

**State of Michigan**  
**Department of Environmental Quality**

Land and Water Management Division  
301 E. Louis Glick Hwy.  
Jackson MI, 49201-1535  
517-780-7690

File No. 09-81-0011-P

Date: April 30, 2009

**PUBLIC NOTICE**

The Regents of the University of Michigan, Occupational Safety and Environmental Health, 1239 Kipke Drive, Ann Arbor, Michigan, 48109, has applied to this office for a permit under authority of Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The applicant proposes to take measures to reduce stream bank erosion on an unnamed intermittent stream within the Nichols Arboretum, located at 1827 Geddes Avenue. The project starts behind 28 Harvard Place. Modifications will be made to regulate the velocity in the storm water system discharged from the City to the arboretum. Several storm sewers and storm structures will be removed from the Harvard Place cul de sac and replaced with drop structures with energy dissipating devices before discharging to a new channel system within the arboretum. A portion of an existing stream will be redirected to meadows, with a series of constructed grade/weir control structures and step pools. A new drain system will be designed to handle low flow storms, with over flow infiltrating into surrounding meadow depressions. Grading for construction of the new channel will be adjacent to and within wetland. An existing wetland pocket will be graded to remove sediment accumulation, caused by overflows from the existing drain. Abandonment of 344 feet of existing channel will require approximately 195 feet of fill and approximately 17.5 cubic yards of excavation. Construction of the new channel system will require a total of approximately 303 cubic yards of excavation. A total of approximately 0.7 cubic yards of material will be excavated from approximately 72 square feet of wetland, and a total of approximately 4.2 cubic yards of fill material placed in approximately 450 square feet of wetland. The project is located in T2S, R6E, Section 28, City of Ann Arbor, Washtenaw County, Michigan, in accordance with plans attached to this notice.

**THIS NOTICE IS NOT A PERMIT**

The proposed project may also be regulated by one or more additional parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, that are administered by the Land and Water Management Division (LWMD). The requirements of applicable parts are considered in determining if it is in the public interest to issue a permit.

When a permit application is received requesting authorization to work in or over the inland waters of the State of Michigan, pursuant to PART 301, INLAND LAKES AND STREAMS, OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED, the Act provides that the department submit copies for review to the department of public health, the city, village or township, and the county where the project is to be located, the local soil conservation district, any local watershed council organized under Part 311, and the local port commission. Additional notification is provided to certain persons as required by statute or determined by the department.

Those persons wanting to make comments on the proposed project shall furnish this office with their written comments no later than 20 days from the date of this notice. Written comments will be made part of the record and should reference the above file number. Objections must be factual, specific, and fully describe the reasons upon which any objection is founded. Unless a written request is filed with the department within the 20-day public comment period, the department may make a decision on the application without a public hearing. The determination as to whether a permit will be issued or a public hearing held will be based on evaluation of all relevant factors defined in Sections 30106 and 30311, or permit criteria defined by other appropriate Parts of the NREPA. These Sections address the effect of the proposed work on the public trust or interest including navigation, fish, wildlife, and water quality among other criteria. Public comments received will also be considered.

cc: DNR, Natural Heritage  
DNR, Wildlife-Rose Lake  
Washtenaw Co. Clerk  
Washtenaw Co. Drain Comm.  
University of Michigan; OSEH, applicant  
DEQ, RRD site-81-41,43  
Orchard Hiltz & McCliment Inc

DNR, Fisheries-Southfield  
Washtenaw Co. Health Dept.  
City of Ann Arbor Clerk  
Washtenaw Soil Conservation Dist.  
History Division  
Huron River Watershed Council  
see file for adjacent property owners



<b>AGENCY USE</b>	Previous USACE Permit or File Number	Date Received	<b>RECEIVED</b>  APR 17 2009  MDEQ/LWMD PERMIT CONSOLIDATION UNIT	Land and Water Management Division, MDEQ File Number	<b>AGENCY USE</b>
	USACE File Number			Pre-application Number or Marina Operating Permit Number	
	District Office <i>Jackson: James Sallee</i>			Fee received \$ <i>\$500</i> <i>ck# 099078</i>	

Read Instructions pages i - iii. All of the following boxes below must be checked and information provided for the application to be processed:

- All items in Sections 1 through 9 are completed
- Items in Sections 10 through 21 that apply to the project are completed
- Dimensions, volumes and calculations are provided
- Reproducible location map, site plan(s), cross sections and photographs are provided, one set must be black and white on 8 1/2 by 11 inch paper.
- List any additional attachments, tables, etc.: *Location Map, Photographs, Project Summary and Construction Sequence, Property Owners, Cut & Fill Notes & Sketches, Wetland Grading Notes, Storm Sewer Easements, Construction Plans*
- Date project was staked *4/14/2009*
- Application fee is attached
- All requested supplementary attachments (➔) are included

**1 PROJECT LOCATION INFORMATION**

Refer to your property's legal description for the Township, Range, and Section information, and your property tax bill for your Property Tax Identification Number(s).

Site location Address (road, if no street address) <i>1827 Geddes Avenue</i>	Zip Code <i>48104</i>	Township Name(s) <i>Ann Arbor</i>	Township(s) <i>2S</i>	Range(s) <i>6E</i>	Section(s) <i>27, 28</i>
City/Village <i>Ann Arbor</i>	County(ies) <i>Washtenaw</i>	Property Tax Identification Number(s) <i>09-09-28-400-032, 09-09-27-201-001</i>			
Name of Waterbody <i>Unnamed</i>	Project Name or Job Number <i>09-81-0011-P</i>	Subdivision/Plat	Lot Number	Private Claim	
Project types (check all that apply)	<input type="checkbox"/> private <input type="checkbox"/> building addition <input type="checkbox"/> project is receiving federal transportation funds	<input checked="" type="checkbox"/> public/government <input type="checkbox"/> new building or structure	<input type="checkbox"/> industrial <input type="checkbox"/> building renovation or restoration <input type="checkbox"/> other (explain)	<input type="checkbox"/> commercial <input type="checkbox"/> river restoration	<input type="checkbox"/> multi-family <input type="checkbox"/> single-family
The proposed project is on, within, or involves (check all that apply)					
<input type="checkbox"/> a stream	<input type="checkbox"/> a pond (less than 5 acres)	<input type="checkbox"/> a Great Lake or Section 10 Waters	<input type="checkbox"/> a natural river	<input type="checkbox"/> a new marina	
<input type="checkbox"/> a river	<input type="checkbox"/> a channel/canal	<input type="checkbox"/> a designated high risk erosion area	<input type="checkbox"/> a dam	<input type="checkbox"/> a structure removal	
<input checked="" type="checkbox"/> a ditch or drain	<input type="checkbox"/> an inland lake (5 acres or more)	<input type="checkbox"/> a designated critical dune area	<input checked="" type="checkbox"/> a wetland	<input type="checkbox"/> a utility crossing	
<input type="checkbox"/> a floodway area	<input type="checkbox"/> a 100-year floodplain	<input type="checkbox"/> a designated environmental area	<input type="checkbox"/> 500 feet of an existing waterbody		

**2 DESCRIBE PROPOSED PROJECT AND ASSOCIATED ACTIVITIES, AND THE CONSTRUCTION SEQUENCE AND METHODS (attached additional sheets)**

Written Summary of All Proposed Activities. *SEE ATTACHMENT*

Construction Sequence and Methods. *SEE ATTACHMENT*

**3 APPLICANT, AGENT/CONTRACTOR, AND PROPERTY OWNER INFORMATION**

Owner/Applicant (individual or corporate name) <i>The Regents of the University of Michigan, Occupational Safety and Environmental Health, ATTN: Timothy R. Cullen</i>	Agent/Contractor (firm name and contact person) <i>Orchard, Hiltz &amp; McCliment, Inc. C/O Ronald A. Cavallaro Jr., P.E.</i>
Mailing Address <i>1239 Kipke Drive</i>	Address <i>34000 Plymouth Road</i>
City <i>Ann Arbor</i> State <i>MI</i> Zip Code <i>48109-1010</i>	City <i>Livonia</i> State <i>MI</i> Zip Code <i>48150</i>
Daytime Phone Number with Area Code Cell Phone Number <i>734-763-6973 - -</i>	Daytime Phone Number with Area Code Cell Phone Number <i>734-522-6711 - -</i>
Fax <i>734-763-1185</i> E-mail <i>trcullen@umich.edu</i>	Fax <i>734-522-6427</i> E-mail <i>ron.cavallaro@ohm-advisors.com</i>

No  Yes Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project?  
 ➔ If no, attach letter(s) of authorization from all owners. A letter signed by each property owner authorizing the agent/contractor/other owner to act on his or her behalf or a copy of easements or right-of-ways must be provided. If multiple property owners, also attach a list of all owners along with their names, mailing addresses, and telephone numbers. If the applicant is a corporation, a corporate officer must provide written document authorizing any agent/contractor listed above to act on its behalf. A letter of authorization must be provided from an owner receiving dredge spoils on their property, or where access through their property is required..

Property Owner's Name (If different from applicant)	Mailing Address
Daytime Phone Number with Area Code Cell Phone Number <i>- - - -</i>	City State Zip Code <i>- - -</i>

No  Yes Is there a MDEQ conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property in the project area?  
 ➔ If yes, attach a copy.

**4 PROPOSED PROJECT PURPOSE, INTENDED USE, AND ALTERNATIVES CONSIDERED** (Attach additional sheets if necessary)

**Purpose/Intended Use:** The purpose must include any new development or expansion of an existed land use. *The proposed plan is to create infiltration meadows within existing open space within the Nichols Arboretum Property. The infiltration meadow will include a meandering channel to convey flow from the existing storm sewer outlets. The ultimate discharge will be to the open space near the existing culvert at the end of the existing stream channel.*

**Alternatives:** Include a description of alternatives considered to avoid or minimize resource impacts. Include factors such as, but not limited to, alternative construction technologies; alternative project layout and design; and alternative locations. For utility crossings, include both alternative routes and alternative construction methods. *Energy dissipation devices within the existing storm sewer system were considered.*

**5 LOCATING YOUR PROJECT SITE**

➔ Attach a black and white, legible copy of a map that clearly shows the site location and road from the nearest major intersection, and includes a north arrow.

