OHIO
HUDSON

COMMUNITY DEVELOPMENT • 115 Executive Parkway, Suite 400 • Hudson, Ohio 44236 • (330) 342-1790

DATE: November 4, 2015

TO: City of Hudson Planning Commission for November 9, 2015 Meeting

FROM: Greg Hannan, City Planner
Mark Richardson, Community Development Director

SUBJECT: Site Plan Review for 7041 Darrow Road
American Fireworks – Warehouse Facility

ZONING: District 1 – Rural Residential Conservation

PC Case No: 2015-28

Project Introduction

Application has been received for a proposed warehouse building at American Fireworks. The project includes a proposed 15,000 square foot building containing 12,500 square feet of warehouse/storage and 2,500 square feet of office space. Site improvements proposed also include a stormwater retention basin, restoration to the existing parking lot, and improvements to the gravel access drives adjacent to the proposed building.

The proposed improvements are located within the interior of the property with the following surrounding development:

Direction	Adjacent Development	Distance (proposed structure to adjacent property lines)
North	Residential development along Highgate Drive	400+feet
East	Residential development along Jonathan Court, Samson Circle, and Jesse Drive	1200+feet
South	Ohio Turnpike right of way	800+ feet
West	Single family residential development along Darrow Road	800+ feet

The following information is attached to this report.

1. Site Plan submittal from Weber Engineering Services, Inc., received October 29, 2015.
2. Letter from Flickinger Wetland Company LLC dated October 23, 2015.
3. Letter from American Fireworks, received October 29, 2015.
4. Letter from Thom Sheridan, City Engineer, dated November 4, 2015.
5. Letter from Shawn Kasson, Fie Inspector, dated October 12, 2015.

6. Preliminary Comment Letter from Greg Hannan, City Planner, Dated October 20, 2015.

Applicable Zoning District Standards, Section 1205.06

The site is an existing non-conforming use established on the property in 1902. Section 1206.05 *Nonconforming Uses* allows such uses to remain but places restrictions on the amount of expansion permitted. The site was before the Board of Zoning and Building Appeals (BZBA) in 2013 for an expansion to the non-conforming use. The BZBA (Case No. 2013-19) determined the land area within the fence enclosure would be used to determine the expansion of the use rather than the total area of the building footprints. Therefore the use is not in question as long as the site plan and building meet zoning and design standards.

Staff notes some revisions have been proposed to the dimensions of the fence enclosure. Two areas have been reduced in size adjacent to the north and east portions of the enclosure. Additionally, a portion of the proposed building increases the enclosure area as does a fencing expansion at the western portion of the site. The proposed reconfiguration is acceptable as the net result is a decrease in the enclosed area by 3,301 square feet. The plans should be revised to label the total amount of area within the fence enclosure.

The existing and proposed district setback and lot dimensional standards are acceptable.

Applicable Zoning Development and Site Plan Standards, Section 1207

Staff compared the proposal to zoning development and site plan standards. We comment on the following:

Wetland/Stream Corridor Protection: A drainage channel is located approximately 200 feet west of the proposed building. The presence of the channel bed is undefined and significant areas of the drainage ditch immediately adjacent to the work zone are culverted. Staff has not applied a riparian corridor setback along this drainage channel as it does not exhibit the characteristics of a stream as defined in the Land Development Code.

A wetland investigation and review of the plan proposal was completed by Flickinger Wetland Company LLC. Mr. Erik Flickinger noted that some wetland areas are located within and immediately adjacent to the ditch; however are not jurisdictional wetlands per the U.S. Army Corp of Engineers. Staff notes the only land disturbance in this area is the installation of a storm sewer line and rock channel outlet structure from the stormwater retention basin, located outside of the drainage channel. The LDC does provide for minor modifications to the applicable 50 foot setback from jurisdictional wetlands for stormwater management basins provided native plantings are used. Staff requests the disturbed area within 50 feet of the drainage ditch be restored with native plantings.

Landscaping/Buffering: Bufferyard D (25feet, substantial). is applicable to the adjacent residential development to the north and east. The proposed development area is located on the interior of the site, approximately 400 feet from the north property line. The existing plantings installed to screen the containers can be used toward the applicable requirement. The adjacent residential development to the east does not require additional screening due to the significant setback (1200+ feet) and the presence of plantings installed in 2014 for the fencing and container

expansions completed at that time. A landscape plan must be submitted depicting the current plantings and those proposed to comply with Bufferyard D.

Parking: The existing site contains 10-12 paved parking stalls for customers and some additional paved areas on the interior of the property for employee parking. The LDC code requires 1 space per 1,000 square feet of warehousing space. Staff understands the proposed building will not significantly increase warehousing space on the property as some existing containers/buildings are proposed for removal. The applicant has stated that during normal peak shifts the facility will not exceed 8-10 employees. The proposed parking layout is acceptable as no increase in staffing is anticipated and the proposed layout provides more organized and a somewhat expanded parking layout then presently exists.

The plans indicate the removal of two sheds from the property which are adjacent to the development site. The property owner has stated three additional small sheds will be removed from the site as well as several inoperable vehicles/equipment located northeast of the development site. These will need to be labeled on the site plan.

Emergency Access: All portions of the exterior wall of any structure must be located within 150 feet of a public street or approved fire access road. Staff notes the existing gravel drive located along the east and north sides of the building is proposed to serve as a fire access road.

Engineering: City Engineer Thom Sheridan has completed a review and submitted correspondence dated November 3, 2015. Mr. Sheridan has confirmed a traffic impact analysis is not required for the proposed scope of work as no increase in vehicular or truck activity is expected. Stormwater management will be reviewed by the Engineering Department.

Fire Department: Fire Marshal Shawn Kasson has completed a preliminary review and submitted a correspondence dated October 12, 2015. Mr. Kasson has noted the need to provide appropriate fire detection and alarm system for the facility and is acceptable with the use of the existing gravel drives serving as fire access roads. Staff notes the warehouse building will store the racks and materials used for the larger, community fireworks show; however, will not house or store fireworks and/or explosives.

Findings:
The staff finds that the application complies with the purposes and intent of the code and community plans, regulations that minimize land disturbance and protect environmental features, and other applicable development regulations as specified in Section 1204.04 except as discussed above and recommended below.

Required PC Action, Chapter 1203.09(g)(3)
The PC shall consider the development application, the staff report, and then take final action. PC shall approve, approve with conditions, or deny the application based on its compliance with the appropriate review standards. All decisions of the Commission shall be based on findings of fact related to the relevant standards of the Code.

Recommendation
Approve the application for site plan approval for American Fireworks at 7041 Darrow Road per

Case No. 2015-28 according to plans submitted October 29, 2015 with the following conditions:

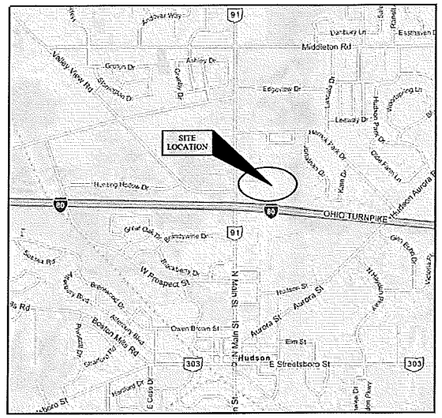
1. Provide the existing and proposed total square footage within the fence enclosure.
2. Submit a landscape plan providing Bufferyard D (25feet, substantial) to the adjacent single family residential development to the north.
3. Label the existing buildings and equipment which are proposed for removal as part of the project.
4. The City Engineer must approve the final plans.
5. The applicant shall install silt fencing and/or polypropylene fencing to mark and protect the approved limits of disturbance, which shall be maintained by the applicant.
6. Satisfaction of the above conditions prior to scheduling of a preconstruction meeting with City Officials and no clearing or construction of any kind shall commence prior to the issuance of a Zoning Certificate.

AMERICAN FIREWORKS

CITY OF HUDSON
COUNTY OF SUMMIT
STATE OF OHIO

CITY OF HUDSON GENERAL CONSTRUCTION NOTES

1. CONSTRUCTION OF THE SITE WORK AND UTILITIES SHALL BE GOVERNED BY THE CITY OF HUDSON'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS REQUIRED FOR THE PROJECT.
3. THE CONTRACTOR MUST ALERT THE OHIO UTILITY PROTECTION SERVICES AT 1-800-362-2764 AT LEAST 48 HOURS BEFORE ANY EXCAVATION IS TO BEGIN.
4. ALL EXISTING APPURTENANCES (UTILITY POLES, VALVES, HYDRANTS, MANHOLES, ETC.) ARE TO BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS.
5. THE DESIGN ENGINEER CERTIFIES THAT ALL UTILITIES ARE SHOWN AS THEY APPEAR ON EXISTING RECORDS OR FIELD LOCATED.
6. ALL KNOWN ABOVE AND UNDERGROUND SERVICES HAVE BEEN NOTED ON THE DRAWINGS. THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR ANY SERVICES DAMAGED DURING THE CONSTRUCTION OF THE PROJECT WHETHER SHOWN OR NOT ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THE SERVICE AS SOON AS POSSIBLE AT THE CONTRACTOR'S OWN EXPENSE.
7. VIDEO TAPING OF PROJECT SHALL BE DELIVERED AND ACCEPTED BY THE CITY OF HUDSON ENGINEERING DEPARTMENT A MINIMUM OF 14 CALENDAR DAYS PRIOR TO START OF CONSTRUCTION ACTIVITIES. (RIGHT OF WAY ONLY)
8. NOTIFY THE CITY OF HUDSON ENGINEERING DEPARTMENT A MINIMUM OF FORTY-EIGHT HOURS (2 WORKING DAYS) PRIOR TO THE START OF CONSTRUCTION.
9. A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED A MINIMUM OF 48 HOURS (2 WORKING DAYS) AFTER SUBMISSION OF A MINIMUM OF 6 APPROVED SETS OF PLANS AND ALL SHOP DRAWINGS APPLICABLE TO THE PROPOSED IMPROVEMENTS. A PRE-CONSTRUCTION MEETING MUST BE HELD PRIOR TO START OF ANY CONSTRUCTION.
10. THE LIMITS OF CLEARING AND GRADING SHALL BE FIELD STAKED AND LINED WITH ORANGE CONSTRUCTION FENCING 48 HOURS (2 WORKING DAYS) PRIOR TO THE PRE-CONSTRUCTION MEETING. AREAS BEYOND THE LIMITS OF CLEARING AND GRADING SHALL NOT BE DISTURBED INCLUDING THE STOCKPILE OF ANY MATERIALS OR CONSTRUCTION TRAFFIC.
11. ALL ROAD SURFACES, EASEMENTS, OR RIGHT-OF-WAY DISTURBED BY THE CONSTRUCTION OF ANY PART OF THESE IMPROVEMENTS ARE TO BE RESTORED ACCORDING TO THE CITY OF HUDSON "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION" AS DIRECTED BY THE CITY OF HUDSON AND/OR ITS ENGINEER.
12. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY OF HUDSON OR ITS REPRESENTATIVE IF SUSPECTED HAZARDOUS MATERIAL OR ANY OTHER MATERIAL THAT MAY CREATE A HEALTH RISK IS DISCOVERED ON SITE.
13. ALL DISTURBED STORM SEWERS AND/OR APPURTENANCES, SIGNS, GUARD RAILING, MAIL AND/OR PAPER BOXES, DRIVE CULVERTS, FENCES, TREES, LANDSCAPING, OR OTHER ITEMS DISTURBED BY THE CONSTRUCTION SHALL BE RESTORED OR REPAIRED TO AT LEAST THE BEFORE-CONSTRUCTION CONDITION.
14. ANY DEFECTS DISCOVERED IN NEW CONSTRUCTION, WORKMANSHIP, EQUIPMENT OR MATERIALS SHALL BE REPAIRED, OR CORRECTED BY APPROVED METHODS AS DIRECTED BY THE CITY OF HUDSON.
15. NUCLEAR COMPACTION TESTING SHALL BE REQUIRED FOR ALL FILL AREAS OVER TWO FEET (2') IN DEPTH, AT 6" LIFTS PER ASTM A-1557, 95% MODIFIED.
16. APPROVAL BY THE CITY OF HUDSON ENGINEER CONSTITUTES NEITHER EXPRESSED NOR IMPLIED WARRANTIES AS TO THE FITNESS, ACCURACY, OR SUFFICIENCY OF PLANS, DESIGNS OR SPECIFICATIONS.
17. DURING TAPPING OF EXISTING UTILITIES, ANY TRAFFIC CONTROL REQUESTED OR REQUIRED BY THE CITY OF HUDSON WILL BE PROVIDED BY THE CONTRACTOR AT NO COST TO THE CITY.
18. COMPLIANCE WITH THE OCCUPATIONAL AND SAFETY ACT OF 1970 IS REQUIRED BY ALL CONTRACTORS ON THIS PROJECT.
19. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
20. ALL DISTURBED AREAS SHALL RECEIVE 4" OF TOPSOIL AND BE SEEDED AND MULCHED AS PER SECTION 9 - LANDSCAPING AND STREET TREES OF THE CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
21. IF MUD, SOIL, OR OTHER DEBRIS IS DEPOSITED ON ADJACENT STREETS, ROADS, OR OTHER PROPERTY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF SUCH AS DIRECTED BY THE CITY OF HUDSON OR ITS ENGINEER AT THE END OF EACH WORK DAY, OR AS REQUIRED DURING THE WORK DAY.
22. ALL PROPOSED SLOPES 3:1 OR STEEPER AND ALL EARTHEN DRAINAGE WAYS SHALL RECEIVE JUTE OR EXCELSIOR MATTING AS PER O.D.O.T. 667 OR 668.
23. ALL STORM SEWERS WITHIN PUBLIC RIGHTS-OF-WAY AND CITY OF HUDSON EASEMENTS SHALL BE PER SECTION 4 - STORM COLLECTION OF THE CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
24. ALL PIPES SHALL BE PLACED OVER 4" OF BEDDING. BEDDING MATERIAL SHALL BE AS SPECIFIED IN CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION, FOR THE TYPE OF PIPE.
25. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND PROTECTING THE FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC AROUND THE JOB SITE. TRAFFIC CONTROL SHALL BE COORDINATED WITH THE CITY OF HUDSON POLICE DEPARTMENT.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PLANT TICKETS FOR ALL MATERIALS DELIVERED TO THE SITE. PLANT TICKETS MUST SHOW NET QUANTITY OF DELIVERED MATERIAL. MATERIAL DELIVERED OR PLACED WITHOUT PLANT TICKETS SHALL BE REMOVED AND PROPERLY DISPOSED AT THE EXPENSE OF THE CONTRACTOR.
27. ALL DELIVERED MATERIALS SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF HUDSON OR OTHER APPLICABLE AGENCIES. THE CITY OF HUDSON, OR ITS REPRESENTATIVE, RESERVES THE RIGHT TO REJECT ANY DELIVERED MATERIAL WHICH DOES NOT CONFORM TO THE APPLICABLE STANDARDS AND SPECIFICATIONS.
28. THE CITY OF HUDSON OR ITS REPRESENTATIVE, RESERVES, THE RIGHT TO HALT ALL CONSTRUCTION ACTIVITY FOR NONCONFORMANCE OF PLANS, SPECIFICATIONS AND OTHER APPLICABLE STANDARDS OR REGULATIONS.
29. ALL CHANGES TO APPROVED DRAWINGS AND OR SPECIFICATIONS MUST BE RE-APPROVED BY THE CITY OF HUDSON PRIOR TO CONSTRUCTION.
30. ALL PAVING MATERIAL MUST BE PROVIDED BY O.D.O.T. CERTIFIED SUPPLIER. WRITTEN PROOF SHALL BE REQUIRED UPON DELIVERY OF MATERIALS. THE CERTIFIED MIX DESIGN MUST BE SUBMITTED TO, AND APPROVED BY, THE CITY OF HUDSON PRIOR TO SCHEDULING A PRE-CONSTRUCTION MEETING.
31. CONTRACTOR/DEVELOPER SHALL PROVIDE ALL REQUIRED ROADWAY SIGNAGE AS PER ODOT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES INCLUDING STREET IDENTIFICATION SIGNAGE PER CITY STANDARDS FOR ALL ASPECTS OF THE IMPROVEMENT.
32. ALL BONDS AND OR LETTERS OF CREDIT SHALL NOT BE RELEASED OR REDUCED AND NO WATER OR SANITARY SEWER CUSTOMERS CAN BE CONNECTED UNTIL ALL RECORD DRAWINGS HAVE BEEN SUBMITTED, REVIEWED AND APPROVED BY THE CITY OF HUDSON.
33. ALL WORK, EXCEPT SIDEWALKS, STREET TREES AND STREET LIGHTS, AS PART OF THESE PLANS SHALL BE COMPLETED, INCLUDING PUNCH LIST ITEMS AND DEFICIENCY WORK WITHIN 1 YEAR OF THE DATE OF APPROVAL BY THE CITY ENGINEER. SIDEWALKS, STREET TREES AND STREET LIGHTS SHALL BE COMPLETED WITHIN TWO YEARS OF THE DATE OF APPROVAL BY THE CITY ENGINEER. (RIGHT OF WAY ONLY)
34. FAILURE TO COMPLETE THE PROJECT IN ITS ENTIRETY AS APPROVED BY THE PLANNING COMMISSION, INCLUDING PUNCH LIST ITEMS, WILL RESULT IN THE CITY OF HUDSON HOLDING ALL FUTURE ZONING CERTIFICATES UNTIL ALL WORK HAS BEEN COMPLETED AND APPROVED.
35. MANUFACTURERS OR SUPPLIERS AFFIDAVIT FOR ALL CONSTRUCTION MATERIALS SHALL BE PROVIDED AS PER THE CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION PRIOR TO THE START OF CONSTRUCTION.
36. THE CONSTRUCTION OF SANITARY SEWERS, WATER MAINS, LIFT STATIONS AND APPURTENANCES IS PROHIBITED UNTIL ALL PLANS HAVE BEEN APPROVED BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY.
37. ALL SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HUDSON "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION, LATEST EDITION.
38. ALL SANITARY SEWERS CONSTRUCTED IN SUMMIT COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES (SC-DOES) SERVICE DISTRICTS AND SERVED BY SC-DOES SHALL COMPLY WITH SC-DOES REQUIREMENTS.
39. THE OWNER SHALL SUBMIT A NOTICE OF INTENT (N.O.I.) APPLICATION TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY (E.P.A.) AND OBTAIN AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (N.P.D.E.S.) OR THE LATEST FEDERAL, STATE AND OR LOCAL REGULATIONS. THE OWNER SHALL SUBMIT A COPY OF THE N.P.D.E.S. PERMIT TO THE CITY OF HUDSON 48 HOURS (2 WORKING DAYS) PRIOR TO SCHEDULING A PRE-CONSTRUCTION MEETING. (IF APPLICABLE)
40. MAINTENANCE OF TRAFFIC NOTE: EQUIPMENT, MATERIALS AND PERSONAL VEHICLES SHALL NOT BE STAGED ON THE ROADWAY. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.



