Exist Swale

Inflow Area = 1.673 ac, 15.23% Impervious, Inflow Depth = 2.12" for ANDRO 10YR event
Inflow = 3.38 cfs @ 12.01 hrs, Volume= 0.296 af
Outflow = 3.04 cfs @ 12.03 hrs, Volume= 0.296 af, Atten= 10%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
Max. Velocity= 2.62 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 4.4 min

Peak Storage= 282 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 11.04 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 ' / ' Top Width= 5.00'
Length= 244.0' Slope= 0.0123 ' / '
Inlet Invert= 200.00', Outlet Invert= 197.00'



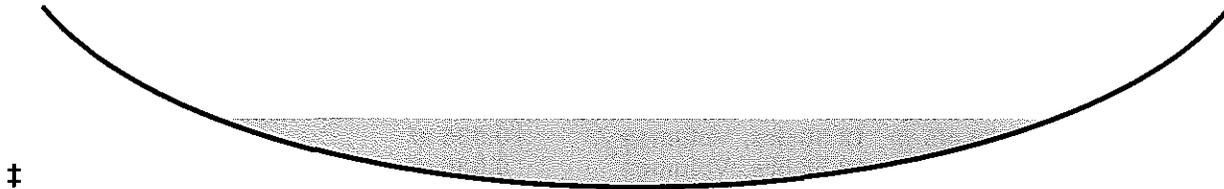
Summary for Reach 2R: through woods

Inflow Area = 1.673 ac, 15.23% Impervious, Inflow Depth = 2.12" for ANDRO 10YR event
Inflow = 3.04 cfs @ 12.03 hrs, Volume= 0.296 af
Outflow = 2.94 cfs @ 12.08 hrs, Volume= 0.296 af, Atten= 3%, Lag= 2.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
Max. Velocity= 0.62 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 7.1 min

Peak Storage= 400 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 23.77 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 85.0' Slope= 0.1765 '/'
Inlet Invert= 197.00', Outlet Invert= 182.00'



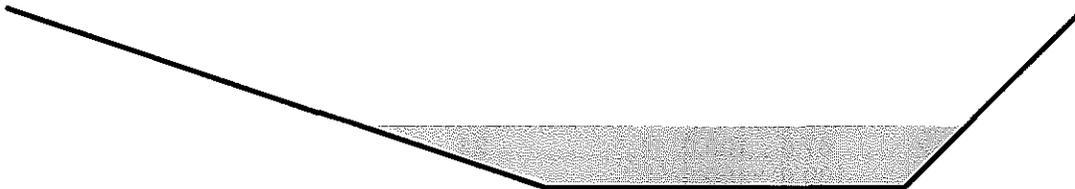
Summary for Reach 3R: trail side run

Inflow Area = 1.673 ac, 15.23% Impervious, Inflow Depth = 2.12" for ANDRO 10YR event
Inflow = 2.94 cfs @ 12.08 hrs, Volume= 0.296 af
Outflow = 2.96 cfs @ 12.09 hrs, Volume= 0.296 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
Max. Velocity= 3.19 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.97 fps, Avg. Travel Time= 1.7 min

Peak Storage= 92 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 22.60 cfs

2.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 1.0 '/' Top Width= 6.00'
Length= 99.0' Slope= 0.0253 '/'
Inlet Invert= 182.00', Outlet Invert= 179.50'



Summary for Reach SP 1: Culvert

Inflow Area = 2.979 ac, 36.09% Impervious, Inflow Depth = 2.39" for ANDRO 10YR event
Inflow = 5.91 cfs @ 12.14 hrs, Volume= 0.592 af
Outflow = 5.91 cfs @ 12.14 hrs, Volume= 0.592 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3

Summary for Reach SP 2: Exist CB

Inflow Area = 0.797 ac, 59.88% Impervious, Inflow Depth = 2.50" for ANDRO 10YR event
 Inflow = 1.51 cfs @ 12.05 hrs, Volume= 0.166 af
 Outflow = 1.51 cfs @ 12.05 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3

Summary for Reach SP 3: Exist CB

Inflow Area = 1.890 ac, 61.26% Impervious, Inflow Depth = 3.40" for ANDRO 10YR event
 Inflow = 1.78 cfs @ 12.36 hrs, Volume= 0.536 af
 Outflow = 1.78 cfs @ 12.36 hrs, Volume= 0.536 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3

Summary for Pond BRC1: BRC 1

Inflow Area = 0.161 ac, 6.24% Impervious, Inflow Depth = 2.13" for ANDRO 10YR event
 Inflow = 0.42 cfs @ 12.01 hrs, Volume= 0.029 af
 Outflow = 0.24 cfs @ 12.15 hrs, Volume= 0.029 af, Atten= 42%, Lag= 8.4 min
 Primary = 0.24 cfs @ 12.15 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 203.54' @ 12.10 hrs Surf.Area= 503 sf Storage= 324 cf

Plug-Flow detention time= 144.1 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 144.2 min (977.6 - 833.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	201.25'	1,827 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.25	212	67.0	0.0	0	0	212
201.35	212	67.0	33.0	7	7	219
202.90	212	67.0	33.0	108	115	323
203.00	212	67.0	100.0	21	137	329
204.00	852	199.0	100.0	496	633	3,127
205.00	1,573	264.0	100.0	1,194	1,827	5,533

Device	Routing	Invert	Outlet Devices
#1	Primary	199.81'	12.0" Round Culvert L= 245.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 199.81' / 198.70' S= 0.0045 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	203.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	201.25'	2.000 in/hr Exfiltration over Surface area above 200.60' Excluded Surface area = 0 sf

Primary OutFlow Max=0.22 cfs @ 12.15 hrs HW=203.54' TW=199.38' (Dynamic Tailwater)

- 1=Culvert (Passes 0.22 cfs of 4.07 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.19 cfs @ 0.64 fps)
- 3=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond BRC2: BRC 2

Inflow Area = 0.311 ac, 45.04% Impervious, Inflow Depth = 3.00" for ANDRO 10YR event
 Inflow = 1.14 cfs @ 12.00 hrs, Volume= 0.078 af
 Outflow = 0.85 cfs @ 12.12 hrs, Volume= 0.078 af, Atten= 25%, Lag= 7.0 min
 Primary = 0.85 cfs @ 12.12 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 203.10' @ 12.13 hrs Surf.Area= 1,260 sf Storage= 981 cf

Plug-Flow detention time= 145.9 min calculated for 0.078 af (100% of inflow)
 Center-of-Mass det. time= 146.0 min (951.2 - 805.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	200.75'	1,562 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
200.75	639	128.0	0.0	0	0	639
200.85	639	128.0	33.0	21	21	652
202.40	639	128.0	33.0	327	348	850
202.50	639	128.0	100.0	64	412	863
203.00	1,158	181.0	100.0	443	855	2,169
203.50	1,686	232.0	100.0	707	1,562	3,848