Is there an access road to the project?  No  Yes (If Yes, type of road, check all that apply)  private  public  improved  unimproved

Name of roads at closest main intersection *Washtenaw* and *Geddes*

Directions from main intersection *Head east for 1/2 mile down Geddes Road. At Harvard Place, turn left. Head down Harvard Place to the cul-de-sac. The project is located behind the house at 28 Harvard Place. The project begins at the existing storm water outfall behind the garage of 28 Harvard Place.*

Style of house or other building on site  ranch  2-story  cape cod  bi-level  cottage/cabin  pole barn  none  other (describe)

Color *White* Color of adjacent property house and/or buildings House number *28* Street name *Harvard Place*

Fire lane number Lot number *8* Address is visible on  house  garage  mailbox  sign  other (describe)

How can your site be identified if there is no visible address?

Provide directions to the project site, with distances from the best and nearest visible landmark and waterbody

Does the project cross the boundaries of two or more political jurisdictions? (City/Township, Township/Township, County/County, etc.)

No  Yes ➔ If Yes, list jurisdictions:

**6** List all other federal, interstate, state, or local agency authorizations required for the proposed activity, including all approvals or denials received.

Agency	Type approval	Identification number	Date applied	Date approved / denied	If denied, reason for denial
<i>University of Michigan</i>	<i>SESC</i>	<i>-</i>			<i>NOT APPLIED FOR AT THIS TIME</i>

**7 COMPLIANCE**

If a permit is issued, date activity will commence (M/D/Y) *08/01/2009*

Proposed completion date (M/D/Y) *04/15/2014*

Has any construction activity commenced or been completed in a regulated area?  No  Yes

Were the regulated activities conducted under a MDEQ permit?  No  Yes

➔ If Yes, identify the portion(s) underway or completed on drawings or

attach project specifications and give completion date(s) (M/D/Y) */ /*

If Yes, list the MDEQ permit number

Are you aware of any unresolved violations of environmental law or litigation involving the property?  No  Yes (If Yes, explain)

**8 ADJACENT/RIPARIAN AND IMPACTED OWNERS** (Attach additional sheets if necessary)

- Complete information for all adjacent and impacted property owners and the lake association or established lake board, including the contact person's name.
- If you own the adjacent lot, provide the requested information for the first adjacent parcel that is not owned by you.

Property Owner's Name Mailing Address City State Zip Code

*SEE ATTACHMENT*

Name of  Established Lake Board  or Lake Association and the Contact Person's name, phone number, and mailing address

**9 APPLICANT'S CERTIFICATION READ CAREFULLY BEFORE SIGNING**

I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate; and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the MDEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site and the completed project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.

Property Owner  
 Agent/Contractor  
 Corporation/Public Agency -  
 Title *Manager*

Printed Name  
*Timothy R. Cullen*

Signature  


Date (M/D/Y)  
*4/16/09*



10 PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

- Check boxes A through M that may be applicable to your project and provide all the requested information.
If your project may affect wetlands, also complete Section 12. If your project may impact regulated floodplains, also complete Section 13.
To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27.
Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.
Provide a cross-section and overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides for completing site-specific drawings.
Provide tables for multiple impact areas or multiple activities and provide fill and excavation/dredge calculations.

Water Level Elevation

On a Great Lake use IGLD 85 surveyed converted from observed still water elevation. On inland waters, NGVD 29 NAVD 88 other
Observed water elevation (ft) 829.9 date of observation (M/D/Y) 02/11/2009

A. PROJECTS REQUIRING FILL (See All Sample Drawings)

- Attach both overall site plan and cross-section views to scale showing maximum and average fill dimensions.

(Check all that apply) floodplain fill wetland fill riprap seawall, bulkhead, or revetment bridge or culvert
boat launch off-shore swim area beach sanding boatwell crib dock other Wetland Grading &

Stream Fill

Fill dimensions (ft) length SEE ATTACHMENT FOR CUT/FILL width Total fill volume (cu yd) Maximum water depth in fill area (ft)

Type of clean fill pea stone sand gravel wood chips Will filter fabric be used under proposed fill?
other On-Site Material No Yes (If Yes, type)

Source of clean fill on-site, If on-site, show location on site plan. commercial other, If other, attach description of location.

Fill will extend N/A feet into the water from the shoreline and upland N/A feet out of the water. Fill volume below OHWM (cu yd)

B. PROJECTS REQUIRING DREDGING OR EXCAVATION (For dredging projects see Sample Drawing 7, for excavation see other applicable Sample Drawings)

- Attach both overall site plan and cross-section views to scale showing maximum and average dredge or excavation dimensions and dredge disposal location.
Refer to www.michigan.gov/jointpermit for disposal requirements and authorization.

(Check all that apply) floodplain excavation wetland dredge or draining seawall, bulkhead, or revetment
navigation boat well boat launch other Wetland Grading & Stream Fill

Total dredge/excavation volume (cu yd) SEE ATTACHMENT FOR CUT/FILL
Dimensions length width depth Dredge/excavation volume below OHWM (cu yd) Method and equipment for dredging

Has proposed dredge material been tested for contaminants? No Yes
Dredged or excavated spoils will be placed on-site off-site.
If Yes, provide test results with a map of sampling locations. Provide detailed disposal area site plan and location map.
Provide letter of authorization from owner, if disposing of spoils off site.

Has this same area been previously dredged? No Yes If Yes, date and permit number: / / /
If Yes, are you proposing to enlarge the previously dredged area? No Yes

Is long-term maintenance dredging planned? No Yes If Yes, when and how much? Annual inspections will occur at the step pool and scour hole structures. Maintenance activity (removing sediments) will occur once every 2 years or as needed.

C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 17, 22, and 23. Others may apply)

Riprap waterward of the shoreline OR ordinary high water mark Dimensions (ft) length 14' & 6' width 11' & 5' depth 1' Volume(cu yd) 6.8

Riprap landward of the shoreline OR ordinary high water mark Dimensions (ft) length width depth Volume(cu yd)

Type of riprap field stone angular rock other Will filter fabric be used under proposed riprap? No Yes (If Yes, type) non-woven geotextile

D. SHORE PROTECTION PROJECTS (See Sample Drawings 2, 3, and 17) Complete Sections 10A, B, and/or C above, as applicable.

(check all that apply) riprap - length (ft) seawall/bulkhead - length (ft) revetment - length (ft) Distances of project from both property lines (ft)

E. DOCK - PIER - MOORING PILINGS - ROOFS (See Sample Drawing 10)

Dock Type open pile filled crib Permanent Roof? No Yes (Mounted on)
Seasonal support structure? No Yes Maximum Dimensions: length width height
Proposed structure dimensions (ft) length width Dimensions of nearest adjacent structures (ft) length width

F. BOAT WELL (See EZ Guides)

Type of sidewall stabilization wood steel concrete vinyl riprap other
Boat well dimensions (ft) length width depth Number of boats
Volume of backfill behind sidewall stabilization (cu yd) Distances of boat well from adjacent property lines (ft)

G. BOAT LAUNCH (See EZ Guide) (check all that apply) new existing public private commercial replacement

Proposed overall boat launch dimensions (ft) length width Type of material concrete wood stone other
depth



10 Continued - PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

I. BOARDWALKS AND DECKS IN WETLANDS - OR - FLOODPLAINS (See Sample Drawings 5 and 6. Provide table if necessary)

Table with columns for Boardwalk and Deck, including dimensions (length, width) and location (on pilings, on fill).

J. INTAKE PIPES (See Sample Drawing 16) OUTLET PIPES (See Sample Drawing 22)

Form for Intake and Outlet Pipes, including Type (headwall, end section, pipe), Dimensions of headwall, Number of pipes, and Pipe diameters and invert elevations.

K. MOORING AND NAVIGATION BUOYS (See EZ Guide for Sample Drawing)

- Provide an overall site plan showing the distances between each buoy, distances from the shore to each buoy, and depth of water at each buoy in feet.
Provide cross-section drawing(s) showing anchoring system(s) and dimensions.

Form for Mooring and Navigation Buoys, including Number of buoys, Boat Lengths, Type of anchor system, Purpose of buoy, and Dimensions of buoys.

L. FENCES IN WETLANDS, STREAMS, OR FLOODPLAINS (No Sample Drawing available)

- Provide an overall site plan showing the proposed fencing through wetlands, streams, or floodplains.
Provide drawing of fence profile showing the design, dimension, post spacing, board spacing, and distance from ground to bottom of fence.

Form for Fences, including Total length (ft) of fence through wetlands, streams, floodplains, Fence height (ft), and Fence type and material.

M. OTHER - e.g., structure removal or construction, breakwater, aerator, fish shelter, and structural foundations in wetlands or floodplains

11 EXPANSION OF AN EXISTING OR CONSTRUCTION OF A NEW LAKE OR POND (See Sample Drawings 4 and 15)

Which best describes your proposed waterbody use (check all that apply)

- wildlife, stormwater retention basin, recreation, wastewater basin, other

Water source for lake/pond

- groundwater, natural springs, Inland Lake or Stream, stormwater runoff, pump, sewage, other

Location of the lake/basin/pond

- floodplain, wetland, upland

Maximum dimensions (ft)

- length, width, depth

Spoils will be placed onsite, offsite outside of wetland and floodplain, other

Provide a Detailed Disposal Area Site Plan with location map, address and disposal dimensions

Provide a Letter of Authorization from off site disposal site owner

Provide elevations and cross sections for outlets and/or emergency. Complete Section 10J,

Maximum Area:

- acres, sq ft

Will project involve construction of a dam, dike, outlet control structure, or spillway? No Yes (If Yes, complete Section 17)

12 ACTIVITIES THAT MAY IMPACT WETLANDS (See Sample Drawings 8 & 9, and complete sections 10 A and 10 B for dredge or excavation as applicable)

- For information on the MDEQ's Wetland Identification Program (WIP) visit www.michigan.gov/deqwetlands or call 517-373-1170.
Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area. Attach tables for multiple impact areas or activities
Label the impacted wetland areas on a site plan, drawn to scale or with dimensions. Attach at least one cross-section for each wetland dredge and/or fill area.
If dredge/excavation material will be disposed of on site, show the location on site plan and include soil erosion and sedimentation control measures.