VICINITY MAP
NO SCALE

GENERAL NOTES

1. ALL ROAD SURFACES, EASEMENTS OR RIGHT OF WAYS DISTURBED BY CONSTRUCTION OF ANY PART OF THIS IMPROVEMENT ARE TO BE RESTORED COMPLETELY TO THE EXISTING CONDITION OR BETTER, WHEN ORDERED BY THE CITY ENGINEER. ALL ITEMS ARE INCLUDED IN THE PAY ITEMS.
2. PRICES BID PER FOOT FOR ALL PIPE IS COMPLETE IN PLACE REGARDLESS OF SOIL OR ROCK CONDITIONS.
3. THE LOCATIONS OF ALL GAS LINES AND GAS SERVICE LINES TO BE DETERMINED BY THE CONTRACTOR. EXISTING APPURTENANCES SUCH AS UTILITY POLES AND VALVE BOXES, ETC. ARE TO BE HELD BY THE CONTRACTOR DURING CONSTRUCTION.
4. THE CONSTRUCTION OF THIS PROJECT SHALL BE GOVERNED BY THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (CURRENT EDITION) SUPPLEMENTED WHERE APPLICABLE BY THE CITY OF HUDSON ENGINEERING STANDARDS AND OR LAND DEVELOPMENT CODE. CITY OF HUDSON REGULATIONS SHALL TAKE PRECEDENCE WHENEVER IN CONFLICT WITH O.D.O.T.
5. NOTIFY THE CITY OF HUDSON ENGINEER AT 330-342-1770, 48 HOURS BEFORE ANY CONSTRUCTION ACTIVITY.
6. FERTILIZING, SEEDING AND MULCHING FOR RESTORATION OF DISTURBED AREAS SHALL CONFORM TO SECTIONS 659.08 AND 659.09 AS SPECIFIED IN O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS (CURRENT EDITION).
7. ALL DISTURBED SIGNS, DRIVES AND DRIVE CULVERTS SHALL BE REPAIRED AND/OR REPLACED DURING THE CONSTRUCTION AT NO ADDITIONAL COST UNLESS OTHERWISE INDICATED ON THE PLANS.
8. ALL DISTURBED AND/OR DAMAGED STORM SEWER PIPES, STORM SEWER APPURTENANCES, PAVEMENTS, BERMS AND DITCHES SHALL BE REPAIRED AND/OR REPLACED AS DIRECTED BY THE CITY ENGINEER.
9. CALL THE OHIO UTILITIES PROTECTION 48 HOUR'S PRIOR TO START OF CONSTRUCTION AT 1-800-362-2764 OR 8-1-1.
10. TEMPORARY WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL SHALL BE REQUIRED IN ACCORDANCE WITH THE APPROVED SWP3 AS DIRECTED BY THE CITY ENGINEER AND SUMMIT SOIL AND WATER CONSERVATION DISTRICT.
11. STORM SEWER PIPE MATERIALS SHALL CONSIST OF PVC MEETING ASTM D-3034 OR HIGH DENSITY POLYETHYLENE (HDPE) PIPE MEETING AASHTO M294, TYPE S. (PRIVATE PROPERTY ONLY). ALL STORM SEWER PIPE MATERIAL WITHIN THE R/W & STORM WATER MANAGEMENT BASIN SHALL BE RCP.
12. THE CITY ENGINEER IN APPROVING THESE PLANS AND DEDICATION PLAT THEREOF DOES NOT IN ANY WAY RELIEVE THE DEVELOPER'S ENGINEER OF THEIR RESPONSIBILITY FOR ACCURATE AND COMPLETE ENGINEERING DESIGN.
13. THE CITY ENGINEER SHALL NOT BE HELD LIABLE FOR DAMAGES OF ANY TYPE, WHICH OCCUR AS A RESULT OF ERROR AND OR OMISSIONS IN THE ENGINEERING DESIGN DATA PRESENTED BY THE OWNER'S ENGINEER. NEITHER SHALL THE CITY ENGINEER BE LIABLE FOR DAMAGES RESULTING FROM THE DEVELOPER'S CONTRACTORS NOT COMPLYING WITH APPROVED PLANS OR BY USING CONSTRUCTION METHODS OR MATERIALS NOT APPROVED BY THE CITY ENGINEER.
14. ALL STORM WATER MANAGEMENT FACILITIES ARE TO BE PRIVATELY OWNED AND MAINTAINED.
15. A 12" MINIMUM VERTICAL CLEARANCE MUST BE MAINTAINED FROM THE EDGE OF ALL WATER MAINS TO THE EDGE OF ALL PROPOSED STORM SEWERS AND OR INLET LEAD PIPE WHERE THEY CROSS.
16. A 10.0' MINIMUM HORIZONTAL CLEARANCE MUST BE MAINTAINED FROM THE EDGE OF THE WATER MAIN PIPE TO THE EDGE OF THE STORM SEWER PIPE.
17. A 10.0' MINIMUM HORIZONTAL CLEARANCE MUST BE MAINTAINED FROM THE EDGE OF THE WATER MAIN PIPE TO THE EDGE OF THE SANITARY SEWER AND OR FORCE MAIN PIPE.
18. AN 18" MINIMUM VERTICAL CLEARANCE MUST BE MAINTAINED FROM THE EDGE OF ALL WATER MAIN PIPES TO THE EDGE OF ALL SANITARY SEWER PIPE WHERE THEY CROSS.
19. EARTHWORK AND SITE PREPARATION SHALL BE AS SPECIFIED IN THE SOILS REPORT.
20. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS IN THE CITY ENGINEERING AND COUNTY BUILDING DEPARTMENTS
21. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL SILTATION CONTROL MEASURES NECESSARY TO PREVENT SILT FROM LEAVING THE SITE.
22. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF DEMOLITION MATERIAL AND DEBRIS.
23. ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
24. ALL CURB CUTS MUST BE PERFORMED WITH A HORIZONTAL CONCRETE CUTTING SAW.
25. ELECTRICAL CONDUIT SHALL BE AS REQUIRED BY HUDSON PUBLIC POWER.
26. TELEPHONE CONDUIT SHALL BE AS REQUIRED BY LOCAL PHONE COMPANY.
27. ALL SANITARY SEWER MATERIAL SHALL CONSIST OF PVC SDR-35 MEETING ASTM D3034 WITH JOINTS CONFORMING TO ASTM D3212, UNLESS OTHERWISE NOTED ON THE PLANS.
28. ALL SEPTIC WORK SHALL COMPLY WITH THE SUMMIT COUNTY HEALTH DEPARTMENT & OHIO EPA.
29. ALL WATER WELL WORK SHALL COMPLY WITH LOCAL MUNICIPALITY & HEALTH DEPARTMENT.

Ohio Utilities Protection Service
Call Before You Dig
800-362-2764 or 8-1-1
www.oups.org

OGPUPS
Ohio Oil & Gas Producers Underground Protection Service
800-925-0988 or 8-1-1
www.ogpups.org

INDEX

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STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

DEVELOPER:

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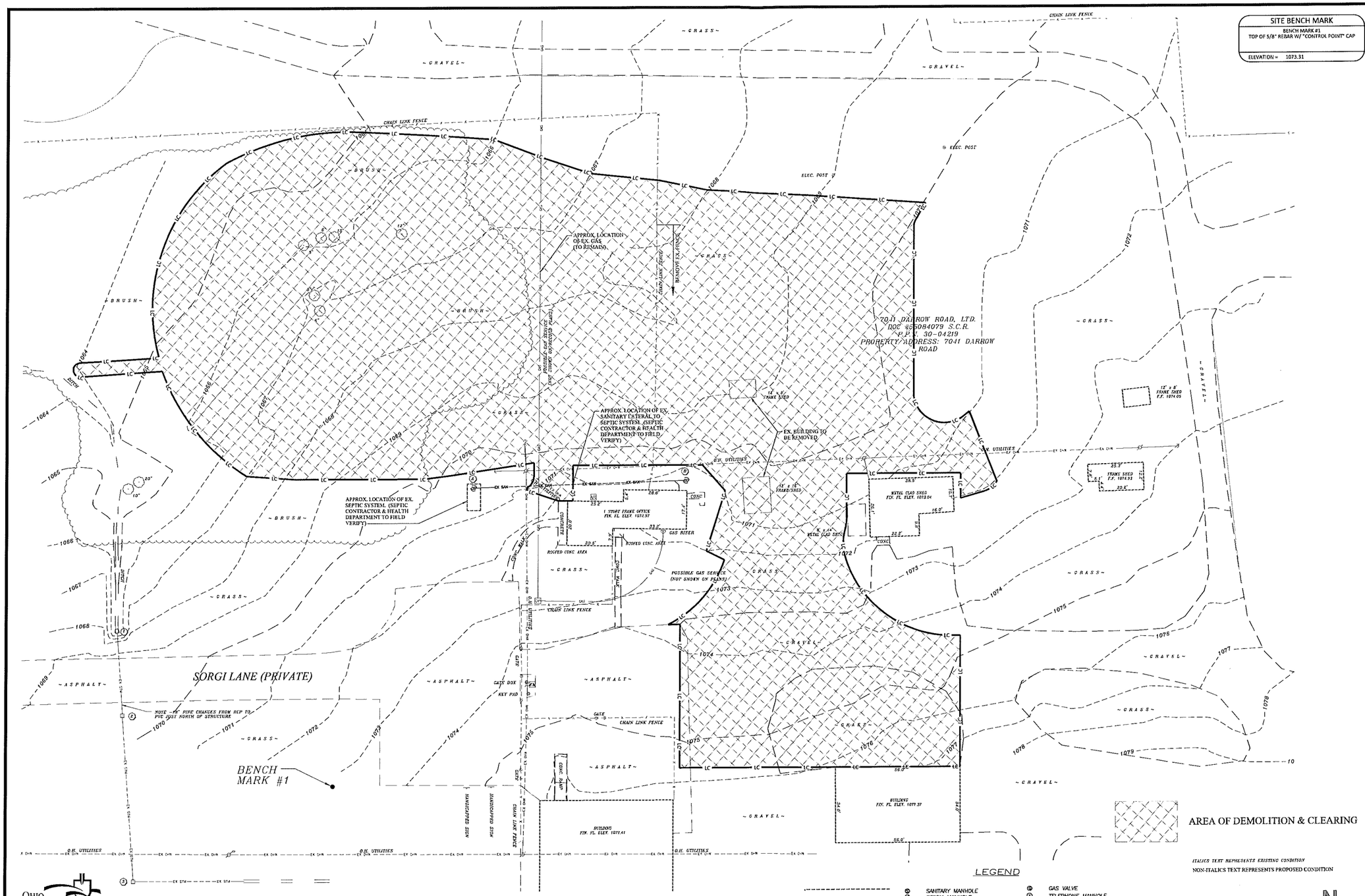
AKRON, OH 44333
Office: 330-659-2040

AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

Issue Date
07-29-2015
09-10-2015
09-28-2015
10-19-2015
10-29-2015

TITLE SHEET

C100
Project No. 2015-181



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EX. STORM STRUCTURE SCHEDULE

1. RCP OUTLET
   18" INVERT=1065.68
2. CATCH BASIN
   GRATE=1068.23
   18" PVC INV (S)=1066.24
   18" RCP INV (N)=1066.18
3. CATCH BASIN
   GRATE=1069.82
   12" PVC INV (E)=1067.31
   18" PVC INV (N)=1066.87

EX. SANITARY STRUCTURE SCHEDULE

A. SANITARY CLEANOUT
   CAP=1070.28
   (PART OF APPARENT EX SITE SEPTIC SYSTEM)
B. SANITARY CLEANOUT
   CAP=1071.53

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

LEGEND

- SANITARY MANHOLE
- STORM MANHOLE
- COMBINATION MANHOLE
- CATCH BASIN
- CLEANOUT
- HYDRANT
- WATER LINE VALVE
- WATER SERVICE VALVE
- WATER MANHOLE
- WATER METER
- UTILITY POLE
- UTILITY POLE WITH TRANSFORMER
- LIGHT POLE
- STREET LIGHT ASSEMBLY
- GUY ANCHOR
- BOLLARD
- BLACK METAL FENCE
- SOIL BORING
- GAS VALVE
- TELEPHONE MANHOLE
- TRAFFIC MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC PULL BOX
- TRAFFIC PULL BOX
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- DENOTES 5/8" IRON PIN SET WITH "DEMPSEY P.S. 6914" CAP (UNLESS OTHERWISE NOTED)

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STATE OF OHIO
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REGISTERED PROFESSIONAL ENGINEER

Reg. No.: 61709

DEVELOPER:

