

It is expected that a Quorum of the Board of Public Works, Park Board, Administration Committee, and/or Common Council may attend this meeting: (although it is not expected that any official action of any of those bodies will be taken)

**CITY OF MENASHA
PLAN COMMISSION
Council Chambers
140 Main Street, Menasha**

**August 30, 2010
3:30 PM**

AGENDA

- A. CALL TO ORDER
- B. ROLL CALL/EXCUSED ABSENCES
- C. MINUTES TO APPROVE
 - 1. [Minutes of the August 3, 2010 Plan Commission Meeting](#)
- D. PUBLIC COMMENT ON ANY ITEM OF CONCERN ON THIS AGENDA
Five (5) minute time limit for each person
- E. DISCUSSION
 - 1. None
- F. ACTION ITEMS
 - 1. [CSM – Midway Crossing](#)
 - 2. [Site Plan Review – Fox Valley Hematology and Oncology – Province Terrace](#)
- G. ADJOURNMENT

CITY OF MENASHA
Plan Commission
Council Chambers, City Hall – 140 Main Street
August 3, 2010
DRAFT MINUTES

A. CALL TO ORDER

The meeting was called to order at 3:30 p.m. by DPW Radtke.

B. ROLL CALL/EXCUSED ABSENCES

PLAN COMMISSION MEMBERS PRESENT: DPW Radtke and Commissioners Schmidt, Cruickshank, Sturm and Ald. Benner

PLAN COMMISSION MEMBERS EXCUSED: Mayor Merkes and Commissioner Homan

OTHERS PRESENT: CDD Keil

C. MINTUES TO APPROVE

1. **Minutes of the July 20, 2010 Plan Commission Meeting**

Moved by Comm. Cruickshank, seconded by Comm. Schmidt to approve the July 20, 2010 Plan Commission meeting minutes.

The motion carried.

D. PUBLIC COMMENT ON ANY ITEM OF CONCERN ON THIS AGENDA

1. No one spoke.

E. DISCUSSION

1. **None**

F. ACTION ITEMS

1. **CSM – Midway Crossing**

Commissioners discussed the width of the proposed public street dedication and the possible future need for a sidewalk.

Motion by Comm. Sturm, seconded by Ald. Benner to recommend approval of the CSM with the condition that a 5 foot wide pedestrian easement be added to the east and south sides of the proposed public street.

The motion carried.

2. **Request for Alternate Building Materials – Student Housing Proposal**

This item was held pending receipt of a revised proposal.

3. **Parcel Acquisition – Chute Street Parking Lot**

Commissioners discussed:

- Former leasing of the lot by the city for parking purposes
- The location of the parcel as it relates to others in the Chute Street Parking Lot
- Its relationship to the Senior Center
- The relationship to the City Hall staff parking lot agreement with Germania Hall

- Capacity of the Chute Street lot for City Hall staff parking
- Potential cost savings associated with terminating the agreement with Germania hall related to snow removal and lot maintenance
- Future potential of the lot as a development site

Motion by Ald. Benner, seconded by Comm. Sturm to recommend that staff pursue negotiations for the acquisition of the parcel.

The motion carried.

4. **Site Plan Amendment – 1427-1429 Province Terrace**

CDD Keil presented a drawing depicting potential changes to the original site plan per the Plan Commission's prior actions. The consensus was that the site owner or purchaser should prepare a revised site plan incorporating the changes to the transitional area landscaping, dumpster enclosures and parking lot curbing/landscaping incorporating the changes depicted on the drawing.

G. ADJOURNMENT

Moved by Ald. Benner, seconded by Comm. Cruickshank to adjourn at 4:31 p.m.