(check all that apply) fill (Section 10A), dredge or excavation (Section 10B), boardwalk or deck (Section 10I), dewatering, fences (Section 10L), bridges and culverts (Section 14), draining surface water, stormwater discharge, restoration, other minor grading / restoration

with native plants

Table for wetland dredge/excavation dimensions: maximum length (ft), maximum width (ft), dredge/excavation area, average depth (ft), dredge volume (cu yd)

Table for wetland fill dimensions: maximum length (ft), maximum width (ft), fill area, average depth (ft), fill volume (cu yd)

Summary table for Total wetland dredge/excavation area and Total wetland fill area

The proposed project will be serviced by: public sewer, private septic system

If septic system, has an application for a permit been made to the County Health Department? No Yes

If Yes, has a permit been issued? No Yes Provide a copy.

Has a professional wetland delineation been conducted for this parcel? No Yes Provide a copy of the delineation. Supply data sheets.

Applicant purchased property before OR after October 1, 1980.

Is there a recorded MDEQ easement on the property? No Yes If Yes, provide the easement number)

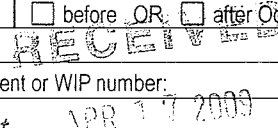
Has the MDEQ conducted a wetland assessment for this parcel? No Yes If Yes, provide a copy of assessment or WIP number:

Describe the wetland impacts, the proposed use or development, and any alternatives considered: See Attachment

Does the project impact more than 1/3 acre of wetland? No Yes

If Yes, submit a Mitigation Plan that includes the type and amount of mitigation proposed. For more information go to www.michigan.gov/deqwetlands

Describe how impacts to waters of the United States will be avoided and minimized: The channel will be rehabilitated through the removal of erosion prone areas. The new channel will provide greater length and will be restored with grade stabilization measures and





*native plantings.*

Describe how impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.

***The entire project is designed to correct erosion issues. The project will enhance water quality and habitat.***

Is any grading or mechanized land clearing proposed?  No  Yes

➔ Show locations on submitted site plan.

Has any of the proposed grading or mechanized land clearing been completed?  No  Yes ➔ Show labeled locations on site plan.

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APR 17 2008  
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY



**13 FLOODPLAIN ACTIVITIES** (See Sample Drawing 5. Others may apply.) For more information go to [www.michigan.gov/deq/floodplainmanagement](http://www.michigan.gov/deq/floodplainmanagement)

- Complete Sections 10 A and 10 B and other Sections, as applicable.
- A hydraulic analysis or hydrologic analysis may be required to fully assess floodplain impacts. ➔ Attach hydraulic calculations.
- ➔ Attach additional sheets or tables with the requested information when multiple floodplain activities are included in this application.

(check all that apply)  fill  excavation  other

Site is \_\_\_\_\_ feet above  ordinary high water mark (OHWM) OR  observed water level. Date of observation (M/D/Y) / /

Fill volume below the 100-year floodplain elevation (cu yd) \_\_\_\_\_ Compensating cut volume below the 100-year floodplain elevation (cu yd) \_\_\_\_\_

**14 BRIDGES AND CULVERTS** (Including Foot and Cart Bridges) (See Sample Drawings 5, 14A, 14B, 14C, 14D, and EZ Guides)

- Provide detailed site-specific drawings of existing and proposed Plan and Elevation View, (Sample Drawing 14A), Elevation View (Sample Drawing 14B), Stream and Floodplain Cross-Section (Sample Drawing 14C), Stream Profile (Sample Drawing 14D) and Floodplain Fill (Sample Drawing 5) at a scale adequate for detailed review.
- Provide the requested information that applies to your project. If there is not an existing structure, leave the "Existing" column blank.
- If you choose to have a Licensed Professional Engineer "certify" that your project will not cause a "harmful interference" for a range of flood discharges up to and including the 100-year flood discharge, then you must use the "Required Certification Language." You may request a copy by phone, email, or mail. A hydraulic report supporting this certification may also be required. Is Certification Language attached?  No  Yes
- ➔ Attach additional sheets and table with the requested information for multiple crossings. Include hydraulic calculations.

		Existing	Proposed			Existing	Proposed
Culvert type (box, circular, arch) and material (corrugated metal, timber, concrete, etc.)				Bridge span (length perpendicular to stream) OR culvert <input type="checkbox"/> width <input type="checkbox"/> diameter (ft)			
Bridge type (concrete box beam, timber, concrete I-beam, etc.)				Bridge width (parallel to stream) OR culvert length (ft)			
Entrance design (projecting, mitered, wingwalls, etc.)				Bridge rise (from bottom of beam to streambed) OR Culvert rise (fill from top of culvert to streambed) (ft)			
Total structure waterway opening above streambed (sq ft)				Approach slope fill from existing grade to culvert or bridge			
<input type="checkbox"/> elevation of culvert crown	Upstream			Higher elevation of <input type="checkbox"/> culvert invert OR <input type="checkbox"/> streambed within culvert (ft)	Upstream		
<input type="checkbox"/> bottom of bridge beam (ft)	Downstream				Downstream		
Elevation of road grade at structure (ft)				Distance from low point of road to mid-point of bridge crossing (ft)			
Elevation of low point in road (ft)							
Cross-sectional area of primary channel (sq ft) (See Sample Drawing 14C)		Average stream width at OHWM outside the influence of the structure (ft)		Upstream		Downstream	
Reference datum used (show on plans with description) <input type="checkbox"/> NGVD 29 <input type="checkbox"/> NAVD 88 <input type="checkbox"/> IGLD 85 (Great Lakes coastal areas) <input type="checkbox"/> other							
High water elevation – describe reference point and highest known water level above or below reference point and date of observation.							

**15 STREAM, RIVER, OR DRAIN CONSTRUCTION ACTIVITIES** (No sample drawing available)

- Complete Section 10A for fill, Section 10B for dredge or excavation, and Section 10C for riprap activities.
- If side casting or other proposed activities will impact wetlands or floodplains, complete Sections 12 and 13, respectively.
- ➔ Provide an overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures and land change activities.
- ➔ Provide cross-section (elevation) drawings necessary to clearly show existing and proposed conditions. Be sure to indicate drawing scales.
- ➔ For activities on legally established county drains, provide original design and proposed dimensions and elevations.

(check all that apply)  maintenance  improvement  relocation  enclosure  new drain  wetlands  other

Dimensions (ft) of existing stream/drain channel to be worked on. length 344' width 12' depth 2'

Dimensions (ft) of new, relocated, or enclosed stream/drain channel. length 500' width 4' depth 0.5'

Volume of dredge/excavation (cu yds) 302.8 - SEE CAD Calculation

Existing channel average water depth in a normal year (ft) 1.5' Proposed side slopes (vertical / horizontal) 1:3

How will slopes and bottom be stabilized? *Slopes within the meandering channel will be stabilized through use of "JF New Swale Seed Mix" and mulch blanket. In areas where the stream will pass over step pools, limestone and natural rounded stone will be used to stabilize the channel.*

Will old/enclosed stream channel be backfilled to top of bank grade?  No  Yes Length of channel to be abandoned (ft) 344' Volume of fill (cu yds) 178 (based on CAD calculations)

If an enclosed structure is proposed, check type  concrete  corrugated metal  plastic  other  
 Dimensions of the structure: diameter \_\_\_\_\_ length \_\_\_\_\_ volume of fill \_\_\_\_\_



Will spoils be disposed of on site?  No  Yes → Show location of spoils on site plan if spoils disposed of on an upland area.)

Water elevation 829.9 Reference datum used  NGVD 29  NAVD 88  IGLD 85 (Great Lakes coastal areas)  other  
→ Show elevation on plans with description.

16 DRAWDOWN OF AN IMPOUNDMENT

• If wetlands will be impacted, also complete Section 12.

Type of drawdown  over winter  temporary  one-time event  annual event  permanent (dam removal)  other

Reason for drawdown

Has there been a previous drawdown?  No  Yes (If Yes, provide date (M/D/Y) / /

Previous MDEQ permit number, if known

Does waterbody have established legal lake level?  No  Yes  Not Sure

Dam ID Number, if known

Extent of vertical drawdown (ft)

Impoundment design head (ft)

Number of adjacent or impacted property owners

Date drawdown would start (M/D/Y) / /

Date drawdown would stop (M/D/Y) / /

Rate of drawdown (ft/day)

Date refilling would start (M/D/Y) / /

Date refill would end (M/D/Y) / /

Rate of refill (ft/day)

Type of outlet discharge structure to be used  surface  bottom  mid-depth

Impoundment area at normal water level (acres)

Sediment depth behind impoundment discharge structure (ft)

17 DAM, EMBANKMENT, DIKE, SPILLWAY, OR CONTROL STRUCTURE ACTIVITIES (See Sample Drawing 15)

• For more information go to [www.michigan.gov/deq/damsafety](http://www.michigan.gov/deq/damsafety)

• If wetlands will be impacted, also complete Section 12.

→ Attach site-specific conceptual plans for construction of a new dam, reconstruction of a failed dam, or enlargement of an existing dam for resource impact review.

• Detailed engineering plans are required once the activity has been determined to be permissible from an environmental standpoint.

→ Attach detailed engineering plans for a dam repair, dam alteration, dam abandonment, or dam removal.