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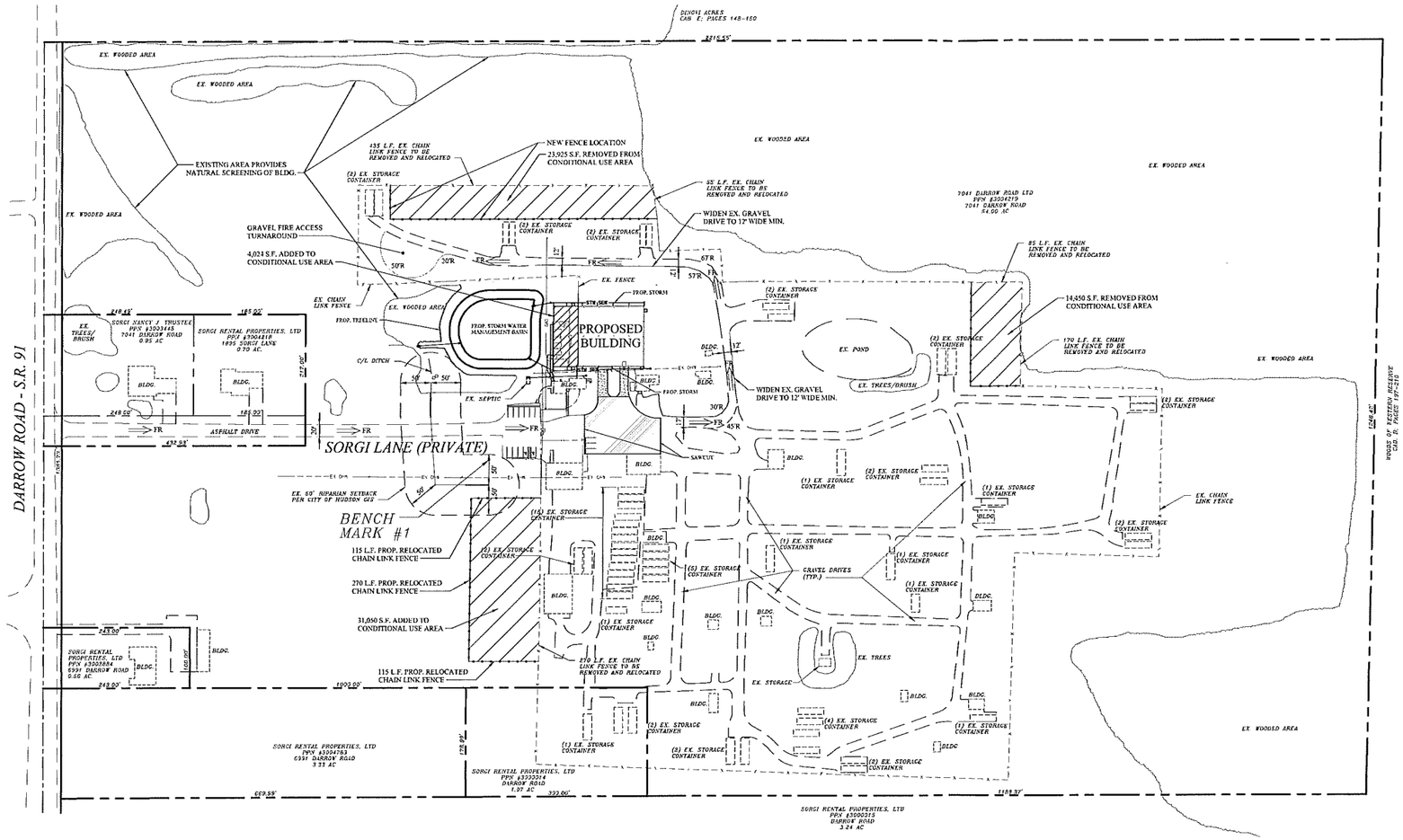
Office: 330-659-2040

Issue Date
07-29-2015
09-10-2015
09-28-2015
10-19-2015
10-29-2015

AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

DEMOLITION PLAN

C101
Project No. 2015-181



SITE BENCH MARK

BENCH MARK #1
TOP OF 5/8" REBAR W/ "CONTROL POINT" CAP

ELEVATION = 1073.31

SITE DATA

USE DISTRICT	=	1 (SUBURBAN RESIDENTIAL NEIGHBORHOOD)
SITE AREA	=	54.06 AC. (PER RECORD)
PROP. BUILDING AREA	=	15,000 S.F. (FOOTPRINT) 13,000 S.F. WAREHOUSE 2,000 S.F. OFFICE
BUILDING SETBACKS:		
FRONT YARD	=	100'
SIDE YARD	=	15'
REAR YARD	=	15'
MAX. BUILDING HEIGHT	=	35'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	12
HANDICAP PARKING SPACES	=	2
TOTAL PARKING SPACES	=	14

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39153C0064E & 39153C0068E
COMMUNITY PANEL NUMBER 390660 0064 E & 690660 0068 E
EFFECTIVE DATE JULY 20, 2009

LEGEND

- PROP. HEAVY DUTY ASPHALT
- PROP. CONCRETE PAVING
- FR — FIRE TRUCK ROUTE

ITALICS TEXT REPRESENTS EXISTING CONDITION
NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

BOUNDARY INFORMATION TAKEN FROM DEED REC #55084079 OF S.C.R. & GIS.

CONDITIONAL USE AREA CALCULATION

AREA REMOVED	=	14,450 S.F.
	=	23,925 S.F.
		38,375 S.F.
AREA ADDED	=	4,024 S.F.
	=	31,050 S.F.
		35,074 S.F.

ALL EXISTING PAVEMENTS ARE USED FOR HEAVY VEHICLE ACCESS AND ACCEPTABLE FOR EMERGENCY VEHICLE USE.

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N

Scale: 1" = 100'

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STATE OF OHIO
MATTHEW L. WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

DEVELOPER:

Beacon Marshall
Complete Commercial Development & Construction
3457 GRANGER RD.
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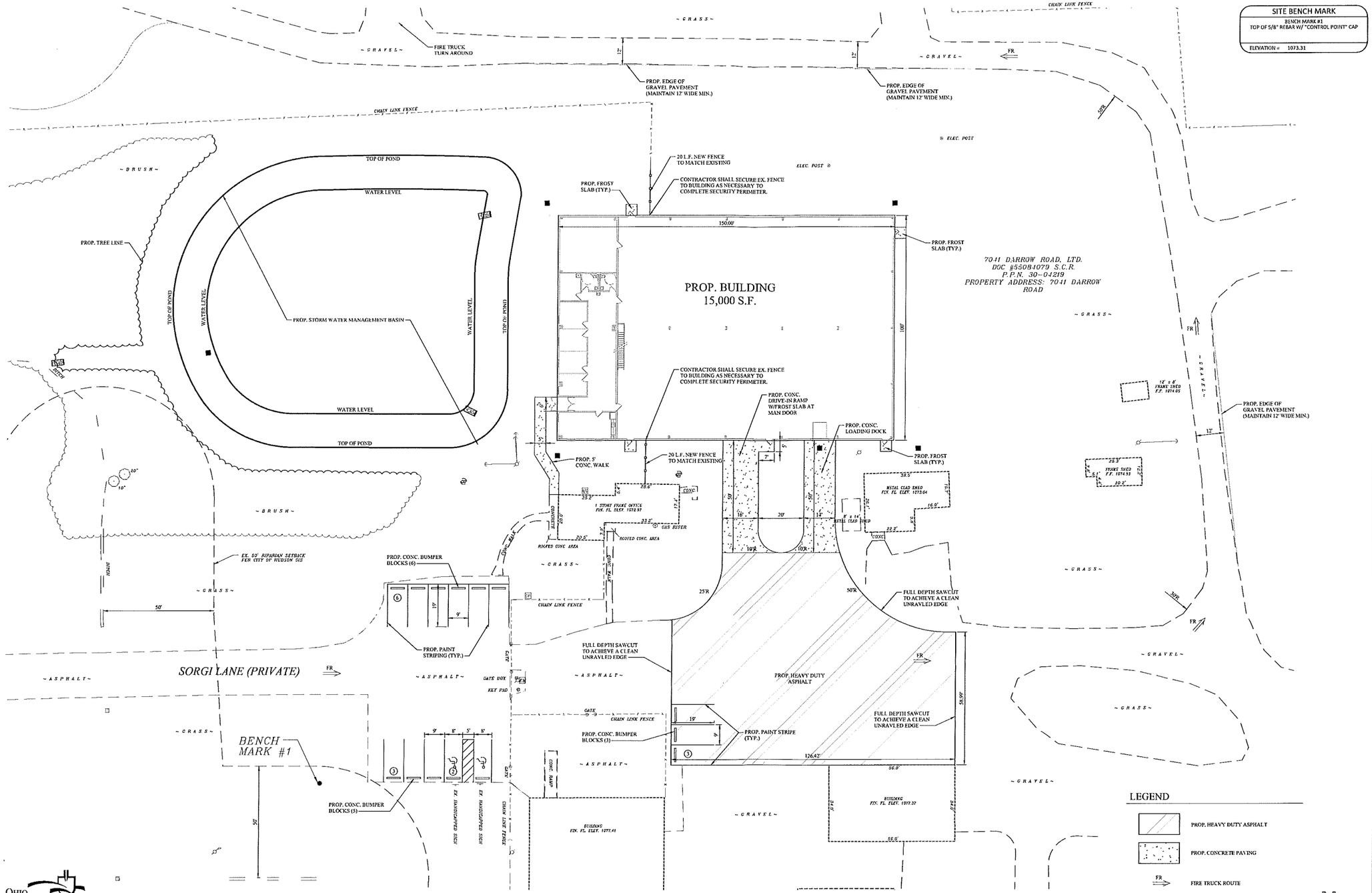
Office: 330-659-2040

AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

Issue Date
07-29-2015
09-10-2015
09-28-2015
10-19-2015
10-29-2015

OVERALL PLAN

C102
Project No. 2015-181



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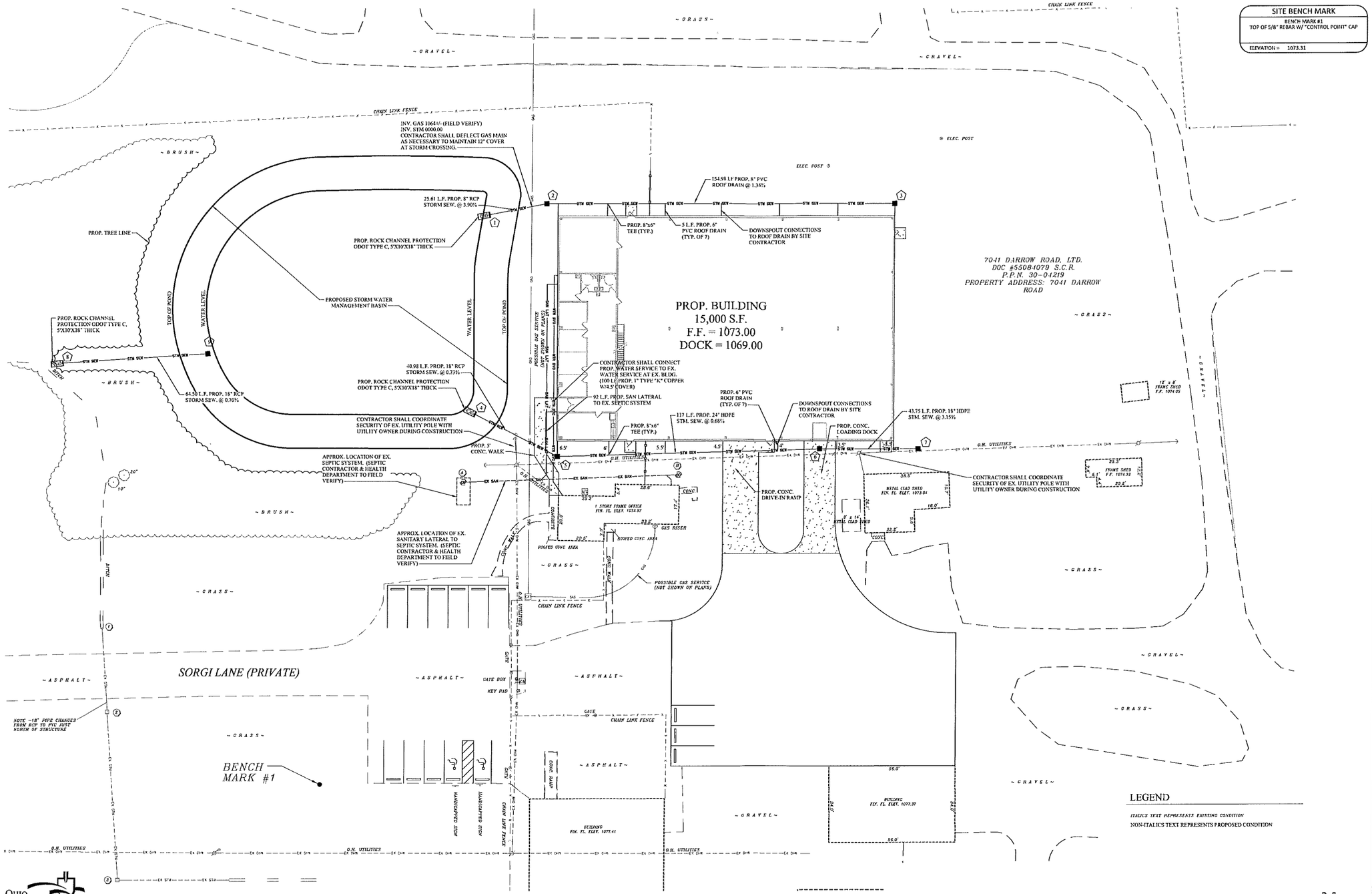
AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

Issue Date
07-29-2015
09-10-2015
09-28-2015
10-19-2015
10-29-2015

SITE PLAN

C102A
Project No. 2015-181



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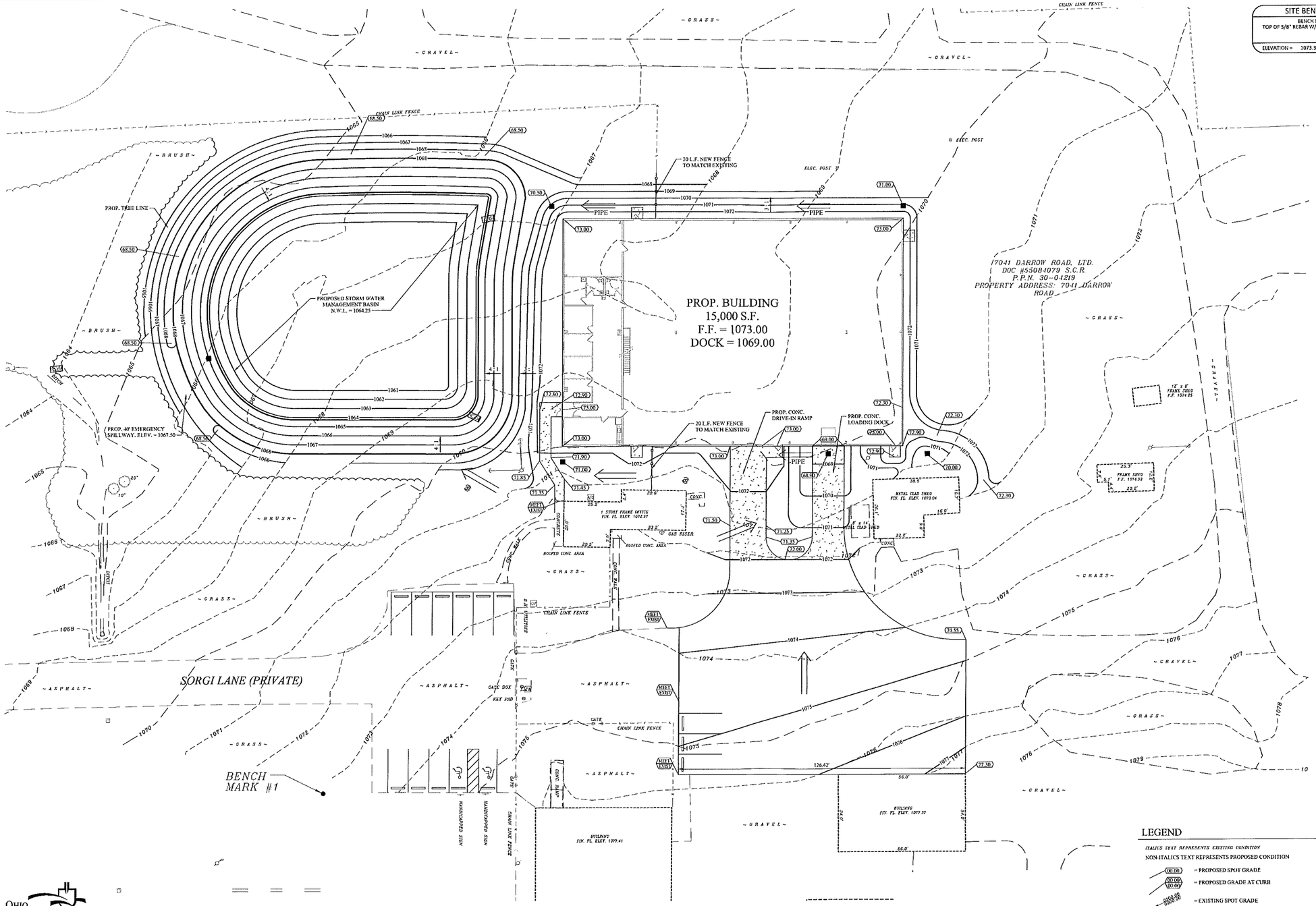
UTILITY PLAN

C103
Project No. 2015-181



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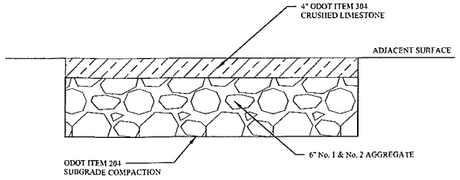
HUDSON, OHIO

Issue Date
07-29-2015
09-10-2015
09-28-2015
10-19-2015
10-29-2015

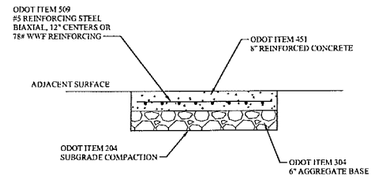
GRADING PLAN

C104
Project No. 2015-181



PROPOSED GRAVEL AREA

REFERENCE ONLY NOT TO SCALE



ALL EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED 6½ ± 1½.