Device	Routing	Invert	Outlet Devices
#1	Primary	199.19'	12.0" Round Culvert L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 199.19' / 198.70' S= 0.0067 ' S= 0.0067 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	203.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.75'	2.000 in/hr Exfiltration over Surface area above 199.86' Excluded Surface area = 0 sf

Primary OutFlow Max=0.76 cfs @ 12.12 hrs HW=203.09' TW=199.40' (Dynamic Tailwater)

- 1=Culvert (Passes 0.76 cfs of 5.96 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.70 cfs @ 0.98 fps)
- 3=Exfiltration (Exfiltration Controls 0.06 cfs)

Summary for Pond CB 10: CB 10

Inflow Area = 1.821 ac, 63.13% Impervious, Inflow Depth = 3.44" for ANDRO 10YR event
 Inflow = 1.73 cfs @ 12.37 hrs, Volume= 0.522 af
 Outflow = 1.73 cfs @ 12.37 hrs, Volume= 0.522 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.73 cfs @ 12.37 hrs, Volume= 0.522 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 199.54' @ 12.37 hrs
 Flood Elev= 203.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	198.70'	12.0" Round Culvert L= 99.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 198.70' / 198.20' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.69 cfs @ 12.37 hrs HW=199.52' TW=0.00' (Dynamic Tailwater)
 ↑1=Culvert (Barrel Controls 1.69 cfs @ 3.31 fps)

Summary for Pond CB 2: CB 2

Inflow Area = 0.570 ac, 83.75% Impervious, Inflow Depth = 2.65" for ANDRO 10YR event
 Inflow = 1.03 cfs @ 12.08 hrs, Volume= 0.126 af
 Outflow = 1.03 cfs @ 12.08 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.03 cfs @ 12.08 hrs, Volume= 0.126 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 201.13' @ 12.08 hrs
 Flood Elev= 205.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.56'	12.0" Round Culvert L= 82.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.56' / 200.00' S= 0.0068 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.08 hrs HW=201.12' TW=0.00' (Dynamic Tailwater)
 ↑1=Culvert (Barrel Controls 0.98 cfs @ 3.15 fps)

Summary for Pond CB 3: CB 3

Inflow Area = 0.459 ac, 84.25% Impervious, Inflow Depth = 2.82" for ANDRO 10YR event
 Inflow = 0.85 cfs @ 12.03 hrs, Volume= 0.108 af
 Outflow = 0.85 cfs @ 12.03 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.85 cfs @ 12.03 hrs, Volume= 0.108 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 203.96' @ 12.03 hrs
 Flood Elev= 205.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	201.52'	6.0" Round Culvert L= 93.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 201.52' / 201.06' S= 0.0049 ' S= 0.0049 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.76 cfs @ 12.03 hrs HW=203.64' TW=201.08' (Dynamic Tailwater)
 ↑1=Culvert (Barrel Controls 0.76 cfs @ 3.89 fps)

Summary for Pond CB 5: CB 5

Inflow Area = 0.101 ac, 81.82% Impervious, Inflow Depth = 3.13" for ANDRO 10YR event
 Inflow = 0.17 cfs @ 12.00 hrs, Volume= 0.026 af
 Outflow = 0.17 cfs @ 12.10 hrs, Volume= 0.026 af, Atten= 0%, Lag= 6.0 min
 Primary = 0.17 cfs @ 12.10 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 203.52' @ 12.31 hrs
 Flood Elev= 206.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	203.16'	6.0" Round Culvert L= 43.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 203.16' / 202.95' S= 0.0049 ' S= 0.0049 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.17 cfs @ 12.10 hrs HW=203.49' TW=203.28' (Dynamic Tailwater)
 ↑1=Culvert (Outlet Controls 0.17 cfs @ 1.69 fps)

Summary for Pond CB 6: CB 6

Inflow Area = 0.161 ac, 81.87% Impervious, Inflow Depth = 3.12" for ANDRO 10YR event
 Inflow = 0.26 cfs @ 12.31 hrs, Volume= 0.042 af
 Outflow = 0.26 cfs @ 12.31 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.26 cfs @ 12.31 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 203.35' @ 12.31 hrs
 Flood Elev= 206.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	202.95'	6.0" Round Culvert L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 202.95' / 202.59' S= 0.0050 ' S= 0.0050 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.26 cfs @ 12.31 hrs HW=203.34' TW=202.19' (Dynamic Tailwater)
 ↑1=Culvert (Barrel Controls 0.26 cfs @ 2.13 fps)

Summary for Pond CB 7: CB 7

Inflow Area = 0.311 ac, 81.92% Impervious, Inflow Depth = 3.11" for ANDRO 10YR event
 Inflow = 0.45 cfs @ 12.32 hrs, Volume= 0.081 af
 Outflow = 0.45 cfs @ 12.32 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.45 cfs @ 12.32 hrs, Volume= 0.081 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 202.20' @ 12.32 hrs
 Flood Elev= 206.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	201.84'	15.0" Round Culvert L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 201.84' / 200.84' S= 0.0050 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.44 cfs @ 12.32 hrs HW=202.19' TW=200.40' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 0.44 cfs @ 2.31 fps)

Summary for Pond Culv: Prop Culvert

Inflow Area = 2.979 ac, 36.09% Impervious, Inflow Depth = 2.39" for ANDRO 10YR event
 Inflow = 6.07 cfs @ 12.12 hrs, Volume= 0.592 af
 Outflow = 5.91 cfs @ 12.14 hrs, Volume= 0.592 af, Atten= 3%, Lag= 1.1 min
 Primary = 5.91 cfs @ 12.14 hrs, Volume= 0.592 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 180.74' @ 12.14 hrs Surf.Area= 374 sf Storage= 139 cf

Plug-Flow detention time= 0.2 min calculated for 0.591 af (100% of inflow)
 Center-of-Mass det. time= 0.2 min (837.6 - 837.4)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,394 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	10	10.0	0	0	10
180.00	35	28.0	11	11	65
182.00	1,790	427.0	1,384	1,394	14,519

Device	Routing	Invert	Outlet Devices
#1	Primary	179.50'	18.0" Round Culvert L= 20.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 179.50' / 179.00' S= 0.0250 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	181.90'	50.0' long x 12.0' 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) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=5.66 cfs @ 12.14 hrs HW=180.70' TW=0.00' (Dynamic Tailwater)

↳1=Culvert (Inlet Controls 5.66 cfs @ 3.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=179.50' (Free Discharge)