Which one best describes your project?  new dam construction  reconstruction of a failed dam  enlargement of an existing dam  dam repair  dam alteration  dam abandonment  dam removal  other

Dam ID Number If known

Type of outlet discharge structure  surface  bottom  mid depth

Will proposed activities require a drawdown of the waterbody to complete the work?  No  Yes (If Yes, also complete Section 16)

Riprap Volume (cu yd)

Dredging/excavation Volume (cu yd)

Fill volume (cu yd)

Does structure allow complete drainage of waterbody?  No  Yes

Benchmark elevation (ft)

Datum used  Local  NGVD 29  other

Describe benchmark and show on plans

Have you engaged the services of a Licensed Professional Engineer?  No  Yes If Yes, provide name, registration number, and mailing address.  
Name Registration Number Mailing Address

Will a water diversion during construction be required?  No  Yes If Yes, describe how the stream flow will be controlled through the dam construction area during the proposed project activities:

COMPLETE THE FOLLOWING FOR A NEW DAM, RECONSTRUCTION OF A FAILED DAM, OR ENLARGEMENT OF AN EXISTING DAM

Describe the type of dam and how you will design the dam and embankment to control seepage through and underneath the dam.

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Embankment top elevation (ft)

Streambed elevation at downstream embankment toe (ft)

Structural height (difference between embankment top elevation and streambed elevation at downstream embankment toe) (ft)

Embankment length (ft)

Embankment top width (ft)

Embankment bottom width (ft)

Embankment slopes (vertical / horizontal) Downstream

Proposed normal pool elevation (ft)

Impoundment flood elevation (ft)

Maximum vertical drawdown capability (ft) (Attach operational procedure of the proposed structure, if available)

Have soil borings been taken at dam location?  No  Yes → If Yes, attach results.

Will a cold water underfill be provided?  No  Yes If Yes, invert elevation (ft)

Do you have flowage rights to all proposed flooded property at the design flood elevation?  No  Yes

18 UTILITY CROSSINGS (See Sample Drawings 12 and 13, and EZ Guide)

• If side casting is required, complete Sections 10A and 10B. If spoils will be placed in wetlands or wetlands may be impacted, complete Section 12.

→ Attach additional sheets or tables with the requested information as needed for multiple crossings.

What method will be used to construct the crossings?

flume  plow  open trench  jack and bore  directional drilling

Crossing of  Inland Lake or Stream  floodplain  international waters  wetlands (also complete Section 12)

Type

Number of wetland crossings

Number of inland lake or stream crossings

Pipe diameter (in)

Pipe length per crossing (ft)

Distance below streambed or wetland (in)

Trench width (ft)

sanitary sewer

storm sewer



**UNIVERSITY OF MICHIGAN – CITY OF ANN ARBOR**  
**Harvard Drain in Nichols Arboretum**  
 Adjacent Properties

**SECTION 8: ADJACENT PROPERTIES**

PARCEL	NAME	ADDRESS	CITY	STATE	ZIP
09-09-28-400-008	RICHARD SHERER	28 HARVARD PLACE	ANN ARBOR	MI	48105
09-09-27-301-033	K&J OF AMAGANSETT LLC	885 3 <sup>RD</sup> AVENUE, SUITE 3180	NEW YORK	NY	10022
09-09-27-301-032	WAYNE & JEAN HAZEN TRUST	2117 HIGHLAND ROAD	ANN ARBOR	MI	48104
09-09-27-301-031	BERNARD LEVINE	2121 HIGHLAND ROAD	ANN ARBOR	MI	48104
09-09-27-301-030	MARTIN & VEBEKE EINHORN	2127 HIGHLAND ROAD	ANN ARBOR	MI	48104
09-09-27-301-026	CAMPUS MGMT INC	337 E. HURON STREET	ANN ARBOR	MI	48104
09-09-27-301-025	DWAIN LIGHTHAMMER	2 REGENT COURT	ANN ARBOR	MI	48104
09-09-28-400-022	HAROLD BORKIN	18 RIDGEWAY STREET	ANN ARBOR	MI	48105
09-09-28-400-023	CARL COHEN TRUST	16 RIDGEWAY STREET	ANN ARBOR	MI	48105

6001  
 DELETED  
 6001

Harvard Drain in Nichols Arboretum  
**UNIVERSITY OF MICHIGAN**  
 Section 10 A, Section 10 B  
 14-Apr-09

SECTION 10-A PROJECTS REQUIRING FILL  
 SECTION 10-B PROJECTS REQUIRING EXCAVATION

**ITEM OF WORK: MINOR WETLAND AREA GRADING**

Fill Dimensions	Length	18.0 Ft
	Width	25.0 Ft
	Depth (AVG.)	0.3 Ft
	<b>VOLUME</b>	<b>4.2 CYD</b>
Cut Dimensions	Length	6.0 Ft
	Width	12.0 Ft
	Depth (AVG.)	0.3 Ft
	<b>VOLUME</b>	<b>0.7 CYD</b>

**NET WETLAND AREA FILL 3.5 CYD**

**ITEM OF WORK: EXISTING CHANNEL FILL**

Fill Dimensions	Length	344 Ft
	Width	N/A
	Depth (AVG.)	

Note: Volume Calculated Using AutoCAD Analysis

**VOLUME 195 CYD**

Cut Dimensions	Length	344 Ft
	Width	
	Depth (AVG.)	

Note: Volume Calculated Using AutoCAD Analysis

**VOLUME 17.5 CYD**

**NET STREAM RELOCATION FILL 177.5 CYD**

**ITEM OF WORK: EARTHWORK FOR PROPOSED CHANNEL**

*Channel from 27" Sewer Outfall*

Excavation Dimensions	Length	500.0 Ft
	Width	4.5
	Depth (AVG.)	0.5
	<b>VOLUME</b>	<b>125.0 CYD</b>

*Channel from 12" Sewer Outfall*

Excavation Dimensions	Length	200.0 Ft
	Width	4.0
	Depth (AVG.)	2.0
	<b>VOLUME</b>	<b>177.8 CYD</b>

**TOTAL NEW CHANNEL DREDGE 302.8 CYD**

Note: Volume Calculation demonstrates channel volume. The majority of this cut is to occur in upland areas

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UNIVERSITY OF MICHIGAN – CITY OF ANN ARBOR

Harvard Drain in Nichols Arboretum

Additional Permit Application Materials

**SECTION 12: WETLAND IMPACTS**

**Impacts:**

The impacts to the wetland will occur as a result of construction of a re-graded channel east of the wetlands. The wetland that currently exists is a result of excessive sedimentation in the existing channel upstream of the wetland. As a result of this sedimentation, high storm water flows overspill the existing channel banks upstream of the culvert. This overtopping meanders to the wetland area.

The improvements proposed under this application include the creation of a channel system for the new 27" outlet as well as the 12" outlet to be reconstructed. These channels will add length to the stream and will also carry storm water adjacent to the existing wetland as the current channel had originally done.

As part of the proposed channel construction, it is anticipated that minor grading will occur near and within the wetland area to ensure that a proper channel can be constructed to carry flows to the culvert at the end of the project. After completing construction activities, the impacted areas will be seeded with native species as noted on the plans.

To ensure that the wetland will continue to be supplied with water during rain events, the culvert at the end of the project has been under-sized to constrict flow that will result in headwater build up. This headwater will spill to the wetland area.

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Harvard Drain in Nichols Arboretum

Additional Permit Application Materials

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**SECTION 2: PROJECT AND SEQUENCE**

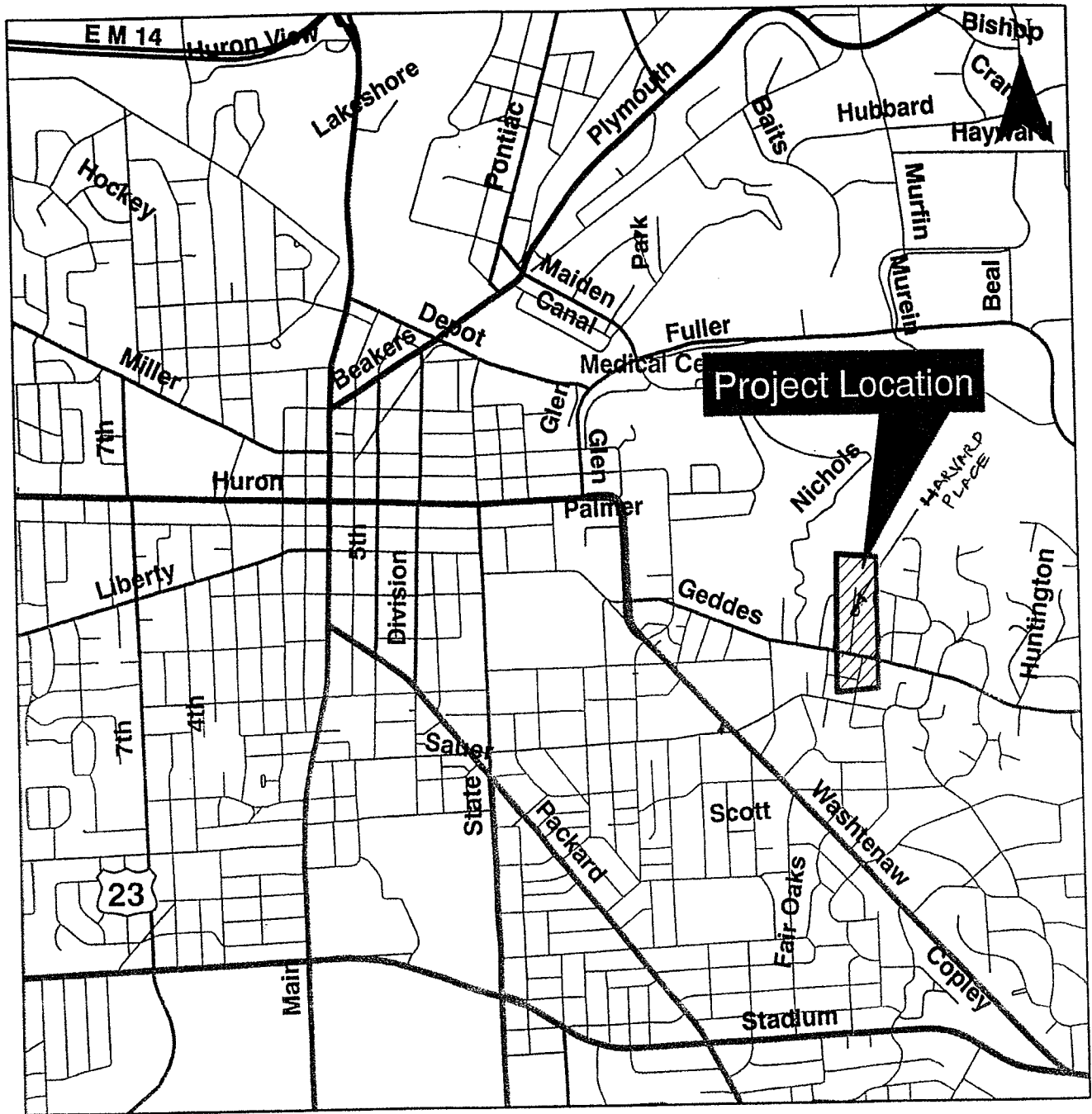
**Proposed Activities:** To remedy existing bank erosion issues, it is proposed that a combination of energy dissipating devices are employed to regulate the velocities within the storm water system. These include creating step pool structures within the Arboretum property. To construct these, an existing ditch will need to be diverted and partially filled within the Arboretum property. It is also proposed to infiltrate runoff into the soil through construction of several open meadow infiltration meadows. The meadows are located within an open area. These meadows will be used to reduce overland flow downstream within the Arboretum Property.