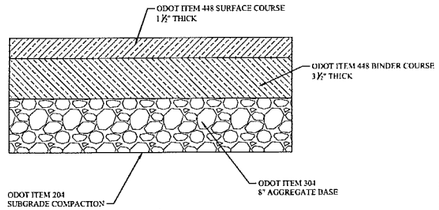
CONTROL JOINTS/SAWCUTS

SOFT CUT SAW CUTS WITHIN 24 HOURS OF POUR TO BE T/4 (T=SLAB THICKNESS), MAX SPACING SHALL BE 12'-0" O.C. MAXIMUM EACH WAY.

CONTROL JOINTS SHALL NOT TERMINATE AT ANY INTERSECTION JOINT (EITHER CONSTRUCTION OR CONTROL) SO AS TO CREATE A "T" INTERSECTION. EXCEPTION: SAWCUTS MAY TERMINATE AT UNDOWELED CONSTRUCTION JOINTS.

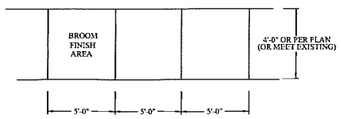
CONCRETE LOADING DOCK DETAIL

REFERENCE ONLY NOT TO SCALE



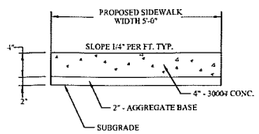
PROP. HEAVY DUTY ASPHALT PAVEMENT

REFERENCE ONLY NOT TO SCALE



CONCRETE SIDEWALK FINISH AND JOINTS

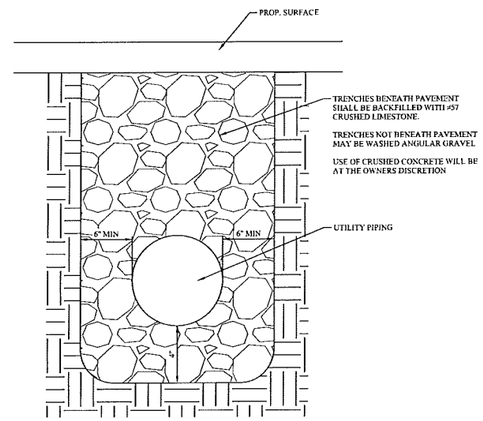
REFERENCE ONLY NOT TO SCALE



NOTE:
CRACK CONTROL SHALL BE AT FIFTEEN FOOT (15') INTERVALS AND SCORE MARKS SHALL BE AT FIVE FOOT (5') INTERVALS. CONSTRUCTION SHALL BE IN ACCORDANCE WITH O.D.O.T. ITEM 608. PRIOR TO THE START OF SIDEWALK CONSTRUCTION THE SUBGRADE MUST BE INSPECTED AND APPROVED BY THE OWNERS REPRESENTATIVE. ANY SETTLEMENT OR DEFICIENT AREAS IDENTIFIED BY THE OWNERS REPRESENTATIVE SHALL BE REPAIRED BY A A METHOD ACCEPTABLE TO THE OWNER. THE REPAIRED AREAS WILL BE SUBJECT TO COMPACTION TESTING AND APPROVAL BY THE OWNER PRIOR TO THE START OF SIDEWALK CONSTRUCTION.

CONCRETE SIDEWALK

REFERENCE ONLY NOT TO SCALE



UTILITY TRENCH DETAIL

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AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

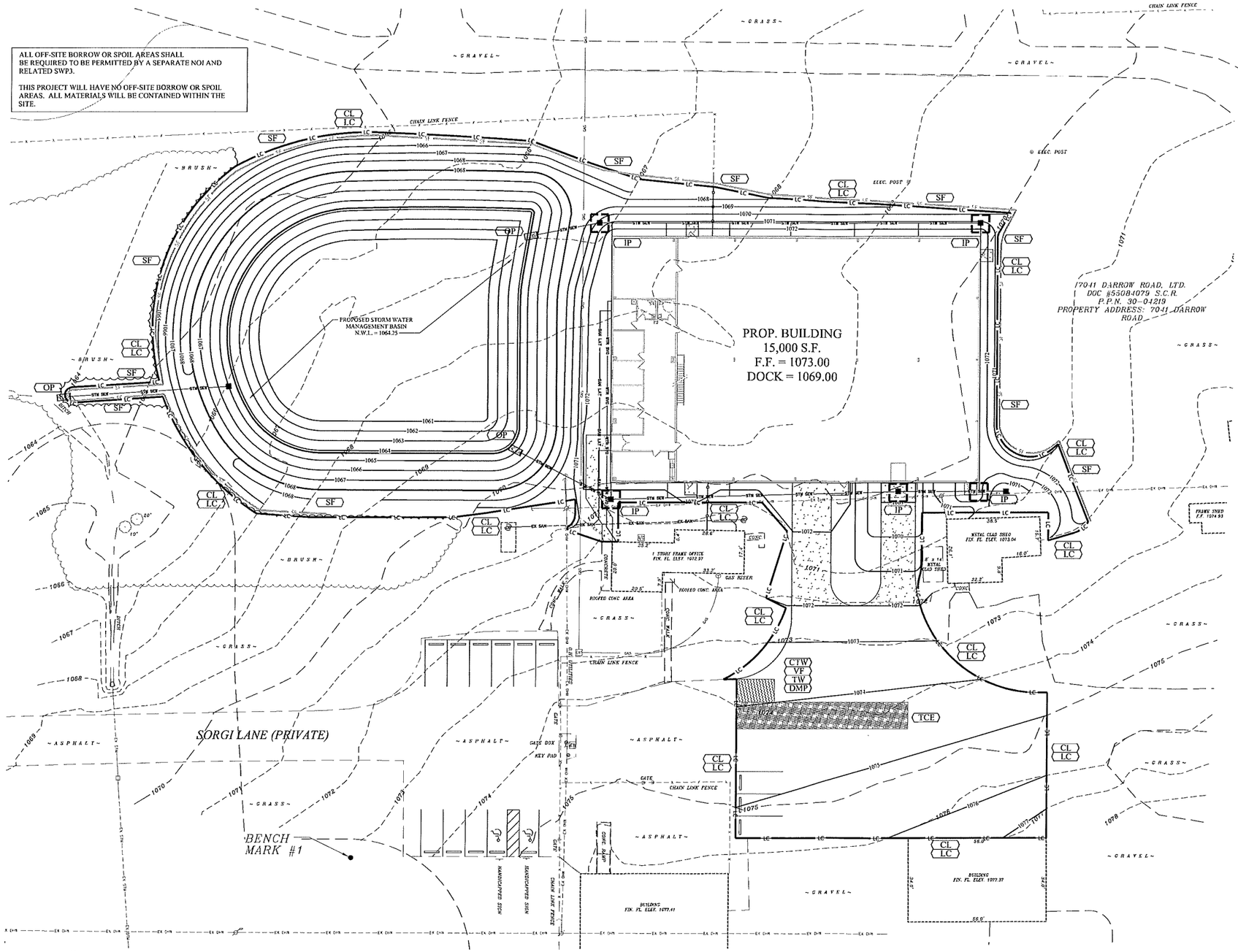
Issue Date
07-29-2015
09-10-2015
09-28-2015
10-19-2015
10-29-2015

SITE DETAILS

C105
Project No. 2015-181

ALL OFF-SITE BORROW OR SPOIL AREAS SHALL BE REQUIRED TO BE PERMITTED BY A SEPARATE NOI AND RELATED SWP3.

THIS PROJECT WILL HAVE NO OFF-SITE BORROW OR SPOIL AREAS. ALL MATERIALS WILL BE CONTAINED WITHIN THE SITE.



SITE BENCH MARK

BENCH MARK #1
TOP OF 5/8" REBAR W/ "CONTROL POINT" CAP

ELEVATION = 1073.31

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39153C0064E & 39153C0065E
COMMUNITY PANEL NUMBER 3906600064E & 6906600065E
EFFECTIVE DATE JULY 20, 2009

SWP3 AMENDMENT ACTIVITIES

GRADING _____ DATE

SITE STABILIZATION _____ DATE

SWP3 AMENDMENT _____ DATE

SWP3 RESPONSIBLE PARTY

EM CONSTRUCTION
CHARLES MARSHALL
3457 GRANGER ROAD
AKRON, OHIO 44333
330-659-2040

ESTIMATED CONSTRUCTION DATES

START DATE 11-01-2015
END DATE 07-01-2016

SWP3 PREPARED

09-28-2015

TAG	HATCH/SYMBOL	SWP3 BMP
CL LC		CLEARING LIMITS, LIMITS OF CONSTRUCTION
TCE		TEMPORARY CONSTRUCTION ENTRANCE
CTW VF TW DMP		CEMENT TRUCK WASHOUT, VEHICLE FUELING, TOXIC WASTE AND DUMPSTER LOCATION
IP		INLET PROTECTION (SEE DETAIL ON SHT. C109)

TAG	LINE	SWP3 BMP
SF	SF	SILT FENCE
OP		OUTLET PROTECTION

INSPECTION CHECKLIST

INSPECTIONS SHALL BE MADE ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVEN GREATER THAN ONE-HALF INCH OF RAIN PER 24 HOUR PERIOD

DATE	INSPECTOR	WEATHER CONDITIONS	RAINFALL AMOUNT	SEDIMENT DISCHARGE	DISCHARGE LOCATION	BMPS FAILED	ADDITIONAL BMPS NEEDED	CORRECTION MADE

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Scale: 1" = 20'

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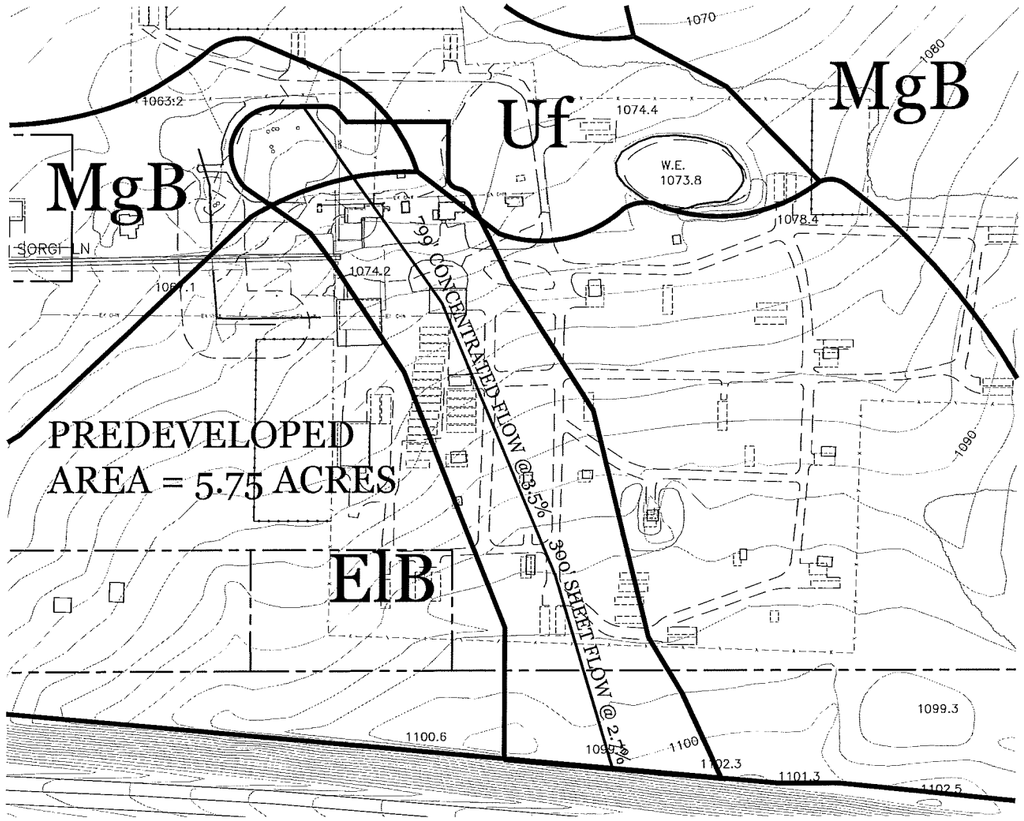
AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

SWP3 PLAN

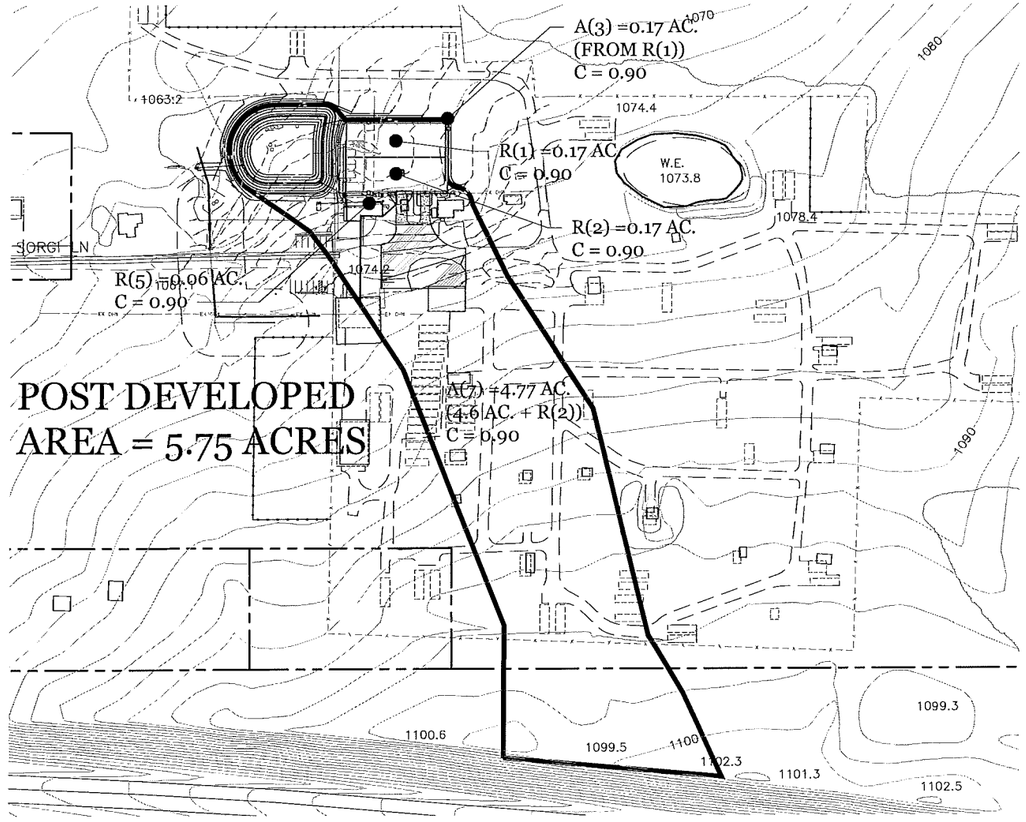
C106
Project No. 2015-181



PRE-DEVELOPED DRAINAGE MAP & SOILS MAP

PRE-DEVELOPED: AREA = 5.75 AC., C = 0.79, TC = 28.4 MIN.

EIB	-	Ellsworth silt loam, 2 to 6% slopes
MgB	-	Mahoning silt loam, 2 to 6% slopes
Uf	-	Udorthents, sanitary landfill



STORM DRAINAGE MAP & POST DEVELOPED DRAINAGE

POST DEVELOPED: AREA = 5.75 AC., C = 0.84, TC = 28.4 MIN.