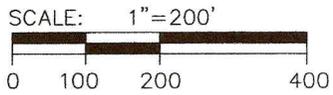
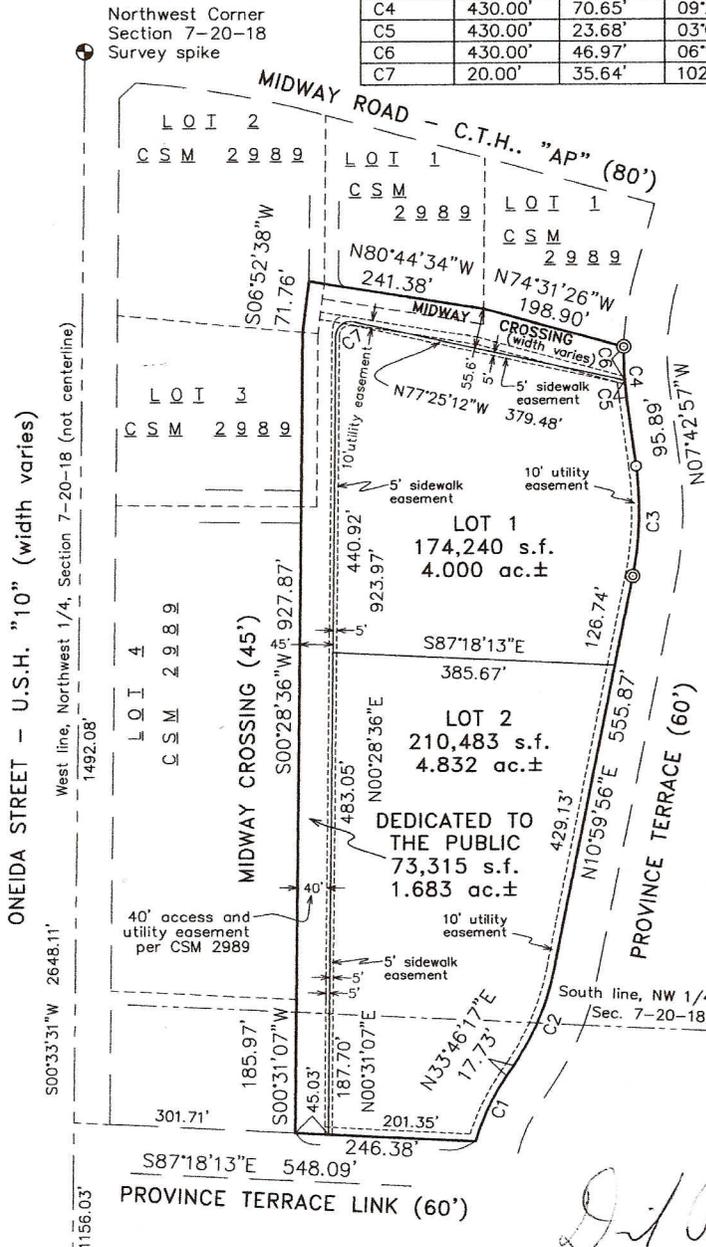
The motion carried.

Minutes respectfully submitted by Greg Keil, Community Development Director

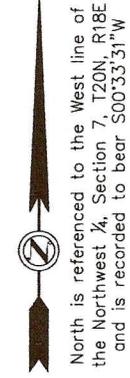
Certified Survey Map

Part of Lots 1, 2, 3 and 4, Certified Survey Map 2989,
being part of the West 1/2 of the Northwest 1/4, Section 7,
T20N, R18E, City of Menasha, Calumet County, Wisconsin

CURVE	RADIUS	ARC	DELTA ANG	CHD BEARING	CHD LEN
C1	330.00'	100.79'	17°30'00"	N25°01'17"E	100.40'
C2	370.00'	147.06'	22°46'21"	N22°23'07"E	146.09'
C3	470.00'	153.52'	18°42'53"	N01°38'30"E	152.83'
C4	430.00'	70.65'	09°24'49"	N03°00'30"W	70.57'
C5	430.00'	23.68'	03°09'19"	N06°08'16"W	23.68'
C6	430.00'	46.97'	06°15'30"	N01°25'50"W	46.95'
C7	20.00'	35.64'	102°06'12"	S51°31'42"W	31.11'



- LEGEND**
- ⊕ = Government corner
 - = Set 3/4" x 18" iron rebar Wt. = 1,502 lbs/lf
 - = Found 3/4" iron rod
 - ⊙ = Found 1" i.d. iron pipe