The project will also include minor grading work within the existing pocket wetland at the northeast corner of the project (station 3+00). The intention of the grading work is to remove the accumulated sedimentation from the upstream erosion and restore the area.

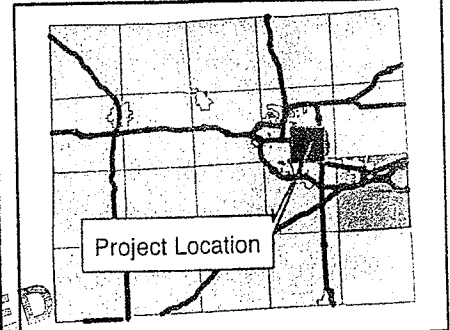
**Construction Sequence:** The project will include stripping and stockpiling topsoil within the Arboretum property in the area proposed for grading. Once stripped, the earth will be graded in accordance with the supplied plan. Upon completion of rough grading, various grade control structures will be installed along the proposed channel. Upon completion of the structures, a channel grade will be cut within the meadows to allow for storm water to be conveyed during low flow events. The channel is designed so that in larger storms, the excess flow will spill over into low areas to allow for storm water to be infiltrated into the soil. Upon completion of all grading, the topsoil will be restored to the site and areas will be restored with native seed mixes as noted on the plan.

The construction process will include measures that will leave the existing channel active while mass grading is occurring within the meadow areas. Once the relocated channel and meadows are installed and vegetation has been established, the existing channel will be filled in and flow will be routed to the new channel.

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BY: [illegible]  
SERIALIZED: [illegible]



Washtenaw County Location Map



Harvard Drain  
 CITY OF ANN ARBOR  
 Washtenaw County  
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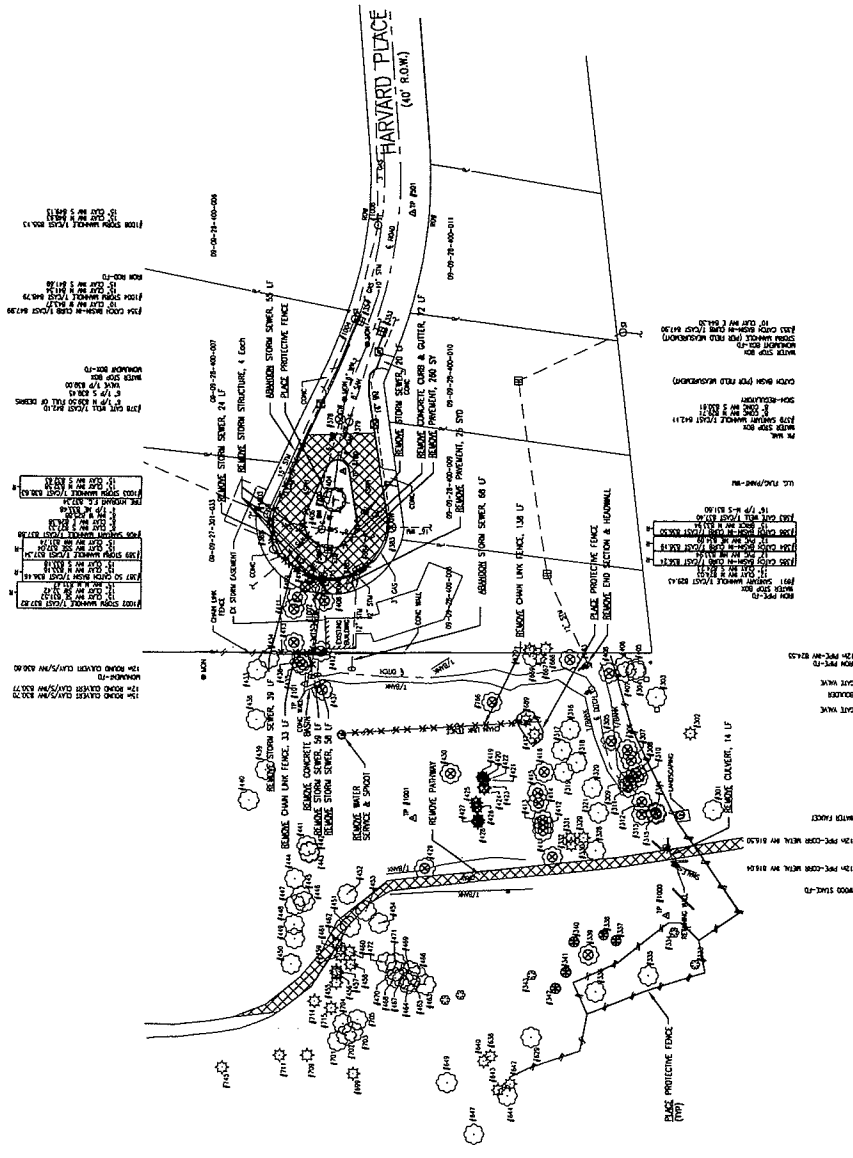
Harvard Drain in  
 Nichols Arboretum

April 14, 2009  
 University of Michigan

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 E: SERVICE@OHM.COM  
 E: INFO@OHM.COM



**TREE INVENTORY**

NO.	DATE	DBH	HT	SP.	COND.	REMARKS
101	02/01/03	12.0	18.0	SP	1	12\"/>

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR  
 HARVARD DRAIN  
 DRAIN IMPROVEMENTS  
 REMOVAL PLAN

SCALE: HORIZ. 1"=40'  
 VERT. 1"=4'  
 DRAWING NO. 002B-08-0041  
 SHEET NO. 1 OF 12

- GENERAL NOTES**
- TREES NOTED TO BE REMOVED BY OTHERS WILL BE REMOVED FROM THE IMPACTED AREA BY THE INDICATED PARTY.
  - REMOVE THE REGION OF THE EXISTING DRAINAGE SHALL INCLUDE ALL WORK NECESSARY TO REMOVE AND DISPOSE OF SECTIONS, HEADWALLS AND ADJACENT RETAINING WALLS.
  - THE EXISTING DRAINAGE SHALL BE REMOVED AND RE-INSTALLED AT THE COST OF PROJECT EXPENSES. REMOVAL OF THE EXISTING DRAINAGE SHALL BE COMPLETED WITHIN THE NEW FORCE MAIN.
  - STORM SEWER STRUCTURES SHALL BE MAINTAINED AND RE-ASSEMBLED WITH THE NEW FORCE MAIN.
  - LETTER OF INTERESTING SHALL BE OBTAINED BY THE PROPERTY OWNER AND CITY ACKNOWLEDGING THE PROPOSED WORK TO OCCUR ON THEIR PROPERTY.

**UNIVERSITY OF MICHIGAN (DIVISION B) QUANTITIES THIS SHEET**

ITEM	QUANTITY	UNIT	ITEM
101	1	EA	101
102	1	EA	102
103	1	EA	103
104	1	EA	104
105	1	EA	105
106	1	EA	106
107	1	EA	107
108	1	EA	108
109	1	EA	109
110	1	EA	110

**ANN ARBOR (DIVISION A) QUANTITIES THIS SHEET**

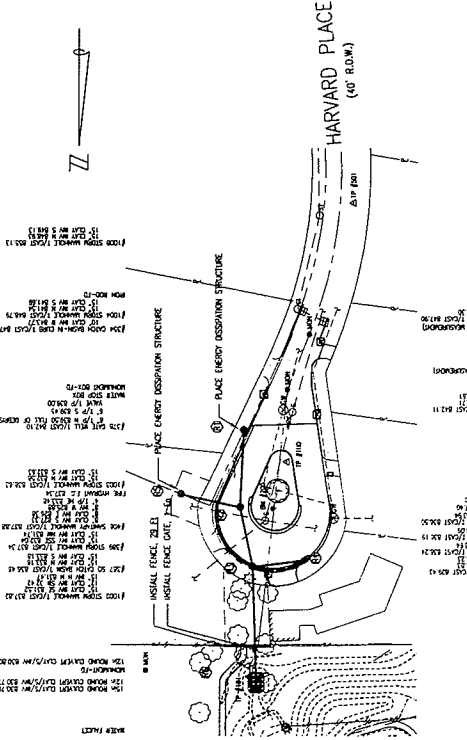
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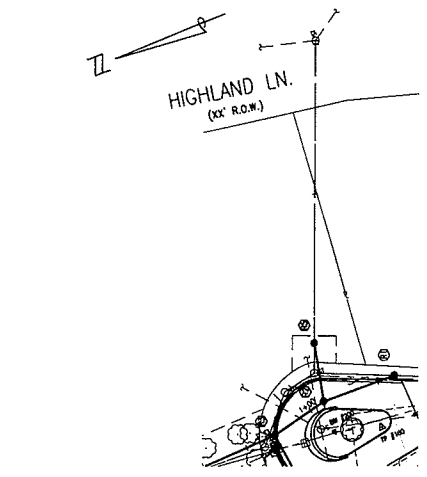
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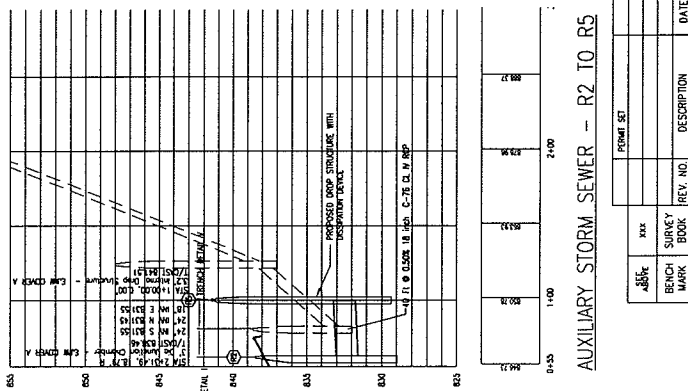
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ISSUED FOR CONSTRUCTION	01/15/2014	CLAY (R3.7)
ISSUED FOR AS-BUILT	01/15/2014	CLAY (R3.7)
ISSUED FOR RECORD	01/15/2014	CLAY (R3.7)
ISSUED FOR FINAL	01/15/2014	CLAY (R3.7)