Storm Sewer Tabulation

Page 1

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	25.61	0.01	0.18	0.90	0.01	0.16	28.4	29.8	4.2	0.67	2.39	2.57	8	3.90	1064.25	1065.25	1065.35	1065.64	1067.00	1070.50	2 to 1
2	1	154.98	0.17	0.17	0.90	0.15	0.15	28.4	28.4	4.3	0.66	1.40	3.15	8	1.34	1065.25	1067.33	1065.64	1067.71	1070.50	1071.00	3 to 2
3	End	40.86	0.05	4.84	0.90	0.05	4.36	28.4	28.8	4.3	18.53	19.35	5.90	24	0.73	1064.25	1064.55	1066.55	1066.83	1068.00	1071.00	5 to 4
4	3	117.00	0.01	4.78	0.90	0.01	4.30	28.4	28.5	4.3	18.43	18.70	5.87	24	0.68	1064.55	1065.35	1067.10	1067.68	1071.00	1068.90	6 to 5
5	4	32.70	4.77	4.77	0.90	4.29	4.29	28.4	28.4	4.3	18.42	18.64	10.42	18	3.15	1065.85	1066.88	1067.98	1068.97	1068.90	1070.00	7 to 6

2015-181 Storm 01A — Number of lines: 5 — Run Date: 10/16/2015

NOTES: Intensity = 105.39 / (Inlet time + 10.20) ^ 0.68; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewers v10.50

N

Scale: 1" = 100'

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STATE OF OHIO — MATTHEW L WEBER — 61709 — REGISTERED PROFESSIONAL ENGINEER

Reg. No.: 61709

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AMERICAN FIREWORKS
7041 DARROW ROAD
HUDSON, OHIO

Issue Date
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09-10-2015
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10-19-2015
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SWP3 DETAILS

C107
Project No. 2015-181

Type of Land Use	Drainage Area (Ac.)	% Impervious Area	Calculated Runoff Coefficients	Water Quality Volume (C.F.)
Industrial and Commercial	5.75	0.80	0.80	12,521 C.F.
Industrial and Commercial (Paver Area)		0.40	0.80	
Industrial and Commercial		0.80	0.80	
Low Density Residential (<4 dwellings/acre)		0.30		
Redevelopment		0.20		
Parks, Agriculture or Open Space		0.05		
Total Drainage Area =	5.75			12,521 C.F.
Weighted C =	0.80			

Water Quality Volume is determined using $WQ_v = 0.75 \times C \times A/12$ per Ohio EPA General Permit No. OHC000003 requirements.
Runoff coefficients calculated using $C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$ per Ohio EPA General Permit No. OHC000003.

Retention Pond Information

	Elevation	Area, S.F.	Volume (C.F.)	Volume Sum (C.F.)	Spillway Design	
					19.16	100-yr Peak Flow, C.F.S.
					0.50	Spillway Height, Ft.
BOT	1063.00	9,099	0	0	20.00	Spillway Width, Ft.
	1063.00	9,099	0	0		
	1063.00	9,099	0	0		
	1063.00	9,099	0	0		
	1063.00	9,099	0	0		
	1063.00	9,099	0	0		
	1063.00	9,099	0	0		
	1063.00	9,099	0	0		
	1064.00	10,619	9,859	9,859		
DEW	1064.25	11,397	2,792	12,611		
	1065.00	12,243	8,865	21,476		
	1066.00	13,567	13,105	34,581		
	1067.00	15,792	14,879	49,460		
	1068.00	17,717	16,754	66,215		
TB	1068.50	18,718	9,109	75,323		

TEMPORARY SEDIMENT

Sediment Basin Data					
Basin Number					
A. Total Contributing Watershed (ac.)	5.75				
B. Disturbed Area (ac.)	1.38				
C. Req. Dewatering Volume (A x 1,890 cu. ft./ac.)	10,350				
D. Req. Sediment Storage Zone Vol. (B* 1000)	1,380				
E. Total Required Capacity (C+D in cu ft)	11,730				
F. Dewatering Volume Provided (cu. ft./ac.)	37,133				
G. Sediment Storage Provided (cu. ft./ac.)	12,611				
H. Total Storage Provided in Crest of Riser (cu. ft./ac.)	49,744				
Principal Spillway					
Req. Principal Spillway Capacity (10 yr-24hr storm) (cfs)	10.11				
Principal Spillway Capacity Provided (cfs)	6.12				
Principal Spillway Elevation	1067.00				
Riser (inches)	35" SQ				
Diameter of Barrel (inches)	18"				
Volume of Concrete to Prevent Riser Flotation (cu. ft.)	9				
Outlet Type					
Drawdown Time (Hours must exceed 48 hr drawdown)	72				
Mark selected outlet type (X)					
A. Non-perforated Riser with Stub & Faircloth Skimmer	X				
(Orifice size in inches)	1.5				
Stone pad provided at top of Sediment storage	X				
B. Protected Single Orifice					
(Orifice size in inches)					
C. Perforated Riser					
Hole size (inches)					
Number of Holes					
Protection of Perforations - sm holes (<3/4") typ need anti-clogging measure - aggregate > than hole size or wire cloth/fence & geotextile					
Pond Shape - 4:1 LW for each inlet or baffle(s) applied	4:1				
Baffles Detailed (Yes or No)	Yes				
Bottom Elevation	1063.00				
Sediment Storage Zone Elevation	1064.25				
Crest of Principal Spillway Elevation (Min. 1 ft. below crest E. S.)	1067.00				
Pool Depth at Riser (ft., ideally 3-5')	4.00				
Top of Embankment Elevation	1068.50				
Embankment Side Slopes (Max 2:1, combined 5:1)	3:1				
Embankment Top Width (ft., baBOT on C/L Height, Min 8')	4				
Req. Emergency Spillway Capacity (25 yr-24hr storm) (cfs)	13.10				
Req. Emergency Spillway Discharge (25 yr-24 hr storm less Principal S.)	7.28				
Emergency Spillway Capacity Provided (cfs)	19.80				
Emergency Spillway Elevation	1067.50				
Emergency Spillway Bottom Width	20.00				
Emergency Spillway Lining (Vegetated or Riprap)	Rip Rap				
Rock Outlet Protection (Size, gradation and quality of rock)					
Length	10.00				
Width	5.00				
Depth	1.50				
Gradation - O.D.O.T. unless specified otherwise	C				

SEDIMENT BASIN DATA

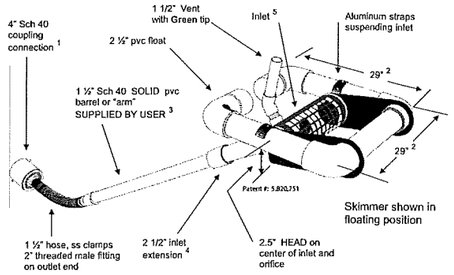
Calculate Skimmer Size			
Basin Volume in Cubic Feet	10,350 Cu.Ft	Skimmer Size	2.5 Inch
Days to Drain*	3 Days	Orifice Radius	0.9 Inch[es]
		Orifice Diameter	1.9 Inch[es]

*In NC assume 3 days to drain

FAIRCLOTH SKIMMER DATA

2.5" *Faircloth Skimmer®* Surface Drain Cut Sheet

J. W. Faircloth & Son, Inc.
www.FairclothSkimmer.com



1. Skimmer can be attached to a straight 4" sch 40 pipe through the dam but the pipe may need to be anchored to the bottom at the connection so it is secure. Coupling can be removed and hose attached to outlet using the threaded 2" fitting. Typical methods used: on a metal structure a steel stubout welded on the side at the bottom with a 2" threaded coupling or reducers; on a concrete structure with a hole or orifice at the bottom, use a steel plate with a hole cut in it and coupling welded to it that will fit over the hole in the concrete and bolted to the structure with sealant: grout a 4" pvc pipe in a hole in the concrete to connect the skimmer.
2. Dimensions are approximate, not intended as plans for construction.
3. Barrel (solid, not foam core pipe) should be 1.4 times the depth of water with a minimum length of 6' so the inlet can be pulled to the side for maintenance. If more than 8' long weight may have to be added to inlet to counter the increased buoyancy.
4. Inlet tapers down from 2 ½" maximum inlet to a 1½" barrel and hose. Barrel is smaller to reduce buoyancy and tendency to lift inlet but is sufficient for flow through inlet because of slope. The inlet orifice can be reduced using the plug and cutter provided to control the outflow rate.
5. Inlet is 5" pipe between the straps with aluminum screen door for access to the 2½" inlet and orifice inside.
6. **Capacity** 6,234 cubic feet per day maximum with 2½" inlet and 2.5 head. Inlet can be reduced by installing a smaller orifice using the plug and cutter provided to adjust flow rate for the particular basin volume and drawdown time required.
7. Shipped assembled. User glues inlet extension and barrel, installs vent, cuts orifice in plug and attaches to outlet pipe or structure. Includes flexible hose, rope, orifice cutter, etc.

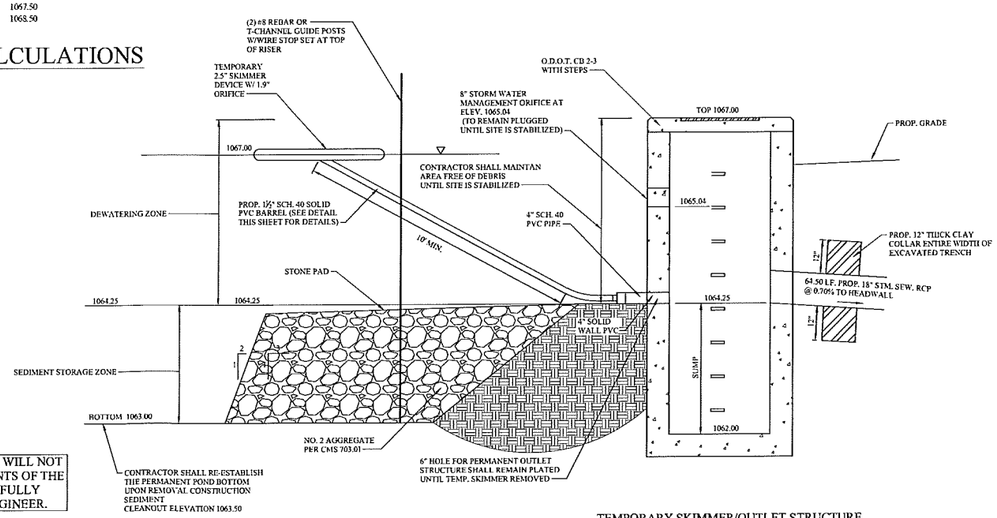
2-5inchCut TM 11-07 November 11, 2007

Use a Temporary Skimmer

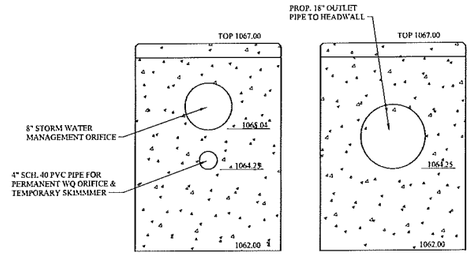
Total Drainage Area:	5.75 Ac.
Disturbed Earth Area:	1.38 Ac.
Sediment Storage Volume Required (1,000 C.F./Ac.):	1,380 C.F.
Sediment Storage Volume Provided Below Skimmer Orifice:	12,611 C.F.
Dewatering Volume Required (1,800 C.F./Ac.)	10,350 C.F.
Dewatering Volume Provided Below Principal Spillway:	37,133 C.F.
Design Detention Volume:	63,996 C.F.
Bottom of Temporary Sediment Basin:	1063.00
Invert of Skimmer device:	1064.25
Normal Water Level:	1064.25
Cleanout Elevation:	1063.50
Set Crest of Principal Spillway at:	1067.00
Set Crest of Emergency Spillway at:	1067.50
Top of Bank:	1068.50

TEMPORARY SKIMMER CALCULATIONS

THE RIGHT-OF-WAY BOND PROVIDED TO THE CITY, WILL NOT BE RELEASED UNTIL SUCH TIME THAT ALL ELEMENTS OF THE STORM WATER MANAGEMENT BASINS HAVE BEEN FULLY INSTALLED TO THE SATISFACTION OF THE CITY ENGINEER.

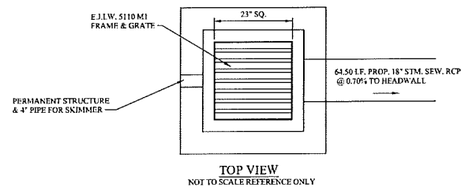


TEMPORARY SKIMMER/OUTLET STRUCTURE
NOT TO SCALE REFERENCE ONLY



LEFT VIEW
NOT TO SCALE REFERENCE ONLY

RIGHT VIEW
NOT TO SCALE REFERENCE ONLY



TOP VIEW
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SWP3 DETAILS

C108
Project No. 2015-181

Water Quality Orifice Design for Extended Detention Basin (Version 4/8/2014)

For sizing of single water quality orifice in wet or dry extended detention basin or constructed wetland

Spreadsheet Created by Chris Barnes, PE, CPESC, CPSWQ, CMS4S - Assistant City Engineer, City of Canton, OH

PLEASE MAKE SURE YOU ARE USING THE MOST CURRENT VERSION AVAILABLE AT http://cantonohio.gov/engineering/Pgm=510

Project Description: American Fireworks — Date: 10/15/2015 — By: WES

Section 1: WATER QUALITY VOLUME CALCULATION

Water Quality Volume, WQv = CPA/12 ft^3 or acre-ft

Where Runoff Coefficient, C = value(s) from table:

Land Use	C	Acres
Industrial & Commercial	0.8	5.73
High Density Residential (>8 dwellings/acre)	0.5	
Medium Density Residential (3 to 8 dwellings/acre)	0.4	
Low Density Residential (<4 dwellings/acre)	0.3	
Open Space and Recreational Areas	0.2	

Drainage Area, A = 5.73 acres (total area draining into Extended Detention Basin)

Runoff Coefficient, C = 0.80 (composite C) Calculated C = 0.8000 (from above Table)

Precipitation Depth, P = 0.75 inches

WQv = 12,524 ft^3 = 0.29 acre-ft

Section 2: EXTENDED DETENTION BASIN DESIGN PARAMETERS

Type of Extended Detention Basin = Wet Ext. Det. Basin (Select from drop-down list)

Required Extended Detention Volume, EDv = 9,393 ft^3 = 0.75*WQv for Wet Extended Detention Basin

Minimum required draw-down time = 24 hrs

Add'l 25% volume required for sediment storage = 2,505 ft^3 (Provide in forebays and/or micropools in addition to the permanent pool)

Calculated minimum permanent pool volume = 5,333 ft^3 (Sized at 75% of WQv)

Minimum permanent pool volume = 5,333 ft^3 (Enter calculated minimum permanent pool volume)

Total add'l volume required below WQ orifice = 11,838 ft^3 (Min. 25% for sediment storage + 75% for permanent pool = 95% of WQv)

1/2 of required EDv = 4,696 ft^3 (The first 1/2 of the WQv or extended detention volume (EDv) must not discharge in less than 1/3 of the minimum required drain time)

1/3 of required draw-down time = 8.00 hrs

Results = EXTENDED DETENTION BASIN DESIGN PARAMETERS OK

Section 3: BASIN ELEVATIONS & VOLUME INFORMATION (Volume calculated by elevation - area method)

WQ orifice invert elevation = 1064.25 ft

	Contour Elevation (ft)	Contour Area (ft^2)	Contour Area (acres)	Incremental Volume (ft^3)	Incremental Volume (ac-ft)	Cumulative Volume (ft^3)	Cumulative Volume (ac-ft)
Bottom of sediment storage =	1063.00	8,099	0.2	0	0	0	0
	1064.00	10,819	0.2	8,959	0.2	8,959	0.2
WQ orifice invert elevation =	1064.25	11,397	0.3	2,752	0.1	12,611	0.3
	1065.00	12,243	0.3	8,865	0.2	21,476	0.5
	1066.00	13,587	0.3	13,105	0.3	34,581	0.8
	1067.00	15,797	0.4	14,820	0.3	49,401	1.1
	1068.00	17,717	0.4	16,755	0.4	66,215	1.5
	1068.50	19,718	0.4	9,109	0.2	75,324	1.7

Resulting total volume provided below WQ orifice = 12,611 ft^3 which is > or equal to 11,838 ft^3 (Result is 100.26% of the WQv)

Resulting EDv Elevation = 1,065.04 ft (corresponds to the required EDv when placed in the above basin configuration)

Resulting volume provided above WQ orifice = 62,713 ft^3 which is > or equal to 9,393 ft^3 (which is the required EDv)

Results = Sufficient volume provided BELOW WQ orifice (OK).

Sufficient volume provided ABOVE WQ orifice to contain EDv (OK). Ensure any/all flood control outlets are ABOVE the EDv elevation.