David Hebert
David Hebert RLS 8-11-10 date

DRAFTED BY:
HAI Hebert Associates, Inc.
Land Surveying • Soil Testing
1110 W. Wisconsin Ave. 920-734-8373
Appleton, WI 54914 Fax: 920-734-3968

PAGE # 1 of 3 FILE # 10049M02

SURVEYOR'S CERTIFICATE
STATE OF WISCONSIN)
CALUMET COUNTY)^{SS}

I, David Hebert, Registered Wisconsin Land Surveyor, do hereby certify that I have surveyed, divided and mapped all that part of Lots 1, 2, 3 and 4 of Certified Survey Map 2989, being part of the West ½ of the Northwest ¼ of Section 7, T20N, R18E, City of Menasha, Calumet County, Wisconsin which is more fully described as follows:

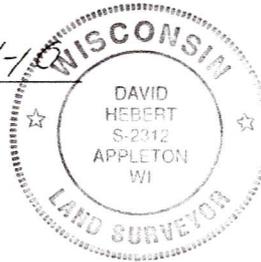
Commencing at the Northwest Corner of said Section 7; thence S00°33'31"W, 1492.08 feet; thence S87°18'13"E, 301.71 feet to the point of beginning; thence continuing S87°18'13"E, 246.38 feet; thence 100.79 feet along the arc of a 330.00 foot radius curve to the right whose chord bears N25°01'17"E, 100.40 feet; thence N33°46'17"E, 17.73 feet; thence 147.06 feet along the arc of a 370.00 foot radius curve to the left whose chord bears N22°23'07"E, 146.09 feet; thence N10°59'56"E, 555.87 feet; thence 153.52 feet along the arc of a 470.00 foot radius curve to the left whose chord bears N01°38'30"E, 152.83 feet; thence N07°42'57"W, 95.89 feet; thence 70.65 feet along the arc of a 430.00 foot radius curve to the right whose chord bears N03°00'30"W, 70.57 feet; thence N74°31'26"W, 198.90 feet; thence N80°44'34"W, 241.38 feet; thence S06°52'38"W, 71.76 feet; thence S00°28'36"W, 927.87 feet; thence S00°31'07"W, 185.97 feet to the point of beginning.

I further certify that I have made said division by order and under direction of the owners of said lands and that I have fully complied with the code of ordinances of the City of Menasha, Winnebago County, Wisconsin and with Chapter 236.34 of the Wisconsin statutes in surveying, dividing and mapping the same.

David Hebert

David Hebert RLS

8-11-10
Date



OWNER'S CERTIFICATE

I (We), as owner(s), do hereby certify that I (we) caused the lands described on this Certified Survey Map to be surveyed, divided, and mapped as represented on this map. I (We) further acknowledge that this map is to be approved by the City of Menasha.

Robert E. Drifka 7-29-10
Robert E. Drifka, BFT Investments, LLP (Owner) Dated

STATE OF WISCONSIN)
CALUMET COUNTY)^{SS}

Personally came before me on this 29th day of July, 2010, the above named owner(s) is (are) known to be the persons who executed the foregoing instrument and acknowledge the same.

Jennifer E. Drifka 4-29-12
Notary Public, State of Wisconsin My commission expires

Patrick Lowney 7/24/10
Patrick Lowney, Lakeview Credit Union (president) Dated

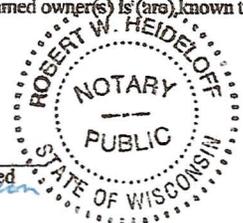


STATE OF WISCONSIN)
CALUMET COUNTY)^{SS}

Personally came before me on this 29th day of July, 2010, the above named owner(s) is (are) known to be the persons who executed the foregoing instrument and acknowledge the same.

Robert W. Heideloff 8/4/13
Notary Public, State of Wisconsin My commission expires

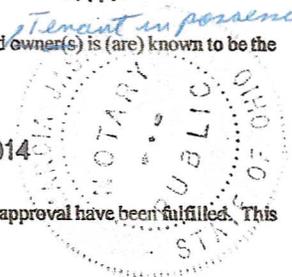
Timothy E. Kramer 7/30/10
an't Bicy Wisconsin CVS Pharmacy LLC - Tenant in possession Dated



STATE OF WISCONSIN)
CALUMET COUNTY)^{SS}

Personally came before me on this 30 day of JULY, 2010, the above named owner(s) is (are) known to be the persons who executed the foregoing instrument and acknowledge the same.