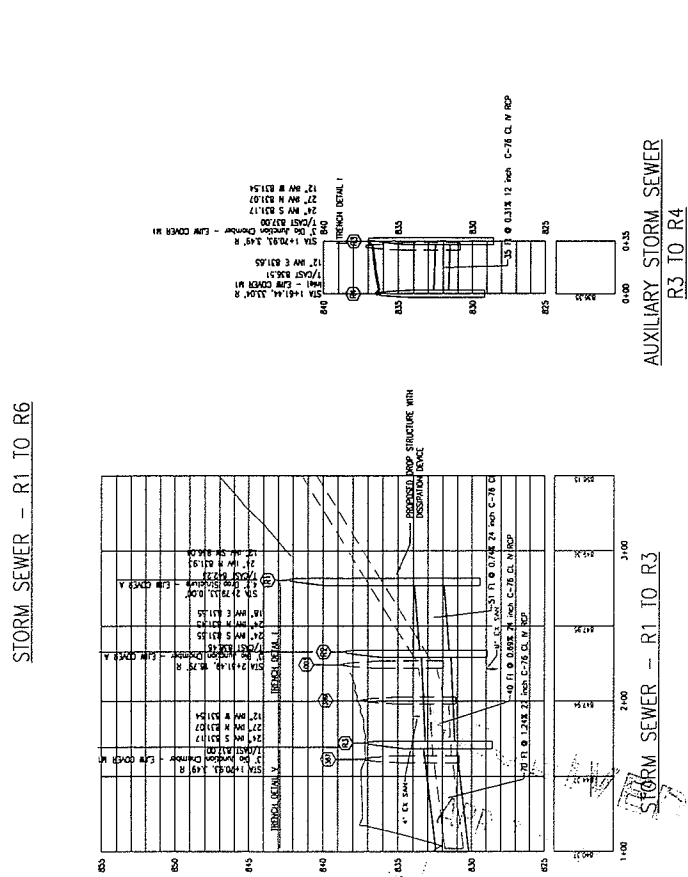
STORM SEWER - R1 TO R6



STORM SEWER - D2 TO R2



AUXILIARY STORM SEWER - R2 TO R5



STORM SEWER - R1 TO R3

AUXILIARY STORM SEWER R3 TO R4

ITEM	QUANTITY	UNIT	DESCRIPTION	ITEM
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 Cambridge, MA 02142  
 617-552-1100

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
HARVARD DRAIN DRAIN IMPROVEMENTS CONSTRUCTION PLAN AND PROFILES
DRAWING NO. 0028-08-0041
SHEET NO. 1 OF 12

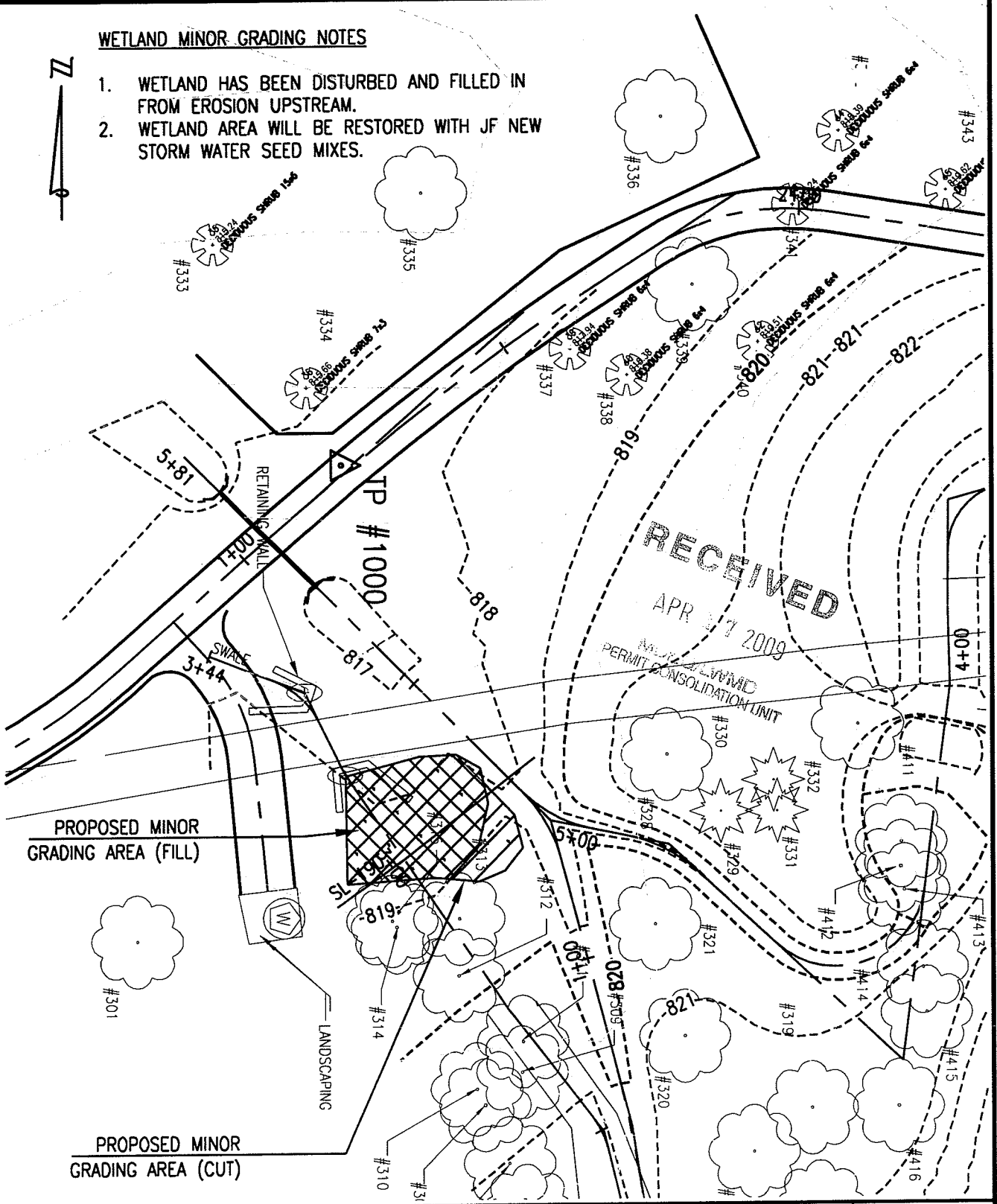
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CITY	

APPROVED	DATE
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CHECKED	DATE
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CITY	



**WETLAND MINOR GRADING NOTES**

1. WETLAND HAS BEEN DISTURBED AND FILLED IN FROM EROSION UPSTREAM.
2. WETLAND AREA WILL BE RESTORED WITH JF NEW STORM WATER SEED MIXES.