BASIN ELEVATIONS & VOLUME INFORMATION OK

Section 4: WQ ORIFICE CALCULATIONS - OHIO EPA METHOD #3 (from Post-Construction Q&A Document, using design parameters above)

EDv elevation = 1,065.04 ft (corresponds to the required EDv; calculated above)

WQ orifice invert elevation = 1,064.25 ft (user-defined from above)

Maximum Hydraulic Head, H_{max} = 0.79026 ft (this is the EDv depth measured from the WQ orifice invert to the EDv elevation)

Orifice Coefficient, C = 0.60

Actual draw-down time = 24.00 hrs (this is the required draw-down time)

Average Discharge, Q_{avg} = 0.10671 cfs (this is the average discharge corresponding to the required draw-down time)

Average Hydraulic Head, H_{avg} = 0.39513 ft

Orifice Area, $A = Q_{avg}/(C(2g(H_{avg}))^{0.5})$ = 0.03592 ft^2

Calculated Orifice Diameter, D = 2.66620 in

Volume discharged in 1/3 of draw-down time = 3,130.83 ft^3 which is less than 4,696 ft^3 (which is 1/2 of the required EDv)

Results = Anti-clogging device typically not required for this orifice diameter.

First 1/2 of EDv or WQv does not discharge in less than 1/3 of minimum drain time (OK).

WQ ORIFICE CALCULATIONS - OHIO EPA METHOD #3 OK ALL DESIGN PARAMETERS OK

Section 5: WQ ORIFICE CALCULATIONS - MANUAL ESTIMATE (using volumes, elevations, head values, and orifice coefficient above)

Orifice Diameter, D = 2.5 in

Maximum Hydraulic Head, H_{max} = 0.79026 ft (this is the EDv depth measured from the WQ orifice invert to EDv elevation)

Average Discharge, Q_{avg} = 0.10317 cfs (this is the average discharge corresponding to D, H_{max}, and orifice C)

Actual draw-down time = 25.28769 hrs which is > or equal to 24.00 hrs (minimum drawn-down time)

Volume discharged in 1/3 of required draw-down time = 2,971.42 ft^3 which is less than 4,696 ft^3 (which is 1/2 of the required EDv)

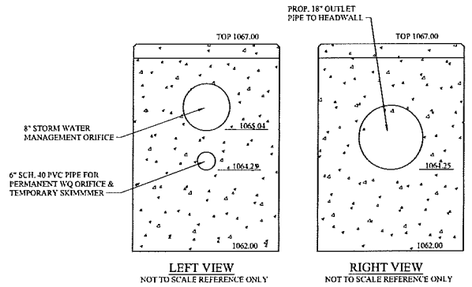
Results = Anti-clogging device typically not required for this orifice diameter.

Actual draw-down time is equal to or greater than minimum allowable draw-down time (OK).

First 1/2 of EDv or WQv does not discharge in less than 1/3 of minimum drain time (OK).

WQ ORIFICE CALCULATIONS - MANUAL ESTIMATE OK. ALL DESIGN PARAMETERS OK.

Page 1 of 1



LEFT VIEW
NOT TO SCALE REFERENCE ONLY

RIGHT VIEW
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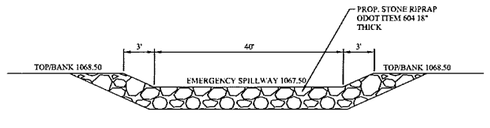
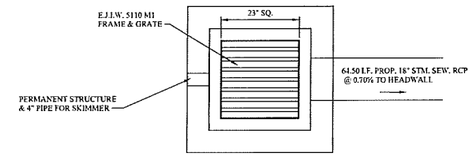


EMERGENCY SPILLWAY
REFERENCE ONLY NOT TO SCALE



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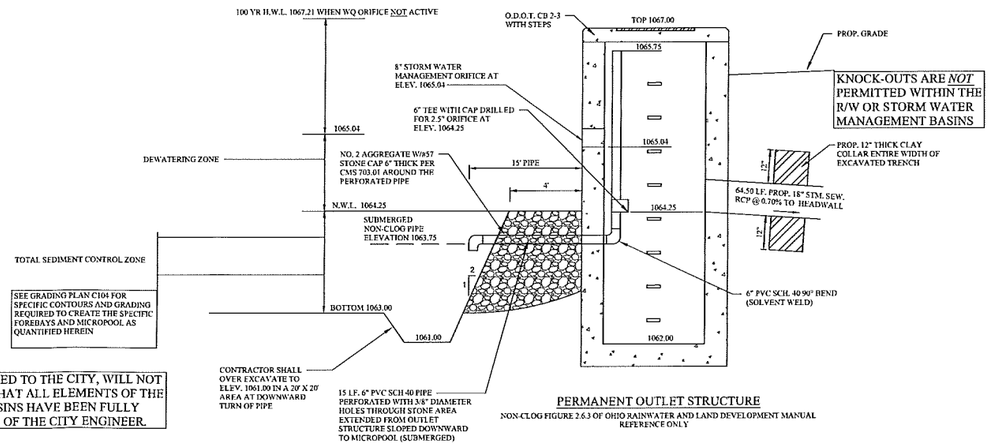

PERMANENT OUTLET STRUCTURE
NON-CLOG FIGURE 2.6.3 OF OHIO RAINWATER AND LAND DEVELOPMENT MANUAL
REFERENCE ONLY

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SWP3 DETAILS

C108A
Project No. 2015-181

1. Construction personnel, including subcontractors who may use or handle hazardous or toxic materials. shall be made aware of the following general guidelines regarding disposal and handling of hazardous and construction wastes:
   - Prevent spills
   - Use products up
   - Follow label directions for disposal
   - Remove lids from empty bottles and cans when disposing in trash
   - Recycle wastes whenever possible
   - Don't pour into waterways, storm drains or onto the ground
   - Don't pour down the sink, floor drain or septic tanks
   - Don't bury chemicals or containers
   - Don't burn chemicals or containers
   - Don't mix chemicals together

2. **Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on-site.** Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill.

3. **No construction related waste materials are to be buried on-site.** By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.

4. **Handling Construction Chemicals.** Mixing. pumping. transferring or other handling of construction chemicals such as fertilizer. lime. asphalt. concrete drying compounds. and all other potentially hazardous materials shall be performed in an area away from any watercourse. ditch or storm drain.

5. **Equipment Fueling and Maintenance,** oil changing. etc .. shall be performed away from watercourses. ditches or storm drains. in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secoodary containment shall be provided for all fuel oil storage tanks. These areas must be inspected every seven days and within 24 hrs. of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single above ground tank of 660 gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.

6. **Concrete Wash Water** shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged.

7. **Spill Reporting Requirements:** Spills on pavement shall be absorbed with sawdust or kitty litter and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA, the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills which contact waters of the state must be reported to Ohio EPA.

8. **Contaminated Soils.** If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at licensed sanitary landfill or other approved petroleum contaminated soil remediation facility. (not a construction/demolition debris landfill). Note that storm water runoff associated with contaminated soils are not be authorized under Ohio EPA's General Storm Water Permit associated with Construction Activities.

9. **Open Burning.** No materials containing rubber, grease, asphalt, or petroleum products, such as tires, autoparts, plastics or plastic coated wire may be burned (OAC 3745-19). Open burning is not allowed in restricted areas, which are defined as: 1) within corporation limits; 2) within 1000 feet outside a municipal corporation having a population of 1000 to 10,000; and 3) a one mile zone outside of a corporation of 10, 000 or more. Outside of restricted areas, no open burning is allowed within a 1000 feet of an inhabited building on another property. Open burning is permissible in a restricted area for: heating tar, welding, smudge pots and similar occupational needs, and heating for warmth or outdoor barbeques. Outside of restricted areas, open burning is permissible for landscape or land-clearing wastes (plant material, with prior written permission from Ohio EPA) , and agricultural wastes, excluding buildings.

10. **Dust Control or dust suppressants** shall be used to prevent nuisance conditions, in accordance with the manufacturer's specifications and in a manner, which prevent a discharge to waters of the state. Sufficient distance must be provided between applications and nearby bridges, catch basins, and other waterways. Application (excluding water) may not occur when rain is imminent as noted in the short term forecast. Used oil may not be applied for dust control.

11. **Other Air Permitting Requirements:** Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.

12. **Process Waste Water/Leachate Management.** Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on-site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or septage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.

13. **A Permit To Install (PTI** is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.

OHIO EPA PERMIT NO. OHC000004

PART III G. SWP3 REQUIREMENTS

a. COMMERCIAL BUILDING EXPANSION

b. TOTAL SITE AREA - 54.06 AC. - DISTURBED AREA = 1.38 AC.

c. PRE-CONSTRUCTION RUNOFF COEFFICIENT - C=0.90; POST-CONSTRUCTION RUNOFF COEFFICIENT C=0.90

d. IMPERVIOUS AREA = 1.98 AC. (ENTIRE SITE), PERCENT IMPERVIOUS = 3.66%.

e. SOIL TYPES:
   - EIB ELLSWORTH SILT LOAM
   - MGA MAHONING SILT LOAM
   - MGB MAHONING SILT LOAM
   - TR TRUMBULL SILT LOAM
   - UF UDORTHENTS

f. PRIOR LAND USE: DEVELOPED COMMERCIAL

g. CONSTRUCTION SEQUENCE - SEE IMPROVEMENT PLANS

h. UNNAMED TRIBUTARY TO BRANDYWINE CREEK
   - NO WETLANDS REQUIRING PERMIT

i. NOT SUBDIVIDED (MEASURES IDENTIFIED ON PLANS)

j. NOT APPLICABLE

k. PERMIT REQUIREMENTS ATTACHED. (FIELD COPY)

l. IDENTIFIED ON SHEET C106

m. IDENTIFIED ON SHEET C106

n. SITE MAP SHOWN ON PLANS
   (i) LIMITS OF CONSTRUCTION IDENTIFIED ON THE PLANS (LC).
   (ii) SOIL TYPES IDENTIFIED ON THE PLANS
   (iii) DRAINAGE WATER SHEDS IDENTIFIED ON THE PLANS.
   (iv) THERE ARE NO WETLANDS ON THE SITE. NO SPRINGS, LAKES OR WATER WELLS WITHIN 200 FEET OF THE SITE.
   (v) EXISTING & PLANNED LOCATIONS OF BUILDINGS, ROADS, PARKING FACILITIES AND UTILITIES ARE IDENTIFIED ON THE PLANS.
   (vi) EROSION AND SEDIMENT CONTROL PRACTICES ARE IDENTIFIED ON THE PLANS.
   (vii) SEDIMENT & STORM WATER MANAGEMENT DATA IS IDENTIFIED ON THE PLANS.
   (viii) PERMANENT STORM WATER MANAGEMENT PRACTICES ARE IDENTIFIED ON THE PLANS.
   (ix) CEMENT TRUCK WASHOUT, DUMPSTER & VEHICLE FUELING AREA ARE IDENTIFIED ON THE PLANS.
   (x) CONSTRUCTION ENTRANCE IS IDENTIFIED ON THE PLANS.
   (xi) NOT APPLICABLE

2. A. NOT APPLICABLE.

B. TEMPORARY SEEDING AND PERMANENT SEEDING MEASURES ARE IDENTIFIED ON THE PLANS.
   (I) TABLE 1 & TABLE 2 HAVE BEEN IDENTIFIED ON THE PLANS.
   (II)NOT APPLICABLE.

C. SHEET FLOW RUNOFF HAS BEEN CONTROLLED BY MEANS OF SILT FENCE AND DIRECTED TOWARDS UNDISTURBED SOILS. POINT DISCHARGES HAVE BEEN CONTAINED WITHIN STORM SEWERS.

D. SEDIMENT CONTROL HAS BEEN MANAGED BY MEANS OF SILT FENCE.
   (I) NOTED THROUGHOUT THE PLANS.
   (II) SILT FENCE UTILIZED.
   (III) SILT FENCE IS IDENTIFIED ON THE PLANS.
   (IV) INLET PROTECTION IS IDENTIFIED ON THE PLANS.
   (V) NOT APPLICABLE.
   (VI) NOTED ON THE IMPROVEMENT PLANS.

E. POST-CONSTRUCTION MAINTENANCE AND INSPECTION IS IDENTIFIED ON THE PLANS.
   LARGE CONSTRUCTION ACTIVITIES - NOT APPLICABLE
   SMALL CONSTRUCTION ACTIVITIES - RATIONALE IDENTIFIED ON PLANS

F. SURFACE WATER PROTECTION - NOT APPLICABLE

G. OTHER CONTROLS
   (I) CEMENT TRUCK WASHOUT AREA IS IDENTIFIED ON THE PLANS.
   (II)DUST CONTROL MEASURES AND VEHICLE TRACKING ARE IDENTIFIED ON THE PLANS.
   (III) ADDITIONAL NOTES ARE IDENTIFIED ON THE PLANS.
   (IV) NOTED ON THE PLANS.
   (V) NOTED ON THE PLANS.

H. NOTED THROUGHOUT THE PLANS.

I. INSPECTION FREQUENCY AND INSPECTION CHECKLIST IS NOTED ON THE PLANS.
   (I) NOTED ON THE PLANS.
   (II) NOTED ON THE PLANS.
   (III) STATEMENT NOTED.

3. APPROVED STATE OR LOCAL PLANS
   STATEMENT NOTED.

4. EXCEPTIONS
   STATEMENT NOTED.

CONSTRUCTION SEQUENCE

(ALL ITEMS ARE TO BE THE RESPONSIBILITY OF THE GENERAL SITE CONTRACTOR)

SITE PREPARATION

NOTE:

PROVIDE SAFE AND SECURE PEDESTRIAN AND VEHICULAR TRAFFIC CIRCULATION THROUGHOUT THE ENTIRETY OF THE CONSTRUCTION SEQUENCE WITH WELL DEFINED CONSTRUCTION BOUNDARIES TO BE ACCESSED BY CONSTRUCTION PERSONNEL ONLY. ALL EROSION CONTROLS ARE TO BE THOROUGHLY INSPECTED BY THE CONTRACTOR UPON THE COMPLETION OF EACH WORK DAY AND MAINTAINED THROUGHOUT THE REQUIRED LIFE OF THE CONTROL, AS SPECIFIED BY THE APPROVED EROSION AND SEDIMENTATION CONTROL PLANS AND NARRATIVE. THE CONTRACTOR MUST REVIEW THE APPROVED EROSION AND SEDIMENTATION CONTROL PLANS AND NARRATIVE. THE CONTRACTOR MUST REVIEW THE APPROVED NPDES PERMIT AND SIGN THE PERMIT TO ACCEPT RESPONSIBILITIES AS THE CO-PERMITEE.

INITIAL PHASE (WITHIN 7 DAYS OF START OF GRUBBING)

1. INSTALL A TEMPORARY CONSTRUCTION ENTRANCE FOR ACCESS TO CONSTRUCTION AREAS OF SITE.
2. SETUP CONSTRUCTION TRAILER ON SITE AND ESTABLISH TEMPORARY POWER AND TELEPHONE SERVICE AS NECESSARY.
3. ALL TEMPORARY UTILITY SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. STAKEOUT LIMITS OF DISTURBANCE.
5. INSTALL TEMPORARY INLET PROTECTION ON ALL EXISTING CATCH BASINS WITHIN LIMITS OF CONSTRUCTION. REMOVE SILT PROTECTION FROM DESIGNATED INLETS ONLY WHEN INLET STRUCTURE IS TO BE REMOVED AS REQUIRED BY PROGRESSION OF CONSTRUCTION. REFER TO PLANS FOR IDENTIFICATION OF INLET STRUCTURES TO BE REMOVED.
6. INSTALL ALL FILTER FABRIC FENCE WHERE SHOWN ON PLANS.
7. BEGIN SITE CLEARING.
8. REMOVE TOPSOIL FROM AREAS OF BUILDING AND PAVEMENT.
9. BEGIN EARTHWORK OPERATIONS.
10. CONSTRUCT STORM WATER BASIN.
11. IN THE EVENT OF RAIN, ALLOW STANDING WATER TO SETTLE PRIOR TO PUMPING. UTILIZE THE PUMPING SYSTEMS TO PUMP POLLUTED WATER PER E.P.A. REQUIREMENTS. ALLOW ONLY CLEAN WATER TO BE DISCHARGED TO THE EXISTING DRAINAGE SYSTEM. REMOVE SILT FROM BASINS AS NECESSARY PRIOR TO CONTINUING EARTHWORK. MATERIAL SHOULD BE MECHANICALLY SPREAD AND DRIED PRIOR TO INCORPORATION INTO THE EARTHWORK PROCEDURES. ADEQUACY OF THE DRIED MATERIAL IS TO BE DETERMINED BY A GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE AND ENSURE THAT PROPER MECHANISMS ARE IN PLACE TO CONTROL WASTE MATERIALS. CONSTRUCTION WASTES INCLUDES, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS, BUILDING MATERIALS, CONCRETE WASH WATER, SANITARY WASTES, ETC., THAT COULD ADVERSELY IMPACT WATER QUALITY. MEASURES SHALL BE PLANNED AND IMPLEMENTED FOR HOUSEKEEPING, MATERIALS MANAGEMENT, AND LITTER CONTROL. WHEREVER POSSIBLE, RECYCLING OF EXCESS MATERIALS IS PREFERRED, RATHER THAN DISPOSAL.