↳2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond DT A1: DT A1

Inflow Area = 0.059 ac, 81.18% Impervious, Inflow Depth = 3.00" for ANDRO 10YR event
 Inflow = 0.22 cfs @ 12.00 hrs, Volume= 0.015 af
 Outflow = 0.21 cfs @ 12.11 hrs, Volume= 0.010 af, Atten= 1%, Lag= 6.3 min
 Primary = 0.21 cfs @ 12.11 hrs, Volume= 0.010 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 205.54' @ 12.12 hrs Surf.Area= 480 sf Storage= 241 cf

Plug-Flow detention time= 171.3 min calculated for 0.010 af (65% of inflow)
 Center-of-Mass det. time= 71.5 min (876.7 - 805.2)

Volume	Invert	Avail.Storage	Storage Description
#1	204.50'	461 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.50	480	0.0	0	0
204.60	480	40.0	19	19
205.40	480	40.0	154	173
205.50	480	100.0	48	221
206.00	480	100.0	240	461

Device	Routing	Invert	Outlet Devices
#1	Primary	200.56'	12.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.56' / 200.56' S= 0.0000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	205.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	204.50'	2.000 in/hr Exfiltration over Surface area above 204.50' Excluded Surface area = 480 sf
#4	Secondary	205.75'	50.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.20 cfs @ 12.11 hrs HW=205.54' TW=201.12' (Dynamic Tailwater)

- 1=Culvert (Passes 0.20 cfs of 7.95 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.20 cfs @ 0.64 fps)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=204.50' TW=200.75' (Dynamic Tailwater)

- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond DT A2: DT A2

Inflow Area = 0.052 ac, 82.22% Impervious, Inflow Depth = 3.10" for ANDRO 10YR event
 Inflow = 0.20 cfs @ 12.00 hrs, Volume= 0.013 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.008 af, Atten= 33%, Lag= 7.1 min
 Primary = 0.13 cfs @ 12.12 hrs, Volume= 0.008 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 205.53' @ 12.10 hrs Surf.Area= 400 sf Storage= 235 cf

Plug-Flow detention time= 182.9 min calculated for 0.008 af (61% of inflow)
 Center-of-Mass det. time= 81.0 min (883.1 - 802.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	204.25'	424 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.25	400	0.0	0	0
204.35	400	40.0	16	16
205.40	400	40.0	168	184
205.50	400	100.0	40	224
206.00	400	100.0	200	424

Device	Routing	Invert	Outlet Devices
#1	Primary	202.40'	4.0" Round Culvert L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 202.40' / 201.95' S= 0.0050 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Device 1	205.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	204.25'	2.000 in/hr Exfiltration over Surface area above 204.25' Excluded Surface area = 400 sf
#4	Secondary	205.75'	35.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

12978A GAHS Post

Type III 24-hr ANDRO 10YR Rainfall=4.60"

Prepared by Wright-Pierce

Printed 6/26/2014

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Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=205.53' TW=201.10' (Dynamic Tailwater)

- 1=Culvert (Passes 0.12 cfs of 0.34 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.12 cfs @ 0.54 fps)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=204.25' TW=200.75' (Dynamic Tailwater)

- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond DT A3: DT A3

Inflow Area = 0.193 ac, 87.39% Impervious, Inflow Depth = 3.39" for ANDRO 10YR event
 Inflow = 0.79 cfs @ 12.00 hrs, Volume= 0.055 af
 Outflow = 0.76 cfs @ 12.03 hrs, Volume= 0.039 af, Atten= 4%, Lag= 1.9 min
 Primary = 0.76 cfs @ 12.03 hrs, Volume= 0.039 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 205.60' @ 12.04 hrs Surf.Area= 1,024 sf Storage= 775 cf

Plug-Flow detention time= 152.7 min calculated for 0.039 af (72% of inflow)
 Center-of-Mass det. time= 62.2 min (853.9 - 791.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	204.00'	1,188 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	1,024	0.0	0	0
204.10	1,024	40.0	41	41
205.40	1,024	40.0	532	573
205.50	1,024	100.0	102	676
206.00	1,024	100.0	512	1,188

Device	Routing	Invert	Outlet Devices
#1	Primary	201.52'	12.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 201.52' / 201.52' S= 0.0000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	205.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	204.00'	2.000 In/hr Exfiltration over Surface area above 204.00' Excluded Surface area = 1,024 sf
#4	Secondary	205.65'	120.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.66 cfs @ 12.03 hrs HW=205.59' TW=203.64' (Dynamic Tailwater)

- 1=Culvert (Passes 0.66 cfs of 5.28 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.66 cfs @ 0.96 fps)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=204.00' TW=201.25' (Dynamic Tailwater)

- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond DT B1: DT B1

Inflow Area = 0.266 ac, 81.97% Impervious, Inflow Depth = 3.10" for ANDRO 10YR event
 Inflow = 1.01 cfs @ 12.00 hrs, Volume= 0.069 af
 Outflow = 0.30 cfs @ 12.34 hrs, Volume= 0.069 af, Atten= 70%, Lag= 20.3 min
 Primary = 0.30 cfs @ 12.34 hrs, Volume= 0.069 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 206.54' @ 12.34 hrs Surf.Area= 2,090 sf Storage= 919 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 61.6 min (863.7 - 802.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	205.50'	1,881 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
205.50	2,090	0.0	0	0
205.60	2,090	40.0	84	84
206.50	2,090	40.0	752	836
206.60	2,090	100.0	209	1,045
207.00	2,090	100.0	836	1,881

Device	Routing	Invert	Outlet Devices
#1	Primary	202.74'	6.0" Round Culvert L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 202.74' / 202.46' S= 0.0050 '/' Cc= 0.900
#2	Device 1	206.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	205.50'	2.000 in/hr Exfiltration over Surface area above 202.90' Excluded Surface area = 0 sf

Primary OutFlow Max=0.28 cfs @ 12.34 hrs HW=206.54' TW=202.51' (Dynamic Tailwater)

- 1=Culvert (Passes 0.28 cfs of 1.22 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.18 cfs @ 0.62 fps)
- 3=Exfiltration (Exfiltration Controls 0.10 cfs)

Summary for Pond DT B2: DT B2

Inflow Area = 0.101 ac, 81.82% Impervious, Inflow Depth = 3.10" for ANDRO 10YR event
 Inflow = 0.38 cfs @ 12.00 hrs, Volume= 0.026 af
 Outflow = 0.17 cfs @ 12.00 hrs, Volume= 0.026 af, Atten= 56%, Lag= 0.0 min
 Primary = 0.17 cfs @ 12.00 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 205.57' @ 12.19 hrs Surf.Area= 3,600 sf Storage= 102 cf
 Flood Elev= 206.50' Surf.Area= 3,600 sf Storage= 1,440 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 3.0 min (805.1 - 802.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	205.50'	3,240 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
205.50	3,600	0.0	0	0
205.60	3,600	40.0	144	144
206.50	3,600	40.0	1,296	1,440
206.60	3,600	100.0	360	1,800
207.00	3,600	100.0	1,440	3,240