HARVARD DRAIN IN NICHOLS ARBORETUM  
SECTION 10 - JPA

N/A

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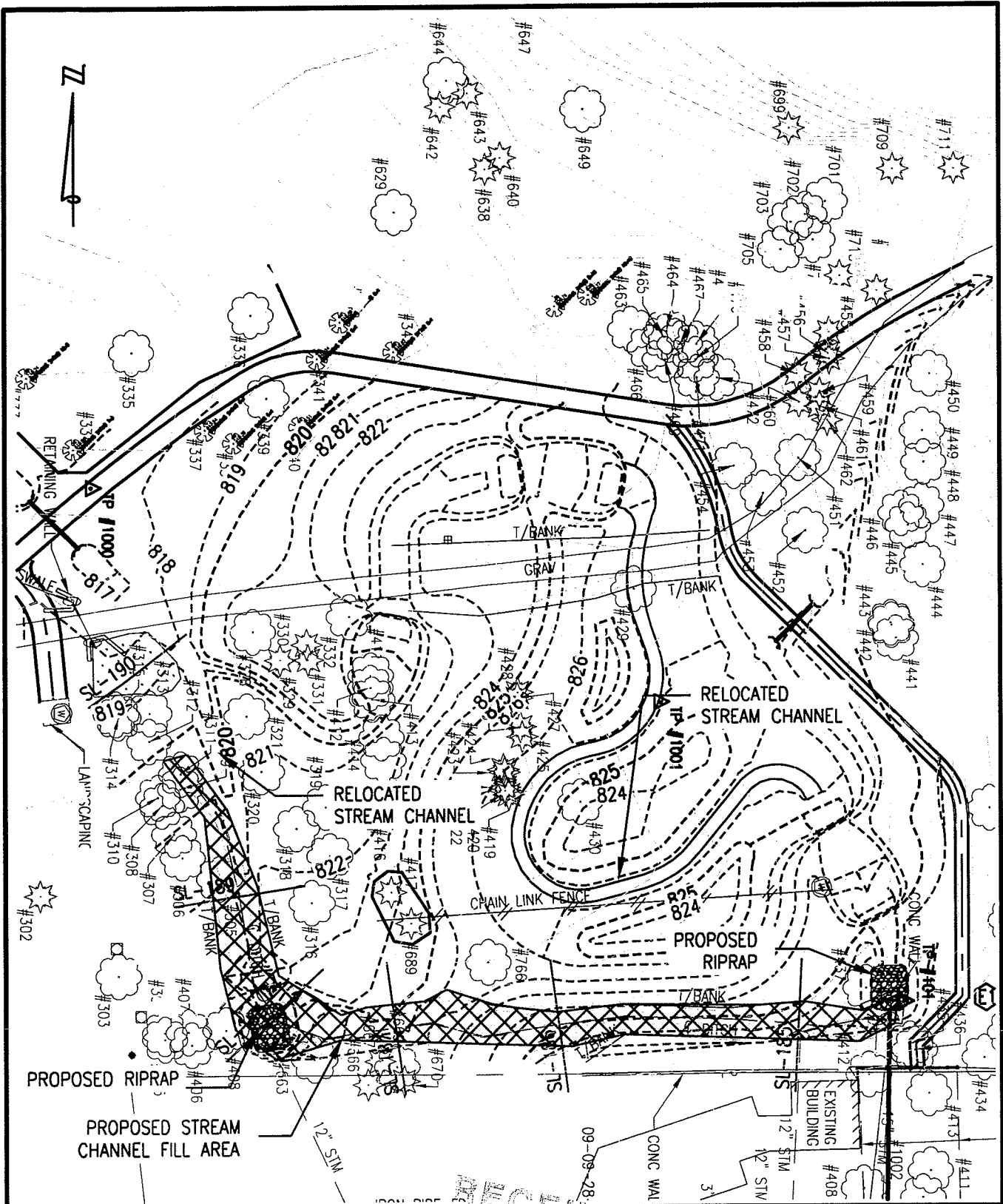
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U OF M / ANN ARBOR

PROJECT:  
0028-08-0041


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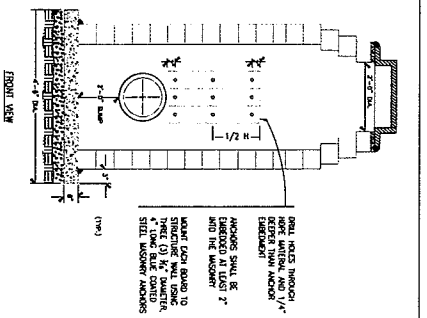
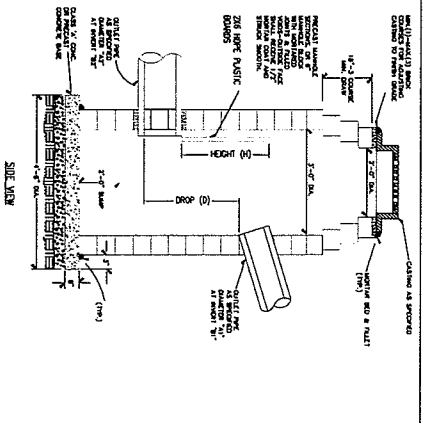
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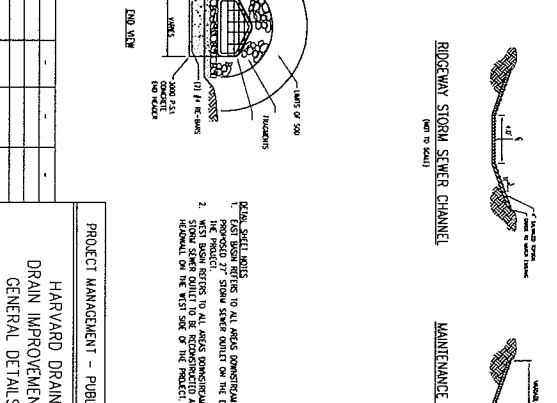
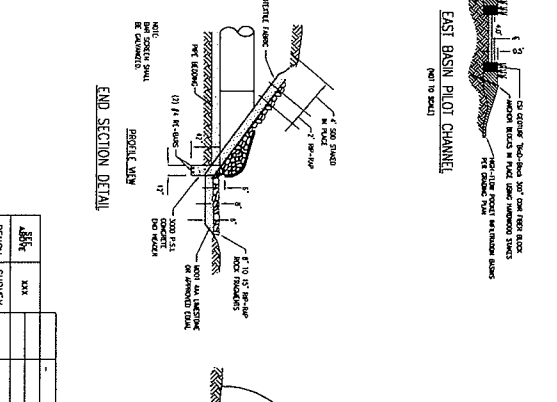
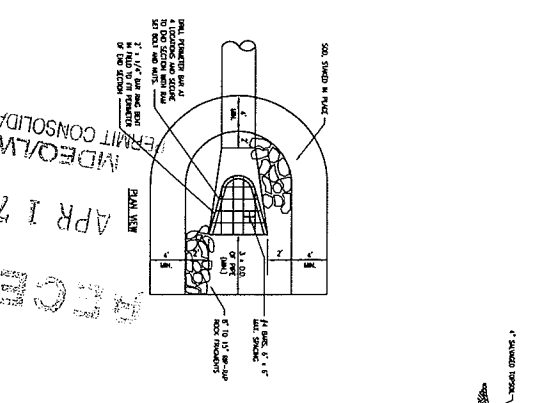
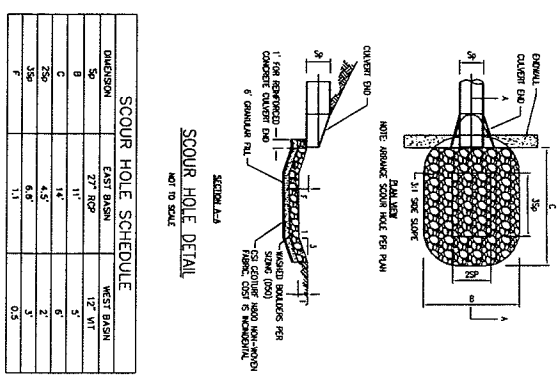
HARVARD DRAIN IN NICHOLS ARBORETUM  
SECTION 10 - JPA

SCALE H: 1"=40' V: N/A		
SHEET N/A		
CLIENT U OF M / ANN ARBOR		DATE 0028-08-0041
34000 Plymouth Road   Livonia, MI 48150   P (734) 522-6711   F (734) 522-6427   WWW.OHM-ADVISORS.COM		
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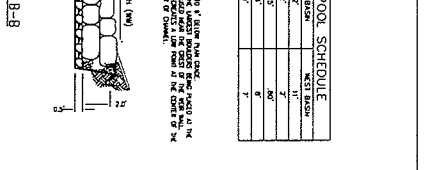
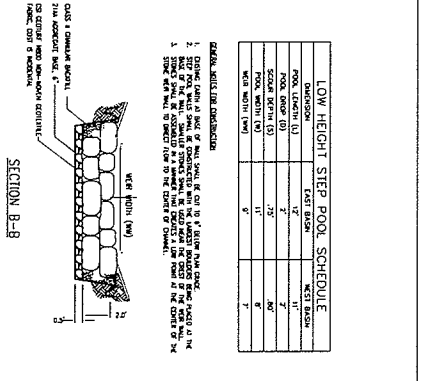
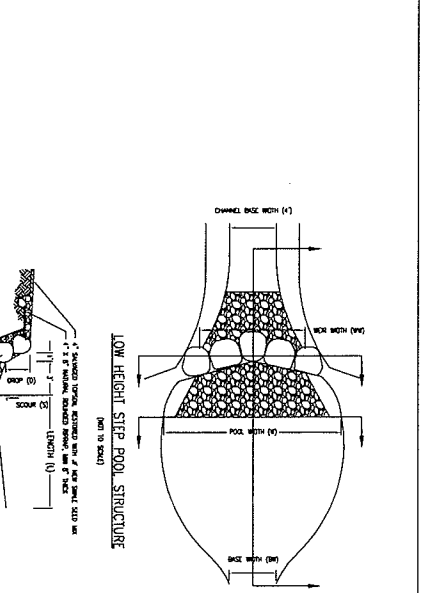


DIMENSION	STRUCTURE D1	STRUCTURE D2
PIPE DIA. IN. A1	12" VI CLAY (CAST)	12" VI CLAY (CAST)
PIPE DIA. IN. A2	6x6x18	6x6x14
PIPE DIA. IN. B1	24" - RCP	18" - RCP
PIPE DIA. IN. B2	33.00	33.75
PIPE DIA. IN. B3	3.00	3.00
PIPE DIA. IN. B4	4.50	3.75
PIPE DIA. IN. B5	-	3.75

SPLASH STRUCTURE (MODIFIED JUNCTION CHAMBER)  
(NOT TO SCALE)



DIMENSION	EAST BASIN	WEST BASIN
D	11'	5'
B	14'	6'
C	14'	2'
E	4.5'	3'
F	6.0'	3'
G	11'	0.5'



DIMENSION	EAST BASIN	WEST BASIN
POOL LENGTH (L)	12'	12'
POOL DEPTH (D)	2'	2'
POOL WIDTH (W)	12'	6'
POOL WIDTH (W)	12'	6'

DIMENSION	EAST BASIN	WEST BASIN
CHANNEL LENGTH (L)	12'	12'
CHANNEL DEPTH (D)	2'	2'
CHANNEL WIDTH (W)	12'	6'
CHANNEL WIDTH (W)	12'	6'

DIMENSION	EAST BASIN	WEST BASIN
CHANNEL LENGTH (L)	12'	12'
CHANNEL DEPTH (D)	2'	2'
CHANNEL WIDTH (W)	12'	6'
CHANNEL WIDTH (W)	12'	6'

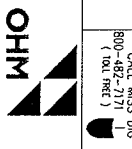
DIMENSION	EAST BASIN	WEST BASIN
CHANNEL LENGTH (L)	12'	12'
CHANNEL DEPTH (D)	2'	2'
CHANNEL WIDTH (W)	12'	6'
CHANNEL WIDTH (W)	12'	6'