INTERIM PHASE GENERAL CONSTRUCTION

1. MAINTAIN TEMPORARY CONTROLS UNTIL REMOVAL IS WARRANTED DUE TO PROGRESSION OF WORK.
2. BEGIN EARTHMOVING OPERATIONS. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE COUNTY CONSERVATION DISTRICT OF LOCATION AND EROSION AND SEDIMENTATION CONTROL MEASURES IMPLEMENTED AT BORROW OR SPOIL SITE OF IMPORT/EXPORT MATERIAL. THE CONTRACTOR IS TO COORDINATE WITH OWNER THE PLACEMENT OF SUCH MEASURES.
3. STORM SEWER, SANITARY SEWER, WATER LINE AND UTILITY LINE CONSTRUCTION MAY BEGIN IMMEDIATELY FOLLOWING ESTABLISHMENT OF GRADE AND WITH THE PERMISSION OF THE OWNER.
4. STABILIZE ALL UTILITY TRENCHES AT THE END OF EACH WORKDAY BY MEANS OF GRAVEL BACKFILL TO SURFACE, REPAVING OR MULCHING.
5. REPLACE TOPSOIL, FINE GRADE AND SEED AS REQUIRED.
6. STABILIZE ALL DISTURBED AREAS WITH PERMANENT SEED AND MULCHING OR CROWNVETCH SEEDING IMMEDIATELY UPON REACHING FINAL GRADE.
7. INSTALL PAVEMENT SUBBASE.
8. BEGIN BITUMINOUS PAVING, REMOVING TEMPORARY CONSTRUCTION ENTRANCE ONLY WHEN NECESSARY.
9. RESEED AND REDRESS ANY AREAS THAT MAY REQUIRE ATTENTION IMMEDIATELY. NOTE THAT LAWN AREAS WILL NOT BE DEEMED STABLE UNTIL A UNIFORM 80% COVERAGE IS ACHIEVED.
10. ALL EROSION MEASURES SHALL REMAIN IN PLACE UNTIL THE SITE IS STABILIZED. ALL AREAS OF VEGETATIVE SURFACE STABILIZATION, WHETHER TEMPORARY OR PERMANENT, SHALL BE CONSIDERED TO BE IN PLACE AND FUNCTIONAL WHEN THE REQUIRED UNIFORM RATE OF COVERAGE (80%) IS OBTAINED.

FINAL PHASE POST-PAVING BASIN CONVERSION

1. IF, FOR ANY REASON, THE PROJECT IS SUSPENDED, THE CONTRACTOR SHALL INSURE THAT ALL INSTALLED EROSION MEASURES ARE FUNCTIONING AND PROPERLY MAINTAINED DURING THIS PERIOD, AND THAT ALL BARED SOILS ARE SEEDED AND MULCHED WITH TEMPORARY SEED MIXTURE.
2. THE FOLLOWING ITEMS MUST BE COMPLETED BY THE CONTRACTOR, IN ORDER, ONCE THE SITE HAS BEEN DEEMED STABLE:
   A. REMOVE SEDIMENT CONTROL DEVICES AND ESTABLISH WATER QUALITY CONTROL ORIFICE.
   B. REMOVE TEMPORARY CONSTRUCTION ENTRANCE PRIOR TO COMPLETION OF PAVING.
   C. SITE CLEAN UP.
   D. RESEED ANY AREAS THAT REQUIRE ADDITIONAL SEED
   E. FILTER FENCES ARE TO BE CLEANED, REMOVED, BACKFILLED AND SEEDED WITH PERMANENT SEEDING.
   F. VERIFY POSITIVE CONVEYANCE FLOW IN ALL DRAINAGE STRUCTURES.

Specifications for

Temporary Seeding

Table 7.8.1 Temporary Seeding Species Selection

Seeding Dates	Species	lb/1000 ft2	lbs/Acre
March 1 to August 15	Oats	3	128 (4 Bushels)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
	Oats	3	128 (3 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
August 16th to November	Rye	3	112 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Rye	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted

1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or greater. These idle areas shall be seeded with 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seedbed shall be done immediately and without interruption.

Specifications for

Temporary Seeding

Mulching Temporary Seeding

1. Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during extensive seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization
2. Materials:
   - Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs / 1,000 sq. ft. (2-3 bales)
   - Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs / ac. or 46 lb/1,000 sq.-ft.
   - Other—Other acceptable mulches include mulch matings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ac.
3. Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:
   - Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
   - Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
   - Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates recommended by the manufacturer.
   - Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a net dry wt. of 750 lb/ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb. / 100 gal

BMP INSPECTION CHECKLIST

BMP	FREQUENCY	NOTES
GENERAL INSPECTION	EVERY 6 MO.	
STORM WATER BASIN	MONTHLY	
VEGETATION	MONTHLY	FIRST 2 GROWING SEASONS THEN TWICE A YEAR
SILT FENCE	MONTHLY	FIRST GROWING SEASON

REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. PROVIDED WILL BE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE(S) OF INSPECTION AND CORRECTIVE MEASURES TAKEN. RECORDS SHALL L BE SUBMITTED TO THE CITY OF HUDSON ENGINEERING DEPARTMENT FOR REVIEW BY MAY 1st OF EACH YEAR.

ALL CONTROL PRACTICES THAT REQUIRE REPAIR SHALL BE REPAIRED WITHIN THREE (3) DAYS OF THE INSPECTION.

ADDITIONAL SWP3 CONSIDERATIONS

NO OPEN BURNING

DUST CONTROL SHALL BE ACHIEVED BY USE OF WATERING TRUCKS. USE OF OIL IS STRICTLY PROHIBITED. INLET PROTECTION MUST BE IMPLEMENTEO PRIOR TO DUST CONTROL MEASURES.

IN THE EVENT OF A PETROLEUM SPILL (>25 GALLONS) OR THE PRESENCE OF OIL SHEEN, THE CONTRACTOR SHALL CONTACT THE OHIO E.P.A. AT 800-282-9378, THE LOCAL FIRE DEPARTMENT.

SMALL SPILLS (<25 GALLONS) SHALL BE CLEANED UP USING AN ABSORBING AGENT, THE ABSORBING AGENT REMOVED AND DISPOSED OF ACCORDING TO FEDERAL REGULATIONS.

ALL TRENCH DEWATERING MEASURES SHALL BE DISCHARGED INTO SETTLING BASINS PRIOR TO DISCHARGE FROM SITE. BMP'S THAT REQUIRE REPAIR SHALL BE REPAIRED WITHIN 3 DAYS OF INSPECTION. SETTLING PONDS MUST BE REPAIRED WITHIN 10 DAYS OF INSPECTION.

STREETS ADJACENT TO SITE SHALL BE CLEANED AT THE END OF EACH WORK DAY.

POST-CONSTRUCTION BMP RATIONALE

STORM WATER MANAGEMENT AND POST CONSTRUCTION WATER QUALITY BMP'S HAVE BEEN ADDRESSED BY MEANS OF AN ON-SITE STORM WATER MANAGEMENT/WATER QUALITY BASIN.

Table 7.10.1Maintenance for Permanent Seedings Fertilization and Mowing

Mixture	Formula	Lbs./ Acre	Lbs./1,000 sq.ft.	Time	Mowing
Creeping Red Fescue Ryegrass Kentucky Bluegrass	10-10-10	500	12	Fall, yearly or as needed	Not closer than 3"
Tall Fescue	10-10-10	500	12		Not closer than 4"
Turf-type Fescue	10-10-10	500	12		
Crown Vetch Fescue	0-20-20	400	10	Spring, yearly following establishment and every 4-7 years thereafter	Do not mow
Flat Pea Fescue	0-20-20	400	10		Do not mow

Note: Following soil test recommendations is preferred to fertilizer rates shown above.

Specifications for

Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration (Maximizing infiltration will help control both runoff rate and water quality). Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime—Agricultural ground limestone shall be applied to seed test as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":
3. Straw and Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacturer or at the rate of 150 gallons per acre.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
- Wood Cellulose Fiber—Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

Table 7.10.2 Permanent Seeding

Seed Mix	Seeding Rate Lbs./Acre	Seeding Rate Lbs./1,000 Sq. Feet	Notes:
General Use			
Creeping Red Fescue	20-40	1/2-1	For close mowing & for walkways with <2.0 ft/sec velocity
Domestic Ryegrass	10-20	1/4-1/2	
Kentucky Bluegrass	20-40	1/2-1	
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	
Crown Vetch	10-20	1/4-1/2	Do not seed later than August
Tall Fescue	20-30	1/2-3/4	
Flat Pea	20-25	1/2-3/4	Do not seed later than August
Tall Fescue	20-30	1/2-3/4	
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (Dwarf) Fescue	80	2 1/4	
Kentucky Bluegrass	5	0.1	
Lawns			
Kentucky Bluegrass Perennial Ryegrass	100-120	2 2	
Kentucky Bluegrass Creeping Red Fescue	100-120	2 1-1/2	For shaded areas

Note: Other approved seed species may be substituted.

Table 1: Permanent Stabilization

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the state and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Table 2: Temporary Stabilization

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a surface water of the state and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 14 days
For all construction activities, any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the state	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. Permanent and temporary stabilization are defined in Part VII.

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SWP3 DETAILS

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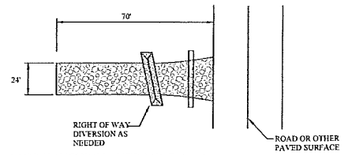


CONSTRUCTION ENTRANCE PLAN

REFERENCE ONLY NOT TO SCALE

TCE CONSTRUCTION ENTRANCE PROFILE

REFERENCE ONLY NOT TO SCALE

Specifications
for

TCE Construction Entrance

1. Stone Size—ODOT # 2 (1.5-2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length—The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lot).
3. Thickness –The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width –The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile –A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot proof polymeric fibers and meet the following specifications:

Figure 7.4.3

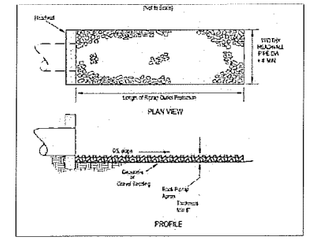
Geotextile Specification for Construction Entrance	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	#25 - #80 sieve.
Permeability	1 x 10-3 cm/sec.

6. Timing—The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert –A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar –A water bar shall be construction as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance –Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. Vehicles that enter and leave the construction site shall be restricted from muddy areas.
11. Removal—the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

20 CHAPTER 7 Soil Stabilization

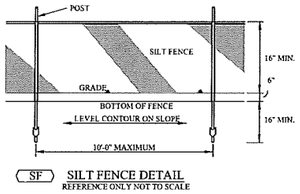
Specifications
for

OP Rock Outlet Protection



1. Subgrade for the filter or bedding and riprap shall be prepared to the required lines and grades as shown on the plans. The subgrade shall be cleared of all trees, stumps, roots, and loose rock, or other material.
2. Riprap shall conform to the grading limits as shown on the plan.
3. Geotextile shall be securely anchored according to manufacturers' recommendations.
4. Geotextile shall be laid with the long dimension parallel to the direction of flow and shall be laid loosely but without wrinkles and voids. Where joints are necessary, strips shall be placed to provide a 12-in. minimum overlap, with the upstream end overlapping the downstream strip.
5. Gravel bedding shall be CDOT No. 67's or 57's unless shown differently on the drawings.
6. Riprap may be placed by equipment but shall be placed in a manner to prevent slippage or damage to the geotextile.
7. Riprap shall be placed by a method that does not cause segregation of size. Extensive pushing with a dozer causes segregation and shall be avoided by delivering riprap near its final location and in the channel.
8. Construction shall be sequenced so that outlet protection is placed and functional when the storm drain, culvert, or open channel above it becomes operational.
9. All disturbed areas will be vegetated as soon as practical.

CHAPTER 6 Permanent Runoff Control 21



SF SILT FENCE DETAIL

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JOINING SECTIONS OF SILT FENCE DETAIL SF

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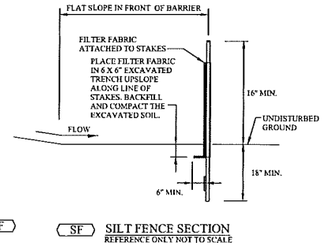

SF SILT FENCE SECTION

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Specifications
for

SF Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
8. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground, (see detail).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.

Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

Silt fences shall be inspected after each rainfall and at least daily during a prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for silt fence materials

1. Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal diameter hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

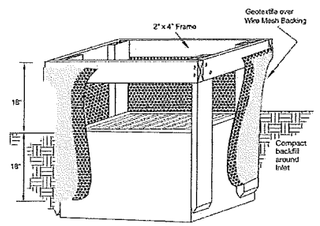
Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2007)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (200 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permeability	1510-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM D 4355

34 CHAPTER 6 Sediment Controls

Specifications
for

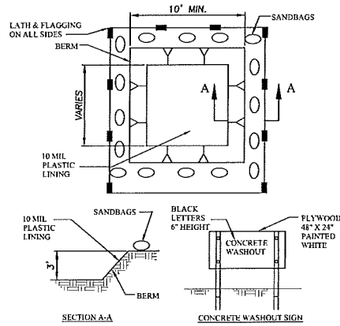
IP Geotextile Inlet Protection



SECTION

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
2. The earth around the inlet shall be excavated completely to a depth of, least 18 inches.
3. The wooden frame shall be constructed of 2-inch by 4-inch construction grade lumber. The 2-inch by 4-inch posts shall be driven one (1) ft. into the ground at four corners of the inlet and the top portion of 2-inch by 4-inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.
4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.
5. Geotextile material shall have an equivalent opening size of 20-40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 inches below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.
6. Backfill shall be placed around the inlet in compacted 6-inch layers until the earth is even with notch elevation on ends and top elevation on sides.
7. A compacted earth dike or check dam shall be constructed in the drive line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.

CHAPTER 6 Sediment Controls 39



SECTION A-A CONCRETE WASHOUT SIGN

1. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FT FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES. FACILITY SHALL BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING.
2. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE DETAIL WITH A MINIMUM LENGTH AND MINIMUM WIDTH OF 10'.
3. LATH AND FLAGGING SHALL BE COMMERCIAL TYPE.
4. PLASTIC LINING MATERIAL SHALL BE A MINIMUM OF 10 MIL POLYETHYLENE SHEETING AND SHALL BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
5. A SIGN SHALL BE INSTALLED ADJACENT TO WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.
6. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL HAVE A TEMPORARY PIT OR BERMED AREAS OF SUFFICIENT VOLUME TO COMPLETELY CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT PROCEDURES.
7. WASHOUT OF CONCRETE TRUCKS SHALL BE PERFORMED IN DESIGNATED AREAS ONLY.
8. ONLY CONCRETE FROM MIXER TRUCK CHUTES SHOULD BE WASHED INTO CONCRETE WASHOUT.
9. CONCRETE WASHOUT FROM CONCRETE PUMPER BINS CAN BE WASHED INTO CONCRETE PUMPER TRUCKS AND DISCHARGED INTO DESIGNATED WASHOUT AREA OR PROPERLY DISPOSED OF OFFSITE.
10. CONCRETE WASTES SHALL BE ALLOWED TO HARDEN THEN BROKEN UP, REMOVED, AND PROPERLY DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATION ON A REGULAR BASIS.
11. WHEN TEMPORARY WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT THE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

TCW TEMP. CONCRETE WASHOUT FACILITY

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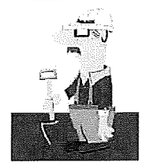

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Project No. 2015-181

FLICKINGER
WETLAND COMPANY, LLC

8530 NORTH BOYLE PARKWAY • TWINSBURG, OHIO 44087

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October 23, 2015

Mr. Matt Weber
Weber Engineering Services
2555 Hartville Road
Rootstown, Ohio 44272

RE: American Fireworks
Ditch, Jurisdiction

Dear Mr. Weber,

FLICKINGER WETLAND COMPANY, LLC. reviewed the development plans for the above captioned land for purposes of determining the status of permitting and wetland fill activities. A site visit was also conducted.