Device	Routing	Invert	Outlet Devices
#1	Primary	203.33'	12.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 203.33' / 203.33' S= 0.0000 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	206.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	205.50'	2.000 in/hr Exfiltration over Surface area above 203.30' Excluded Surface area = 0 sf

Primary OutFlow Max=0.17 cfs @ 12.00 hrs HW=205.53' TW=203.49' (Dynamic Tailwater)

- 1=Culvert (Passes 0.17 cfs of 4.94 cfs potential flow)
- 2=Orifice/Grate (Controls 0.00 cfs)
- 3=Exfiltration (Exfiltration Controls 0.17 cfs)

Summary for Pond DT B3: DT B3

Inflow Area = 0.060 ac, 81.97% Impervious, Inflow Depth = 3.10" for ANDRO 10YR event
 Inflow = 0.23 cfs @ 12.00 hrs, Volume= 0.016 af
 Outflow = 0.09 cfs @ 12.31 hrs, Volume= 0.016 af, Atten= 60%, Lag= 18.2 min
 Primary = 0.09 cfs @ 12.31 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 206.52' @ 12.31 hrs Surf.Area= 473 sf Storage= 198 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

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Type III 24-hr ANDRO 10YR Rainfall=4.60"

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Center-of-Mass det. time= 60.6 min (862.6 - 802.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	205.50'	426 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
205.50	473	0.0	0	0
205.60	473	40.0	19	19
206.50	473	40.0	170	189
206.60	473	100.0	47	236
207.00	473	100.0	189	426

Device	Routing	Invert	Outlet Devices
#1	Primary	202.95'	12.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 202.95' / 202.95' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	206.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	205.50'	2.000 in/hr Exfiltration over Surface area above 203.30' Excluded Surface area = 0 sf

Primary OutFlow Max=0.09 cfs @ 12.31 hrs HW=206.52' TW=203.34' (Dynamic Tailwater)

- 1=Culvert (Passes 0.09 cfs of 6.62 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.07 cfs @ 0.45 fps)
- 3=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond DT B4: DT B4

Inflow Area = 0.150 ac, 81.97% Impervious, Inflow Depth = 3.10" for ANDRO 10YR event
 Inflow = 0.57 cfs @ 12.00 hrs, Volume= 0.039 af
 Outflow = 0.19 cfs @ 12.32 hrs, Volume= 0.039 af, Atten= 66%, Lag= 19.2 min
 Primary = 0.19 cfs @ 12.32 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 206.53' @ 12.33 hrs Surf.Area= 1,177 sf Storage= 507 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 61.2 min (863.3 - 802.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	205.50'	1,059 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
205.50	1,177	0.0	0	0
205.60	1,177	40.0	47	47
206.50	1,177	40.0	424	471
206.60	1,177	100.0	118	588
207.00	1,177	100.0	471	1,059

Device	Routing	Invert	Outlet Devices
#1	Primary	201.84'	15.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 201.84' / 201.84' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	206.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	205.50'	2.000 in/hr Exfiltration over Surface area above 203.30' Excluded Surface area = 0 sf

Primary OutFlow Max=0.18 cfs @ 12.32 hrs HW=206.53' TW=202.19' (Dynamic Tailwater)

- 1=Culvert (Passes 0.18 cfs of 11.91 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 0.13 cfs @ 0.55 fps)
- 3=Exfiltration (Exfiltration Controls 0.05 cfs)

Summary for Pond SF1: SF 1

Inflow Area = 1.348 ac, 74.11% Impervious, Inflow Depth = 3.70" for ANDRO 10YR event
 Inflow = 5.86 cfs @ 12.00 hrs, Volume= 0.416 af
 Outflow = 1.30 cfs @ 12.41 hrs, Volume= 0.416 af, Atten= 78%, Lag= 24.3 min
 Primary = 1.30 cfs @ 12.41 hrs, Volume= 0.416 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs / 3
 Peak Elev= 203.13' @ 12.41 hrs Surf.Area= 6,079 sf Storage= 7,764 cf
 Flood Elev= 203.00' Surf.Area= 5,888 sf Storage= 6,959 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 232.2 min (1,012.0 - 779.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	201.50'	10,083 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
201.50	2,748	262.0	0	0	2,748	
202.00	4,482	449.0	1,790	1,790	13,330	
203.00	5,888	480.0	5,169	6,959	15,668	
203.50	6,615	490.0	3,124	10,083	16,477	

Device	Routing	Invert	Outlet Devices
#1	Primary	198.70'	12.0" Round Culvert L= 1.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 198.70' / 198.70' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	203.00'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	201.50'	2.000 in/hr Exfiltration over Surface area above 198.70' Excluded Surface area = 0 sf
#4	Secondary	203.40'	20.0' long x 6.0' breadth Broad-Crested Rectangular Weir

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Type III 24-hr ANDRO 10YR Rainfall=4.60"

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Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80
	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	
Coef. (English)	2.37	2.51	2.70	2.68	2.68	2.67	2.65	2.65	2.65
	2.65	2.66	2.66	2.67	2.69	2.72	2.76	2.83	