Marcia Jasany 3/1/2014
Notary Public, State of Wisconsin OHIO My commission expires on Expires 3/1/2014



CITY PLANNING COMMISSION CERTIFICATE

Pursuant to the Land Subdivision Regulations of the City of Menasha, Wisconsin, all requirements for approval have been fulfilled. This Certified Survey Map was approved by

the City of Menasha on this _____ day of _____, 20__.

Chairman, City of Menasha Planning Commission

COMMON COUNCIL RESOLUTION

This Certified Survey Map was approved by the Common Council of the City of Menasha on this _____ day of

_____, 20__.

Mayor

City Clerk

TREASURER'S CERTIFICATE

We hereby certify that there are no unpaid taxes of unpaid special assessments on any of the lands included in this Certified Survey Map.

City Treasurer

Dated

County Treasurer

Dated



FOX VALLEY HEMATOLOGY ONCOLOGY - MENASHA

SITE PLAN REVIEW

DESCRIPTIONS

LEGAL DESCRIPTION OF PROPERTY AND PROPOSED USE

THE PROPOSED 17,000 SF MEDICAL OFFICE BUILDING WILL SERVE AS A TREATMENT CENTER FOR CANCER PATIENTS IN THE FOX VALLEY AREA. STAFF AND VISITOR PARKING WILL BE HELD ON SITE. CONCRETE FOUNDATIONS AND A STEEL FRAME COMPRISE THE BUILDING'S STRUCTURE. THE EXTERIOR SKIN OF THE BUILDING IS PRIMARILY BRICK AND STONE VENEER.

PROPERTY OWNER

FOX VALLEY HEMATOLOGY AND ONCOLOGY

CONTACT:

JANICE ARENDT
900 EAST GRANT STREET
APPLETON, WI 54911-3487
PHONE: (920) 749-1171
FAX: (920) 738-6278

SHEET INDEX

ARCHITECTURAL

A001 TITLE SHEET
A002 SITE PLAN
A201 ELEVATIONS
A202 ELEVATIONS

CIVIL

C100 TOPOGRAPHIC SURVEY
C101 SITE EROSION CONTROL PLAN
C200 SITE AND UTILITY PLAN
C201 SITE LAYOUT PLAN
C300 SITE GRADING AND PAVING PLAN
C400 SITE CONSTRUCTION DETAILS
C401 SITE CONSTRUCTION DETAILS
C402 SITE CONSTRUCTION DETAILS