A preliminary water resource review was prepared on the parcel based upon the three criteria as analysis required by the U.S. Army Corps of Engineers 1987 wetland determination manual and NE Addendum.

Wetlands are considered jurisdictional "waters of the United States" thus; any activity that would cause an adverse modification to these waters requires authorization from the U.S. Army Corps of Engineers, which administers the Sec. 404 Program for the U.S. EPA.

An area is considered a jurisdictional wetland if the following wetland indicators are present:

1. HYDRIC SOILS: To be considered a wetland, the presence of hydric soils must be confirmed. Hydric soils are those in which the soils are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part. These anaerobic conditions favor the growth of hydrophytic vegetation. These soils fall into two broad categories, organic and mineral. Organic soils, or histosols, develop under conditions of nearly constant saturation that allows little or no degradation of the organic parent material. Histosols are often referred to as muck or peat. Mineral hydric soils are all soils having less than 50% organic material in the upper 32 inches. Below the surface horizon these soils are often gray or mottled.

2. HYDROPHYTIC VEGETATION: Hydrophytic, meaning water plants, refers to macrophytic (visible to the naked eye) plant life that occurs where the frequency and duration of soil inundation or saturation exerts a controlling influence on the plant

species present. There are five indicator categories which apply to wetland vegetation. They are:

a) OBL: Obligate wetland plants, plants that under natural conditions almost always occur in wetlands under natural conditions, rarely in non-wetlands (less than 1% probability).

b) FACW: Facultative wetland plants, which usually occur in wetlands but may also occur in non-wetlands (1-33% probability).

c) FAC: Those plants with a similar likelihood of occurring in both wetlands and non-wetlands.

d) FACU: Facultative upland plants, which usually occur in uplands (non-wetlands), but may also occur in wetlands (less than 33% probability).

e) UPL: Obligate upland plants, rarely in wetlands (less than one percent).

If 50% of the dominant species in each vegetative layer (tree, shrub, herbaceous) are FAC, FACW, or OBL, the hydrophytic vegetation is present.

3. WETLAND HYDROLOGY: It must be established that the area under investigation is temporarily or periodically inundated with water or has saturated soils during the growing season. The presence of water has an overriding influence on hydrophytic vegetation and hydric soils due to anaerobic and reducing conditions. Wetland hydrology is present if an indicator of wetland hydrology are present. Indicators of hydrology include inundation, saturation, water marks, drift lines, sediment deposits and drainage patterns.

Our findings are as follows:

Due to a lack of maintenance wetland conditions are present along and adjacent to the original ditch line.

a. Dominant Hydrophytic vegetation was present including Typha augustifloia (OBL)
b. Hydric Soils were present: gleyed with chromas of 10/yr 5/1
c. Hydrology was present within the poorly defined ditch.

However although wetland conditions are present within the ditch, The USACE has no jurisdiction over work performed to excavate and clean the ditch:

"Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water are generally not waters of the United States."

Also:

"Under Section 404(f)(1)(C) of the CWA (see also33 CFR 323.4(a)(3) and 40 CFR 232.3(c)(3)), discharges of dredged or fill material associated with the maintenance of drainage ditches, are not prohibited by, or otherwise subject to, regulation under Section 404 of the CWA (i.e., these activities are exempt from the need to obtain a Section 404 permit from the Department of the Army (DA)"

Lastly:

"The Corps no longer regulates incidental fallback discharges of dredged material into Waters of the United States associated with excavation activities."

Thus, while wetland characteristics are present, the USACE does not have jurisdiction over the activity.If you have any questions please do not hesitate to call me.

Sincerely,

Erik Flickinger, President
FLICKINGER WETLAND COMPANY, LLC.

AMERICAN FIREWORKS
Since 1902

City of Hudson
Gregory P Hannan, City Planner
115 Executive Parkway, Suite 400
Hudson, Ohio 44236

Greg,

I hope this finds you and the rest of the City staff doing well. This letter is intended to answer question number four from your October 28th, 2015 e-mail in regards to the use of the Warehouse being constructed at 7041 Darrow Road, Hudson, Ohio 44236.

A. *Number of employees during peak shift.*

During normal peak shifts at American Fireworks we will have no more then 8-10 employees.

B. *Information related to the intended use of the building.*

The intent of use of the Warehouse being constructed is to store the frames and electronic firing equipment used to launch the Pyrotechnic devices. Secondly, the front portion of the Warehouse will contain new offices.

C. *Anticipated increase in customer traffic with proposed expansion.*

There will be no increase of customer traffic with this expansion. This expansion is to clean up the grounds and consolidate our out buildings.

D. *Anticipated net increase in square footage for the property with the addition of the proposed building and the removal of existing containers/ structures*

There will be an increase of 15,000 square feet. We will be consolidating and removing a number of our smaller outbuildings into the new Warehouse.

I hope this answers all of your questions. If you have any further questions in regards to this matter, please feel free to reach out at any time.

All the Best,

Roberto Sorgi

Roberto Sorgi
Owner/Sales Manager

Michigan • Ohio • Virginia • West Virginia
Headquarters – 7041 Darrow Road • P.O. Box 1447 • Hudson, Ohio 44236

Phone 330-650-1776 • Fax 330-653-9030
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ENGINEERING • 115 Executive Parkway, Suite 400 • Hudson, Ohio 44236 • (330) 342-1770

MEMORANDUM

Date: November 4, 2015
To: Greg Hannan, City Planner
From: Brad Kosco P.E., P.S.
Re: **7041 Darrow Rd, American Fireworks**

The City of Hudson Engineering Department has reviewed the plans and storm water management calculations for the above mentioned site improvements submitted October 19, 2015 and have the following comments:

1. Storm Water Management Plan and Calculations - The Storm Water Management Calculations generally comply with the City of Hudson Engineering Standards. Per the phone conversation between the City Engineer and the developer's engineering consultant on 11/4/15, the developer's engineering consultant shall address the minor, red-line comments and re-submit accordingly.

2. Septic System Improvements - All septic-system related improvements shall be reviewed and approved by Summit County Public Health.

3. Total Land Disturbance - The total area of land disturbance area shall be shown on the title page and if the area is greater than one acre, all SWPPP plans and details shall be reviewed and approved by the Summit Soil and Water Conservation District.

4. Traffic Study – It is the City's understanding that the traffic increases associated with this improvement are minor (average less than 10 trips per day). Therefore, no further traffic impact study is required unless traffic increases are anticipated to be more than 10 trips per day.

Note that the City of Hudson Engineering Standards (Engineering Standards) and Land Development Code (LDC) are available online at the City of Hudson Website www.hudson.oh.us under the Engineering Dept. and Community Development Department respectively. The standards are also available in print for a fee. Please contact our office (330-342-1770) if you would like a cost for the printed version.

Sincerely,

Bradley Kosco, P.E., P.S.
Assistant City Engineer

C: Thomas J. Sheridan, P.E., P.S., City Engineer
T. Calabro - Inspector
File

SHAWN KASSON
Fire Marshal
skasson@hudson.oh.us
(330) 342-1869

M E M O R A N D U M

DATE: October 12, 2015

TO: Greg Hannan, City Planner

FROM: Shawn Kasson, Fire Marshal SK

SUBJECT: American Fireworks Company – 7041 Darrow Road – MPC Case #2015-28

I have reviewed the site plan set for the proposed storage building at American Fireworks Company – 7041 Darrow Road dated 09/28/15. Upon review I have the following comment:

2011 Ohio Fire Code Section 507.5.1 requires that *"Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400' from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official."* Water service is unavailable on-site or nearby. Accordingly, on-site fire hydrants are unable to be installed.

In order to reasonably address this requirement, the proposed building must be protected by a fire detection and alarm system with the following features:

- Automatic fire detection throughout the entire building.
- Manual fire alarm pull stations at all designated exits within the building.
- Audio-visual notification appliances throughout the entire building.
- UL Listed central station monitoring.
- Compliant with all pertinent requirements of the 2011 Ohio Fire Code.
- Compliant with all pertinent requirements of 2010 NFPA 72, the National Fire Alarm and Signaling Code.

The alternative of a monitored automatic fire detection and alarm system will provide early notification of a fire condition within the proposed building to HFD. This early notification will significantly improve our ability to promptly and efficiently deploy the appropriate resources early in the course of an incident. The applicant acknowledged that a monitored fire detection and alarm system would be installed within the proposed building during the pre-application meeting on 09/17/15.

Please contact me with any questions.

OHIO
HUDSON
COMMUNITY DEVELOPMENT • 115 Executive Parkway, Suite 400 • Hudson, Ohio 44236 • (330) 342-1790

October 20, 2015

Steve Marshall
EM Construction Company
RE: PC 2015-28 - Site Plan review for American Fireworks

Mr. Marshall:

Thank you for your submission of the site plan application for the proposed 15,000 square foot building proposed for American Fireworks at 7041 Darrow Road. The application has been scheduled for the Planning Commission (PC) agenda for the November 9, 2015 meeting. In preparation for such, I am forwarding preliminary comments related to compliance with the Land Development Code (LDC). Our goal is to provide you an opportunity to respond to the below comments by October 29, 2015. We will revise the comments accordingly for the staff report scheduled to be issued on November 4, 2015. Additionally I am available to meet and review the comments at your convenience.

Chapter 1203 Development Review and Administrative Procedures

Approval Process:

1. PC must approve of the site plan
2. AHBR will complete design review of the proposed structure (November 11, 2015 mtg suggested) if Planning Commission approves the site plan November 9, 2015)
    a. Submittal to include three sets of architectural elevations, floor plan, and site plan.
    b. Zoning Application - http://www.hudson.oh.us/DocumentCenter/View/947
    c. Application fee of $750 ($0.05 per sf)
3. Engineering Department must approve the engineering for the project.

Chapter 1205 – District Regulations

1205.04 District 1: Rural Residential Conservation
Use: The existing commercial fireworks facility is a non-conforming use within District One.

The existing and proposed district setback and lot dimensional standards are acceptable.

Location of parking: Per Section 1205.05(d)(10) off street parking shall be located to the side or rear of the building. The existing non-conforming parking location may remain. Three parking stalls have been proposed to the rear of the forward buildings. The existing front parking field is proposed to be repaved and striped. The resulting parking proposal is acceptable.

Chapter 1206 Use Regulations

Section 1206.05, Non-conforming structures: The site is an existing non-conforming use established on the property in 1902. The Board of Zoning and Building Appeals determined the land area within the fence enclosure is used to determine the expansion of a non-conforming use and not the building footprints. Staff notes the proposed building straddles the current fence enclosure. The applicant should clarify if a section of fencing is proposed between the new building and the office building immediately to the south as fencing is not depicted at this location. The plan must also indicate the current and proposed area located within the fence enclosure.

Section 1207 Zoning Development and Site Plan Standards

Section 1207.03 Wetland/Stream Corridor Protection
A drainage channel is located approximately 200 feet west of the proposed building. The presence of the channel bed is undefined and significant areas of the drainage ditch immediately adjacent to the work zone are culverted. Staff has not applied a riparian corridor setback along this drainage channel.

The areas immediately adjacent to the drainage channel contain limited suspect wetland areas. Staff requests a qualified wetland consultant determine the presence of any applicable wetlands within 50 feet of the proposed limits of disturbance. The applicant may also consider a revised grading and stormwater management design to relocate the proposed clearing, rock channel and stormwater line from this area.

Additionally, if wetlands are found within the areas adjacent to the drainage ditch, the LDC does provide for minor modifications to the applicable 50 foot setback from jurisdictional wetlands for stormwater management basins provided native plantings are used.

Section 1207.04 Landscaping/Buffering
Bufferyard D (25 feet) is applicable to the adjacent residential development to the north and east. The proposed development area is located on the interior of the site, approximately 400 feet from the north property line and 1200 feet from the east property line. A landscape plan must be submitted to meet the applicable standards. The existing plantings installed to screen the containers can be used toward the applicable requirement. Staff requests a landscape plan be submitted depicting the current plantings and those proposed to comply with Bufferyard D.

Section 1207.07 Stormwater Management/Drainage/Erosion
Stormwater management will be reviewed by the Engineering Department. Preliminary comments are attached.

Section 1207.12 Off-Street Parking and Loading Requirements
Parking Spaces Required: The existing site contains 10-12 paved parking stalls for customers and some additional paved areas on the interior of the property for employee parking. The LDC code requires 1 space per 1,000 square feet of warehousing space. Staff understands the

proposed building will not significantly increase warehousing space on the property as some existing containers/buildings are proposed for removal. A letter must be submitted indicating the following:

1. Number of employees during peak shift
2. Information related to the intended use of the building.
3. Anticipated increase in customer traffic with the proposed expansion.
4. Anticipated net increase in square footage for the property with the addition of the proposed building and the removal of existing containers/structures. The specific structures to be removed should be labeled on the plan.

Section 1207.11 Adequate Public Facilities

Development shall be served by and utilize public water and public sewer systems. The proposal to access the existing well and septic system is acceptable for the proposed improvements to the existing established facility.

Section 1207.13 Transportation/Circulation

Emergency Access: All portions of the exterior wall of any structure must be located within 150 feet of a public street or approved fire access road. Staff notes the existing gravel drive located along the east and north sides of the building is proposed to serve as a fire access road. The driveway width of 12 feet must be accommodated. Staff suggests revising the proposed fire access road along the north side of the proposed building, allowing the existing storage containers to remain in place rather than relocating them further to the north.

The plan submittal must depict the applicable 20 foot inside, 40 foot outside turning radiuses required for emergency vehicles.

Traffic Impact: Need for a traffic impact analysis will be determined by the City Engineer.

City Arborist Comments

Below are comments received from Public Works Superintendent-City Arborist Tom Munn:

1. Proposed building is within an existing fenced in area, where only grass is maintained for fire safety reasons.
2. Existing wooded area due west of the proposed building should provide screening to SR91.
3. Existing overhead electrical conductors are privately owned and will be moved during construction.

Mr. Munn spoke with Mr. Sorgi about the following screening vegetation between West Highgate Court and northern fence boundary issues:

1) At least two of the large evergreen trees died. The best time to remove and replace these trees would be April 2016.
3) Even the dead pines provide some screening at this time, particularly during leaf-off season.
4) Mr. Sorgi volunteered to add more evergreen trees north of the chain link fence and existing container storage locations.

Fire Department Comments
Attached are preliminary comments from City Of Hudson Fire Marshal Shawn Kasson.

Engineering Department Comments
Preliminary review comments from City Engineer Thom Sheridan will be issued under separate cover.

Additional Comments:
Facility Screening - Preservation of the existing natural vegetation to the west of the proposed building is appropriate to lessen potential wetland impacts and to provide significant screening to the proposed building. Staff requests the stormwater management basin be revised to reduce the proposed disturbance to the existing vegetation.

Summary
Please address the following with a revised submittal by October 29, 2015:

1. Indicate if a section of fencing is proposed between the new building and the office building immediately to the south. The plan must also indicate the current and proposed area within the fence enclosure.
2. Staff requests a wetland determination letter be submitted by a qualified professional to determine the presence of any applicable wetlands within 50 feet of the proposed limits of disturbance or revise the grading and stormwater management design to relocate the proposed clearing, rock channel and stormwater line from this area.
3. Submit a landscape plan depicting the current plantings and proposed plantings to comply with Bufferyard D.
4. Submit a letter indicating the following:
    a. Number of employees during peak shift
    b. Information related to the intended use of the building.
    c. Anticipated increase in customer traffic with the proposed expansion
    d. Anticipated net increase in square footage for the property with the addition of the proposed building and the removal of existing containers/structures. Label the specific structures to be removed on the plan.
5. Indicate a minimum fire access road width of 12 feet and revise the layout along the north side of the proposed building with a revised turn around design, allowing the existing storage containers to remain in place rather than relocating them further to the north.

The driveway width of 12 feet must be accommodated. Staff suggests revising the proposed fire access road along the north side of the proposed building, allowing the existing storage containers to remain in place rather than relocating them further to the north.

6. Depict the applicable 20 foot inside, 40 foot outside turning radiuses required for emergency vehicles.
7. Revise the stormwater management design to significantly increase the preservation of the natural area to the west of the proposed building to lessen any environmental impacts and to enhance the screening of the building from Darrow Road.

Please contact me for any assistance I can provide.

Sincerely,

Gregory P. Hannan, AICP
City Planner

CC: Mark Richardson, Community Development Director
Thom Sheridan, City Engineer