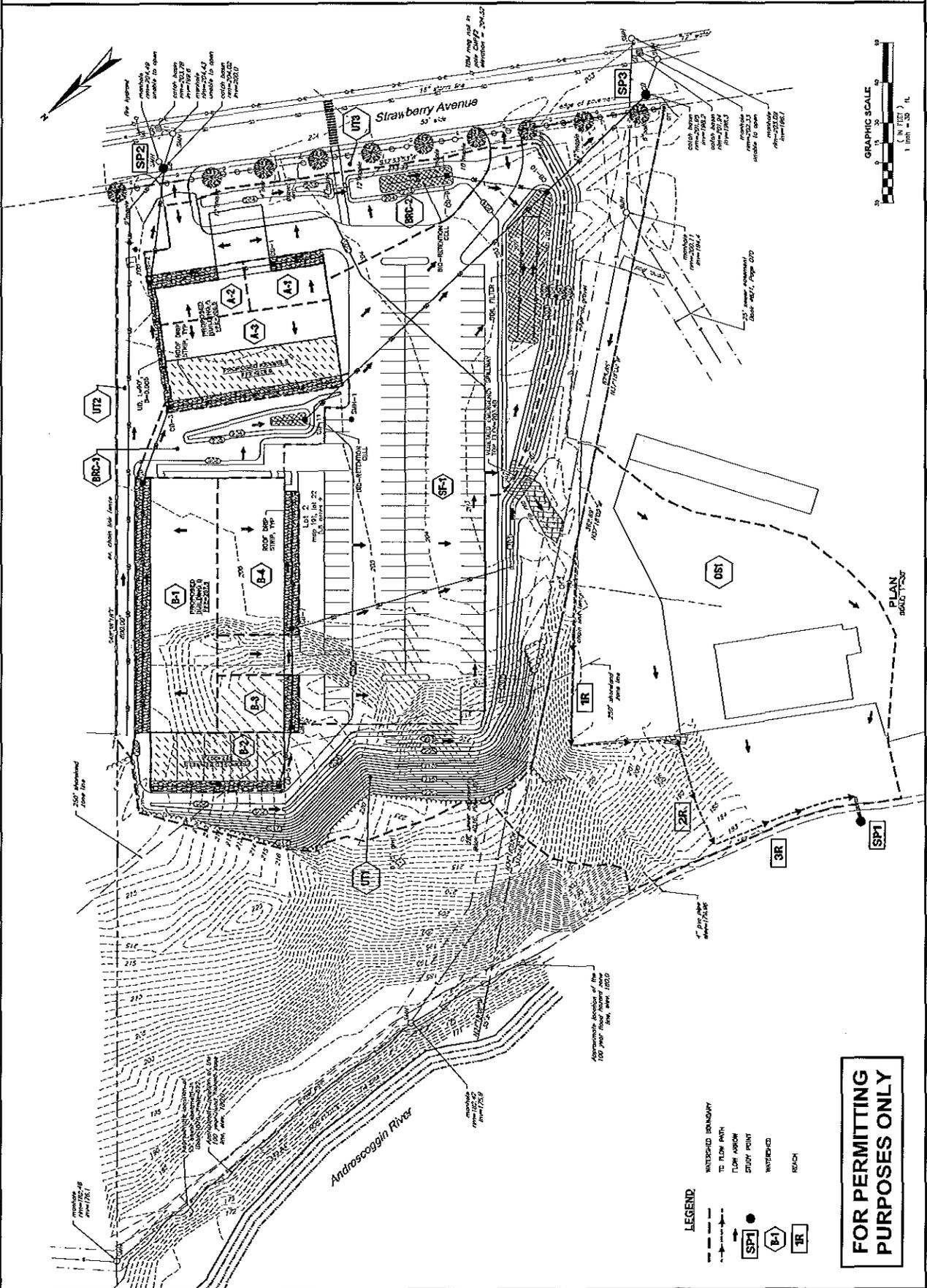
Primary OutFlow Max=1.29 cfs @ 12.41 hrs HW=203.13' TW=199.53' (Dynamic Tailwater)

- 1=Culvert (Passes 1.29 cfs of 7.18 cfs potential flow)
- 2=Orifice/Grate (Weir Controls 1.00 cfs @ 1.20 fps)
- 3=Exfiltration (Exfiltration Controls 0.28 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.50' TW=200.00' (Dynamic Tailwater)

- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

PLANS



- LEGEND**
- WATERSHED BOUNDARY
 - TO FLOW PATH
 - FLOW ARROW
 - STUDY POINT
 - WATERSHED
 - REACH
 - SP1
 - B-1
 - TR

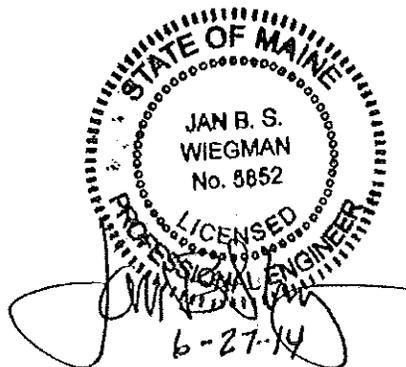
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Engineering a Better Environment

**GREATER ANDROSCOGGIN HUMANE SOCIETY
56 STRAWBERRY AVENUE
LEWISTON, MAINE**

**EROSION AND SEDIMENTATION
CONTROL PLAN**

JUNE 2014



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WRIGHT-PIERCE 
Engineering a Better Environment

EROSION AND SEDIMENTATION CONTROL PLAN

**Greater Androscoggin Humane Society
56 Strawberry Avenue
Lewiston, Maine**

INTRODUCTION

This Erosion and Sedimentation Control Plan (E&S Plan) has been developed to provide a strategy to prevent unreasonable erosion of soil and sediment transport beyond the project site or into a protected natural resource. These strategies apply to the proposed development immediately prior to soil disturbing activities on the site and shall remain in place until the site is permanently stabilized.

The information presented in this E&S Plan is provided as an overview of the anticipated measures to be used on this site. In some instances, additional measures may be required due to unexpected conditions that arise during construction. Also, specific detail on the application of a recommended practice for an unexpected instance may not be covered in this E&S Plan. For additional detail on any of the erosion and sedimentation control measures discussed in this E&S Plan or for further recommendations of applicable practices, refer to the "Maine Erosion and Sediment Control BMPs" manual published by the Maine Department of Environmental Protection (MDEP) dated March 2003, as revised.

1.0 PLAN IMPLEMENTATION PHASES

Generally, the implementation of this plan occurs in three distinct phases as described below.

1.1 Pre-construction Phase

Prior to the beginning of any construction, perimeter sediment barriers (i.e. silt fence, erosion control mix berm, etc...) shall be installed at, or just below, the limits of clearing or grubbing, and/or just above any adjacent property line or protected natural resource. Prior to any clearing or grubbing, a construction entrance shall be constructed at the intersection of the site access with the adjacent street to avoid tracking of mud, dust and debris from the site.

1.2 Construction Phase

Areas undergoing actual construction shall only expose that amount of mineral soil necessary for progressive and efficient site construction. Any area that has been disturbed and is not "permanently stabilized" (as described by this E&S Plan) shall be considered "open." Open areas shall be protected and stabilized with temporary erosion and sedimentation control measures as shown on the project plans and as described within this E&S Plan.

Preparation for winter stabilization applies to some disturbed areas that are open on or after September 15th of the construction season (refer to the Winter Construction Section of this E&S Plan, Paragraph B – Overwinter Stabilization Timeframe). Any areas that remain open after November 1 or new soil disturbance that occurs after November 1, but before April 15, must be protected by additional measures as described in the Winter Construction section of this E&S Plan. The recommendations outlined in the Winter Construction section of this E&S Plan shall supersede other conflicting recommendations.