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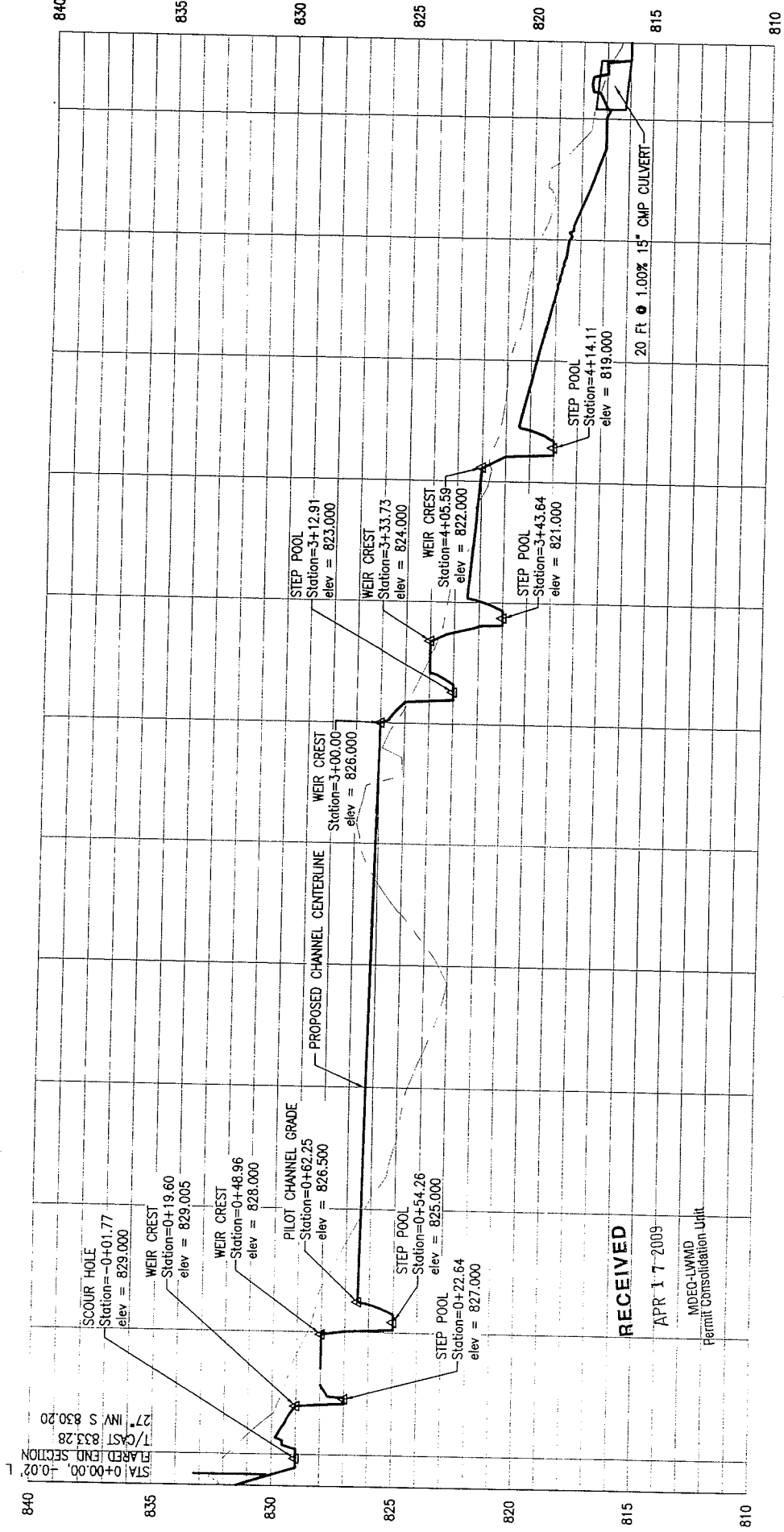
REVISION	DATE	DESCRIPTION	BY	CHK

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR  
 HARVARD DRAIN  
 DRAIN IMPROVEMENTS  
 GENERAL DETAILS

SCALE  
 1" = 10'  
 DATE  
 0028-08-0041  
 SHEET NO. 11 OF 12

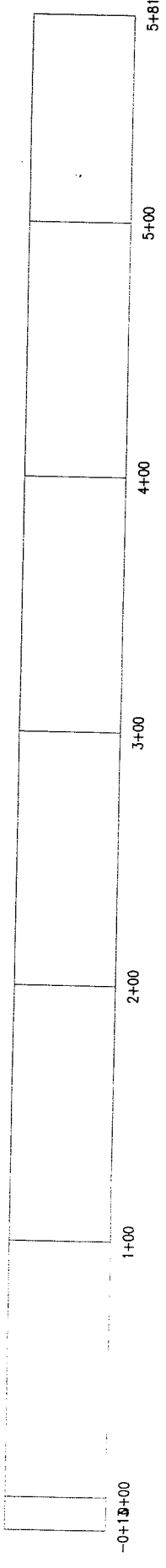


3 WORKING DAYS!  
 BEFORE YOU DIG  
 800-482-2777  
 1 (T) (T) (T)



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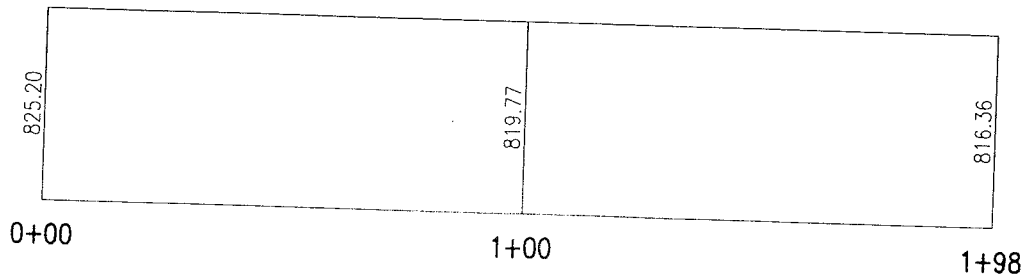
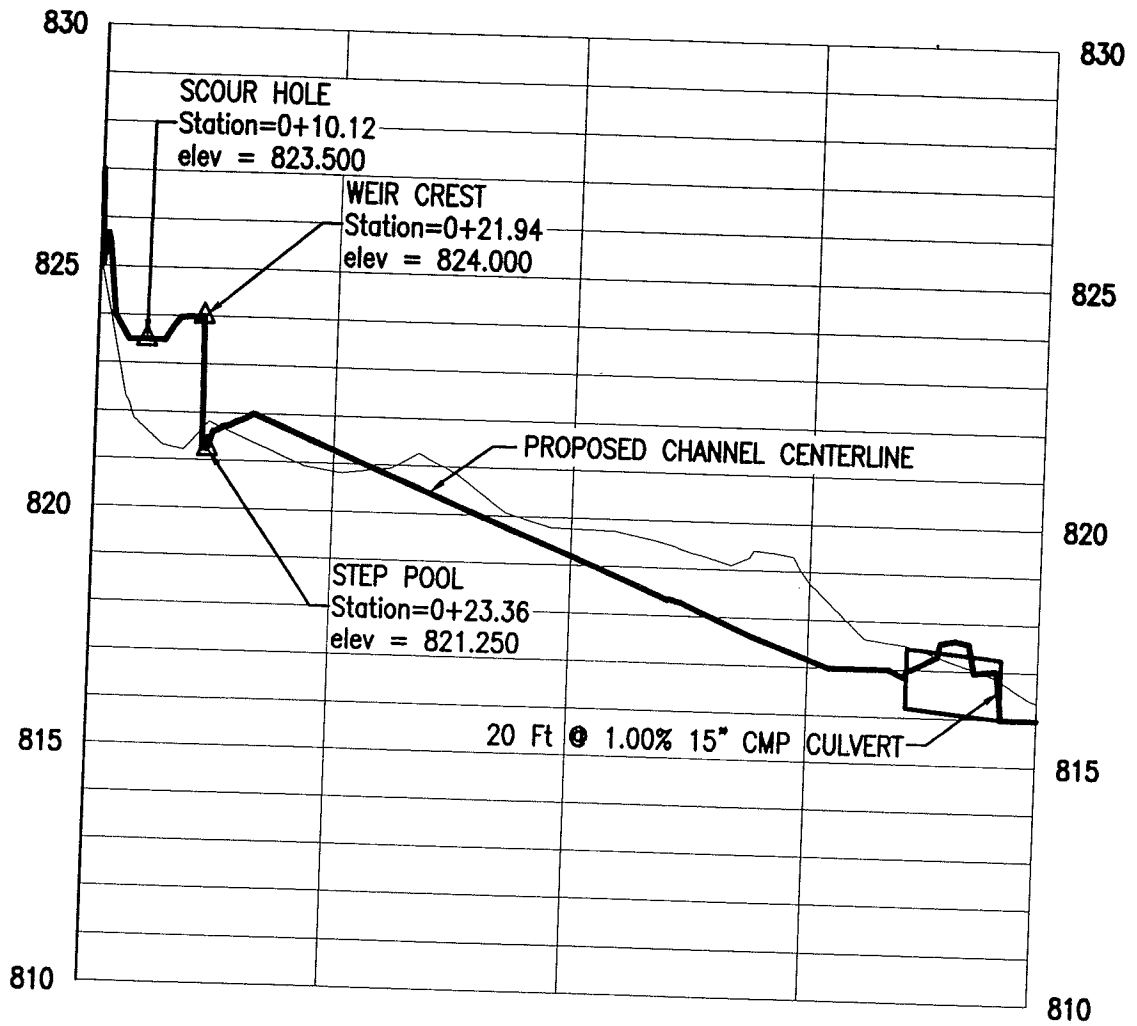
STEP POOL CHANNEL FROM 27" OUTFALL TO 15" CULVERT



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CHANNEL FROM EXISTING 12" OUTFALL TO 15" CULVERT