LANDSCAPE

L100 SHEET L100 TITLE

ELECTRICAL

E001 LEGENDS
E002 SITE PLAN AND DETAILS
EC001 SITE CODE PLAN

PROJECT LOCATION

ADDRESS

1444 PROVINCE TERRACE
MENASHA, WI

FOX VALLEY HEMATOLOGY ONCOLOGY - MENASHA

1444 PROVINCE TERRACE MENASHA, WI

SITE PLAN REVIEW



Berners-Schober Associates, Inc.
Architects / Engineers

ARCHITECTS' BUILDING
310 PINE STREET
GREEN BAY, WI 54301

(920) 432-4865

REVISION	DATE
SITE PLAN INITIAL SUBMISSION	08/19/2010
BID PACK #1	08/20/2010
SITE PLAN FINAL SUBMISSION	08/25/2010

TITLE SHEET

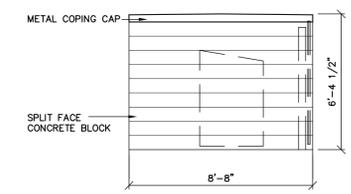
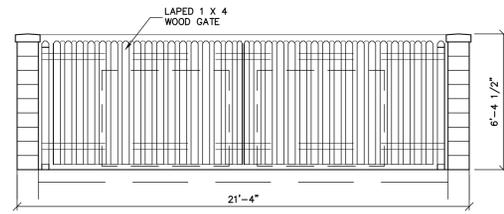
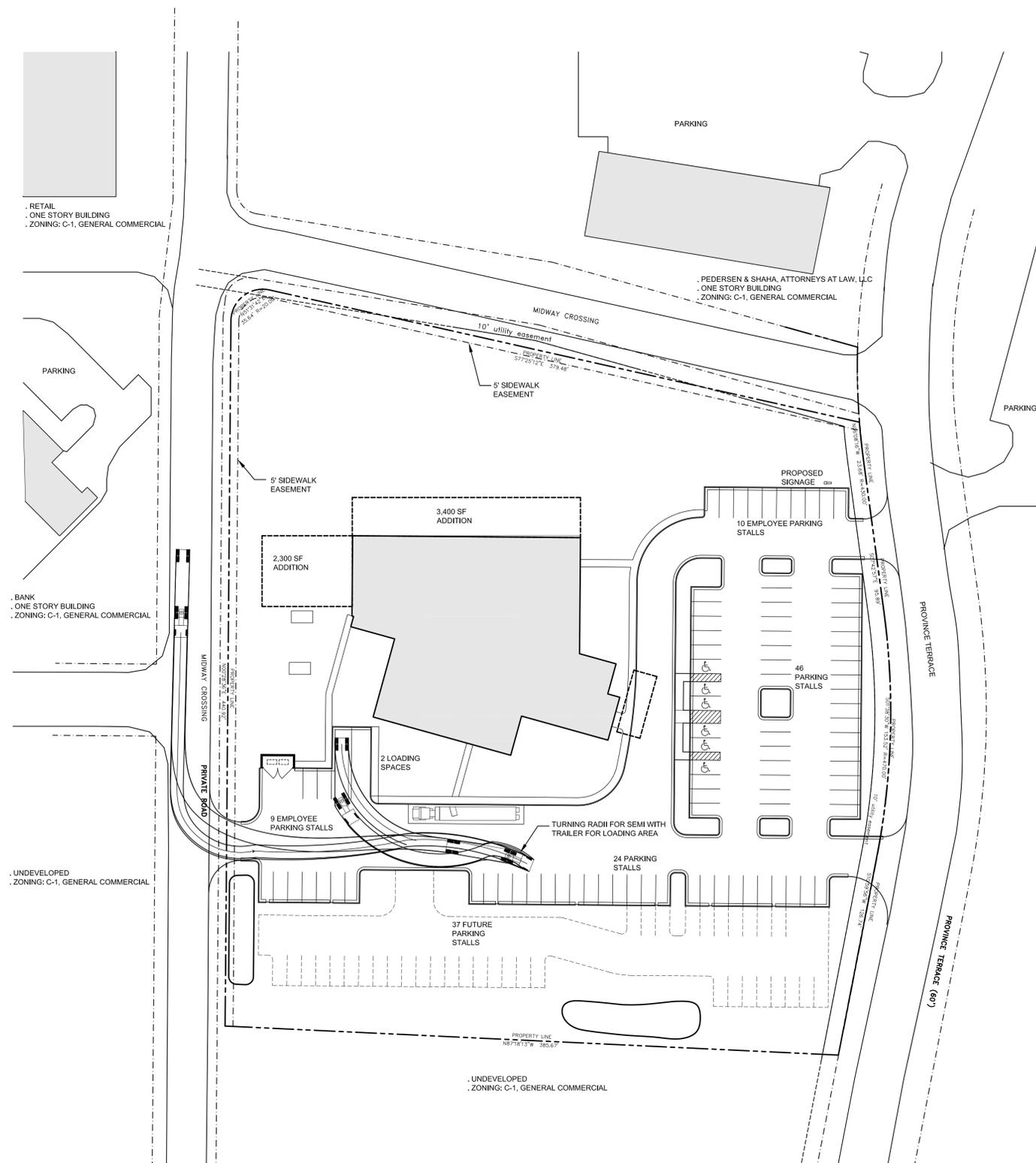
A001