1.3 Post-construction phase

Once the site has reached permanent stabilization, remove any temporary sediment control measures, such as silt fence, within 30 days. All accumulated sediment/debris in the permanent stormwater management system, ditches, swales, paved surfaces, and/or any other location that has accumulated sediment/debris during construction shall be removed and disposed of in an approved manner.

2.0 PERMANENT STABILIZATION

The strategies outlined in this E&S Plan shall be in effect until the site reaches permanent stabilization. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well established. If necessary, areas must be seeded and mulched again if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. The following list defines permanent stabilization for applicable situations.

- 2.1 **Seeded Areas:** For seeded areas, permanent stabilization means a 90% cover of vigorous perennial growth with no evidence of washing or rilling of the topsoil.
- 2.2 **Sodded Areas:** For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.
- 2.3 **Permanent Mulch:** For mulched areas, permanent mulching means total coverage of the exposed area with an approved mulch material. Erosion control mix may be used as mulch for permanent stabilization according to approved application rates and limitations.
- 2.4 **Riprap:** For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of well-graded gravel or approved geotextile to prevent soil movement from behind the riprap.
- 2.5 **Paved Areas:** For paved areas, permanent stabilization means the placement of compacted gravel subbase is completed.
- 2.6 **Ditches, channels, and swales:** For open channels, permanent stabilization means the channel is stabilized with a 90% cover of vigorous perennial growth, a well-graded riprap lining, or with another non-erosive lining such as specified. There must be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

3.0 TEMPORARY EROSION AND SEDIMENTATION CONTROL BMPS

The placement/use of the following erosion and sedimentation control measures shall be in accordance with the "Maine Erosion and Sediment Control BMPs" manual published by the Maine Department of Environmental Protection (MDEP) dated March 2003, as revised.

- 3.1 **Sediment Barriers:** Prior to the beginning of any construction, sediment barriers (i.e. silt fence, erosion control mix berms, etc...) shall be installed across the slope(s), on the contour, at or just below the limits of clearing or grubbing, and/or just above any adjacent property line or watercourse to protect against construction related erosion. Sediment barriers shall be maintained until all tributary open areas have been permanently stabilized. The following are recommended perimeter sediment barriers:

- **Silt fence:** Shall be installed per the detail on the plans. The effective height of the fence shall not exceed 36 inches. It is recommended that silt fence be removed by cutting the fence materials at ground level so as to avoid additional soil disturbance.
- **Staked hay bales:** Shall be installed per the detail on the plans. Bales shall be wire-bound or string-tied and these bindings must remain parallel with the ground surface during installation to prevent deterioration of the bindings. Bales shall be installed within a minimum four (4) inch deep trench line with ends of adjacent bales tightly abutting another.
- **Erosion control mix berm:** Shall be installed per the detail on the plans. The mix shall consist primarily of organic material and contain a well-graded mixture of particle sizes. The mix must meet the most recent composition specifications published by the MDEP. No trenching is required for installation of this barrier.

3.2 Surface Stabilization: All disturbed areas that will not be worked for more than 7 days shall be protected and stabilized with mulch or other non-erodable cover. Areas located within 75 feet of a wetland or waterbody must be protected and stabilized within 48 hours of the initial disturbance of the soil or prior to any storm event, whichever comes first. Areas that have been seeded (temporary or permanent) shall be stabilized immediately. The following are recommended practices for surface stabilization:

- **Hay or straw Mulch:** Organic mulches including hay and straw need to be air-dried, free of undesirable seeds and coarse materials. Application rate shall be 2 bales (70-90 lbs) per 1000 square feet or 1.5 to 2 tons (90-100 bales) per acre. This type of mulch must be anchored with a tackifier amendment and/or via physical means (i.e. vehicle tracking, jute netting, etc...) to avoid displacement by wind or water.
- **Erosion control mix:** Erosion Control Mix can be manufactured on or off the site. It is composed primarily of shredded bark, stump grindings, composted bark, or other acceptable products based on a similar raw source. The mix must meet the most recent composition specifications published by the MDEP. The mix shall be placed evenly and must provide 100% soil coverage. Erosion control mix shall be applied such that the thickness on slopes 3:1 or less is 2 inches plus ½ inch per 20 feet of slope up to 100 feet. The thickness on slopes between 3:1 and 2:1 is 4 inches plus ½ inch per 20 feet of slope up to 100 feet. This shall not be used on slopes greater than 2:1.
- **Erosion control blankets:** Erosion Control Blankets are used on steep slopes (greater than 3H:1V) and also areas that will receive concentrated stormwater flows. Blankets aid in controlling erosion on disturbed soils and critical areas during the establishment period of vegetation. Various forms of erosion control blankets are commercially available, each with different advantages for different applications. The type of blanket to be used for individual applications shall be as indicated on the development plan set or via the use of an approved equivalent blanket. In all applications, the blanket manufacturer's specifications and installation methods shall be referenced and adhered to.

3.3 Soil Stockpiles: All topsoil shall be stockpiled for future use on the project at a stable location on-site. Structural measures, such as sediment barriers, may be warranted for additional sediment control of the stockpile areas. Stockpiles of soil or subsoil shall be mulched with hay or straw or with erosion control mix. This must be done within 24 hours of stocking and re-established prior to any rainfall. Any soil stockpile will not be placed (even covered with hay or straw) within 75 feet from any protected natural resources.

3.4 Stabilized Construction Entrance/Exit: Prior to any clearing or grubbing, a stabilized construction entrance/exit shall be constructed wherever traffic will exit the construction site onto a paved roadway in order to minimize the tracking of sediment and debris from the construction site onto public roadways. The entrances and adjacent roadway areas shall be periodically swept or washed to further minimize the tracking of mud, dust or debris from the construction area.

When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. Stabilized construction exits shall be constructed in areas as specified and detailed on the plans.

- 3.5 Stone Check Dams:** Stone check dams are generally temporary devices, which are constructed across a swale or drainage ditch. Their purpose is to reduce the velocity of concentrated stormwater flows, thereby reducing erosion of the swale or ditch. These devices will also trap small amounts of sediment generated in the ditch itself, however, they are not an effective sediment trapping device and should not be used as such. Stone check dams are typically constructed of 2"-3" crushed stone and stand 24 inches in height.
- 3.6 Storm Drain Inlet Protection:** Storm drains are typically operational prior to permanent stabilization of tributary areas. In these instances hay bales, crushed stone barriers, and/or silt sacks shall be used within a catch basin or prior to a pipe entrance. This temporary protection will assist in the removal of sediment prior to entrance into a storm drainage system and the prevention of clogging and/or loss of capacity. These devices alone will not prevent all sediment from entering the stormwater system and should be used in conjunction with other devices to achieve desired sediment removal levels.
- 3.7 Dewatering:** Water from construction dewatering will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing and sediment discharges to a protected natural resource. Discharge is permitted within the filter basin locations prior to the installation of the filter media.
- 3.8 Dust Control:** Dust control during construction shall be achieved by the use of a watering truck to periodically sprinkle the exposed roadway areas as necessary to reduce dust during the dry months. Applying other dust control products such as calcium chloride or other manufactured products are allowed if authorized by the proper local, state and/or federal regulating agencies. However, it is the contractor's ultimate responsibility to mitigate dust and soil loss from the site.

4.0 VEGETATIVE MEASURES

- 4.1 Temporary Vegetation:** If any disturbed area of soil will be left bare for more than 7 days, or if construction is to be completed in phases over an extended duration, temporary seeding and mulching shall commence immediately following initial fine grading of the site. In sensitive areas (within 75 feet of protected natural resources) temporary mulch must be applied within 48 hours or prior to any storm event on all disturbed surfaces. It shall be maintained and reseeded, as necessary, to ensure good vegetative cover for the entire duration of construction. Seed will be selected from the following table (Table 1 - Temporary Seed Mixture) according to the time of year or via an approved equivalent method.

**TABLE 1
TEMPORARY SEED MIXTURE**

Seed	Lbs./Acre	Lbs./1000s.f.	Recommended Seeding Date
Winter Rye	112	2.6	8/15 thru 10/1
Oats	80	1.8	4/1 thru 7/1 8/15 thru 9/15
Annual Ryegrass	40	0.9	4/1 thru 7/1
Sudangrass	40	0.9	5/15 thru 8/15
Perennial	40	0.9	8/15 thru 9/15

Note:

Some tree and shrub species may be desirable for sites primarily covered with sand and gravel. These methods shall be approved by the appropriate regulatory authority prior to use.

4.2 Permanent Vegetation: Revegetation measures shall commence immediately upon completion of final grading of areas to be loamed and seeded. Revegetation measures shall consist of the following:

4.2.1 Seedbed Preparation

- Four (4) inches of loam will be spread over disturbed areas and smoothed to a uniform surface. Loam shall be free of subsoil, clay lumps, stones and other objects over 2" in any dimension, and without weeds, roots or other objectionable material.
- Soil tests shall be taken at the time of soil stripping to determine fertilization requirements. Soil tests shall be taken promptly as to not interfere with the 7-day limit on soil exposure (48-hours adjacent to a protected natural resource). Based upon test results, soil amendments shall be incorporated into the soil prior to final seeding. In lieu of soil tests, soil amendments may be applied as shown below in Table 2:

**TABLE 2
RECOMMENDED SOIL AMENDMENTS**

Item	Application Rate
10-20-20 Fertilizer (N-P205-K20 or equal)	18.4lbs./1,000 s.f.
Ground Limestone (50% calcium and magnesium oxide)	138-lbs./1,000 s.f.

- Work lime and fertilizer into the soil as nearly as practical to a depth of four (4) inches with proper equipment. Roll the area to firm the seedbed except on clay, silty soils or coarse sand.

4.2.2 Application of Seed

- **Seeding:** The seed mixture shown below in Table 3 shall be utilized for permanent seeding applications. Alternate seed mixtures may be utilized as approved. Refer to Appendix A of the MDEP Erosion and Sedimentation Control BMP manual for additional seed mixture options.

**TABLE 3
PERMANENT SEED MIXTURE**

Seed Type	Application Rate
Creeping Red Fescue	0.46 lbs/1,000 s.f. (20 lbs/acre)
Red Top	0.05 lbs/1,000 s.f. (2 lbs/acre)
Tall Fescue	0.46 lbs/1,000 s.f. (20 lbs/acre)
Total:	0.97 lbs/1,000 s.f. (42 lbs/acre)

- **Hydroseeding:** Shall be conducted on prepared areas as described above. Hydroseeding shall not be done on slopes steeper than 2H:1V. Lime and fertilizer may be applied simultaneously with the seed. Recommended seeding rates must be increased by 10% when hydroseeding.

- **Surface Stabilization:** Mulching or other approved surface stabilization methods shall commence immediately after seed is applied. Refer to the surface stabilization section of this plan for more information.

4.2.3. Sodding

Following seedbed preparation, sod can be applied in lieu of seeding in areas where immediate vegetation is most beneficial such as ditches, around stormwater drop inlets and areas of aesthetic value. Sod should be laid at right angles to the direction of flow starting at the lowest elevation. Sod should be rolled or tamped down to even out the joints once laid down. Where flow is prevalent the sod must be properly anchored down. Irrigate the sod immediately after installation. In most cases, sod can be best established between April 1 and November 15 of the construction year.

5.0 WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not permanently stabilized by November 15 then the site needs to be protected with over-winter stabilization.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be undertaken during the proceeding 15 days and that can be mulched in one day prior to any snow event. All areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched.

Any added measures, which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions, must be installed. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

5.1 Winter Construction BMP Adjustments

- 1) **Sediments Barriers:** During frozen conditions, sediment barriers shall consist of erosion control mix berms as frozen soil prevents the proper installation of hay bales and silt fences.
- 2) **Mulching:** Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, asphalt emulsion chemical, track or weed cellulose fiber. When the ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.
 - **Open Surfaces (flatter than 8%):** Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 square feet or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow will be removed down to one-inch depth or less prior to application. After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible through the mulch.

- **Open Slopes (8% or steeper) and Drainage Ways:** Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with netting or erosion control blankets. Mulching shall be applied at a rate of 230-lbs/1,000 square feet on all slopes steeper than 8%. Mulch netting shall be used to anchor mulch in all drainage ways with a slope steeper than 3% for slopes exposed to direct winds and for all other slopes steeper than 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways. Erosion control mix can be used to substitute erosion control blankets on slopes that do not exceed 2H:1V. In this case, the erosion control mix shall be spread out, not placed in a berm as it is installed as a sedimentation barrier.
- 3) **Soil Stockpiles:** Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150-lbs/1,000 square feet (3 tons per acre) or with a four-inch layer of wood waste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.
 - 4) **Natural Resources Protection:** Any areas within 100 feet from any protected natural resources, if not stabilized with a minimum of 90% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.
 - 5) **Seeding:** Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5-lbs/1000 square feet. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 90% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.2 Overwinter Stabilization Timeframe

- 1) **Ditches and Channels:** All stone-lined ditches and channels must be constructed and stabilized on the site by November 15. All grass-lined ditches and channels must be constructed and stabilized by September 15. If a ditch or channel is not grass-lined by September 15, then one of the following actions must be taken to stabilize the ditch for late fall and winter.

- **Install a sod lining in the ditch:** A ditch must be lined with properly installed sod by October 1. Proper installation includes the contractor 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 the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.
 - **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 ditch must be regraded prior to placing the stone lining to prevent the stone lining from reducing the ditch's cross-sectional area.
- 2) **Disturbed Slopes:** All stone-covered slopes must be constructed and stabilized by November 15. All slopes to be vegetated must be seeded by September 15. The MDEP will consider any area having a grade greater than 15% (10H:1V) 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 blankets:** By October 1 the disturbed slope must be seeded with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control blankets over the mulched slope. If the rye fails to grow at least three inches or cover at least 90% of the disturbed slope by November 1, the slope will be covered with a layer of erosion control mix or stone riprap as described in the following standards.
 - **Stabilize the slope with sod:** The disturbed slope must be stabilized with properly installed sod by October 1. Proper installation includes 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. Slopes steeper than 33% (3H:1V) or having groundwater seeps on the slope face, may not use late-season sod installation for stabilization.
 - **Stabilize the slope with erosion control mix:** A six-inch layer of erosion control mix must be spread over the slope by November 15. Prior to placing the erosion control mix, any snow accumulation on the disturbed slope must be removed. Slopes steeper than 50% (2H:1V) or having groundwater seeps on the slope face can not use erosion control mix to stabilize slopes.
 - **Stabilize the slope with stone riprap:** A layer of stone riprap can be placed on the slope by November 15. A registered professional engineer must be hired to determine the stone size needed for stability and to design a filter layer for underneath the riprap.
- 3) **Other Disturbed Soils:** By September 15, all disturbed soils on areas having a slope flatter than 15% (10H:1V) must receive seed and mulch. If 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.
- **Stabilize the soil with temporary vegetation:** By October 1, seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1,000 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 over the next 30 days. If the rye fails to grow at least three inches or cover at least 90% of the disturbed soil before November 1, then mulch the area for over-winter protection as described in the following "Stabilize the soil with mulch" standard.

- **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, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- **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. Prior to applying the mulch, any snow accumulation on the disturbed area must be removed. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

6.0 INSPECTION AND MAINTENANCE

Inspection and maintenance are required of all erosion and sedimentation control measures outlined in this plan. Refer to the Inspection, Maintenance, and Housekeeping plan for this project (provided under separate cover) for an outline of the associated inspection and maintenance requirements.

INSPECTION, MAINTENANCE AND
HOUSEKEEPING PLAN

INSPECTION, MAINTENANCE AND HOUSEKEEPING PLAN

Greater Androscoggin Humane Society
56 Strawberry Avenue Site
Lewiston, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation controls as well as stormwater management devices for the project site. Also, this plan outlines several housekeeping requirements that shall be followed during and after construction. These procedures should be followed in order to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment.

The procedures outlined in this inspection and maintenance plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sediment Control BMPs" manual and/or the "Maine Stormwater Best Practices Manual (BMPs)" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and 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 any applicable permits, shall conduct the inspections.
2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).
3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs 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 log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

- Sediment Barriers:
 - Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
 - If the fabric on silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
 - Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
 - Filter berms shall be reshaped as needed.
 - Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

- Erosion Control Blankets:
 - Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
 - Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

- Temporary Storm Drain Inlet Protection:
 - The inlet protection structure shall be inspected before each rain event and repaired as necessary.
 - Sediment shall be removed and the storm drain sediment barrier restored to its original dimensions when the sediment has accumulated to half of the design depth of the trap.
 - Barriers shall be removed upon permanent stabilization of the tributary area.
 - Upon removal of the barrier, all accumulated sediments downstream of the structure shall be cleaned from the storm drain system.

- Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).
- Temporary Seed and Mulch:
 - Mulched areas should be inspected after rain events to check for rill erosion.
 - If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
 - In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
 - Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.
- Stabilized Temporary Drainage Swales:
 - Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
 - The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
 - In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

After Construction

1. **Inspection:** After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.
2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction.
 - A. Vegetated Areas:
 - Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains 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. Catch Basins:

- Inspect and, if required, clean-out catch basins at least once a year, preferably in early spring.
- Clean out must include the removal and legal disposal of 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. Winter Sanding:

- 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 or other acceptable method.

D. Grassed Underdrained Soil Filters

- Check the impoundment embankments for sloughing or erosion. The vegetation should be well established and maintained. Remove any trees or shrubs growing in the impoundment or on the inside of the soil filter embankments.
- Check the outlet control structure for sediment accumulation or other blockages.
- Look for sediment deposits in the sediment forebays or along edges of the pond where stormwater may enter into the soil filter. If the sediments leave less than 1 foot to the top of the berm between the forebay and the impoundment, remove the sediments and reline the forebay with stones. If the sediments extend more than 1/8 of the width of the soil filter, remove the sediments and restore the vegetation.
- Monitor the time it takes for the stormwater to drain from the soil filter. For a 1 inch or larger rainfall event, the pond should be drained in 24 to 48 hours. If the timeframe to drain the pond approaches 48 hours, the filter media should be reworked or replaced.

E. Roof Drip Strips

- Check the drip strips for sloughing or erosion. The stone surface should be free from debris and sediments. Remove any debris accumulation on and vegetation growing in the drip strip.
- Check the outlet control structure for sediment accumulation or other blockages.
- Look for sediment deposits in the drip strips and remove stone and sediments and replace stone to the require depth.
- Monitor the time it takes for the stormwater takes to drain from the drip strip. For a 1 inch or larger rainfall event, the pond should be drained in 24 to 48 hours. If the timeframe to drain the pond approaches 48 hours, the filter media under the stone should be reworked or replaced.

3. **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system.

Housekeeping

The following general performance standards apply to the proposed project both during and after construction.

- A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials and equipment on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
- B. 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.
- C. Fugitive sediment and dust: Actions must be taken to insure 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.
- D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- E. Trench or foundation dewatering: Trench dewatering is the removal of water from

trenches, foundations, cofferdams, 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 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.

Stormwater Inspection and Maintenance Form

Great Androscoggin Humane Society
Lewiston, Maine

56 Strawberry Ave.

Inspector: _____

Date: _____

Maintenance Personnel: _____

SITE AREA	Inspection		Maintenance	
	Date	Comments	Date	Corrective Action
Roofline Drip Strips at Building Perimeter				
Under Drained Soil Filter between Buildings				
Underdrain Soil Filters Along Bardwell Street				
Underdrain Filter Systems- Along Strawberry Avenue				
Underdrained Filter System Along Parking Lot				
Catch Basins/Manholes				
Overflow Structures				
Vegetated areas adjacent to pavement runoff				
Lawn Vegetation				
Slope Vegetation				
Parking Lot Sweeping				

Sediment/Debris Disposal

Location of Sediment/Debris Accumulation	Location of Sediment/Debris Disposal	Date of Disposal

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