DATE: AUGUST 25, 2010

COMMISSION

5250

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B1 DUMPSTER ENCLOSURE
A002 SCALE: 1/4" = 1'-0"

B3 DUMPSTER ENCLOSURE
A002 SCALE: 1/4" = 1'-0"

N
SITE PLAN
SCALE: 1" = 40'-0"

PROJECT DEVELOPMENT AREAS:
 - TOTAL AREA OF LOT - 174,240
 - TOTAL AREA OF IMPERVIOUS SURFACE - 70,077 SF
 - TOTAL AREA OF PARKING - 51,033 SF
 - PARKING STALLS - 18,000 SF
 - DRIVE ISLES - 33,033 SF
 - TOTAL AREA OF ALL LANDSCAPING - 104,163 SF
 - TOTAL AREA OF INTERIOR PARKING LOT LANDSCAPING ISLANDS - 3,743 SF

**FOX VALLEY
HEMATOLOGY
ONCOLOGY - MENASHA**

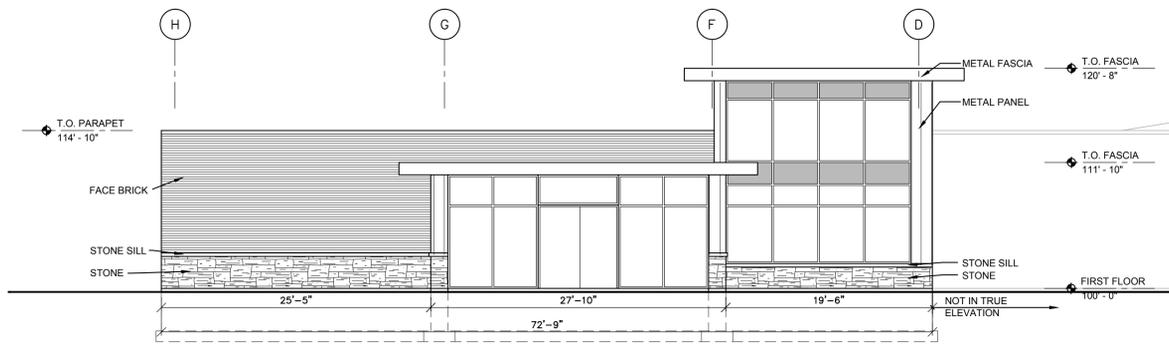
**1444 PROVINCE TERRACE
MENASHA, WI
SITE PLAN REVIEW**

BSA
Berners-Schober Associates, Inc.
Architects / Engineers
ARCHITECTS BUILDING
310 PINE STREET
GREEN BAY, WI 54301
(920) 432-4865

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SITE PLAN FINAL SUBMISSION	08/25/2010

SITE PLAN
A002
DATE: AUGUST 25, 2010
COMMISSION
5250

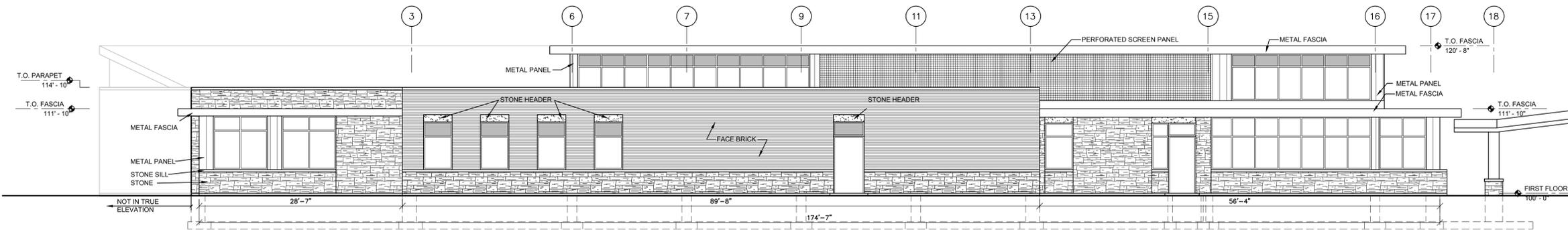
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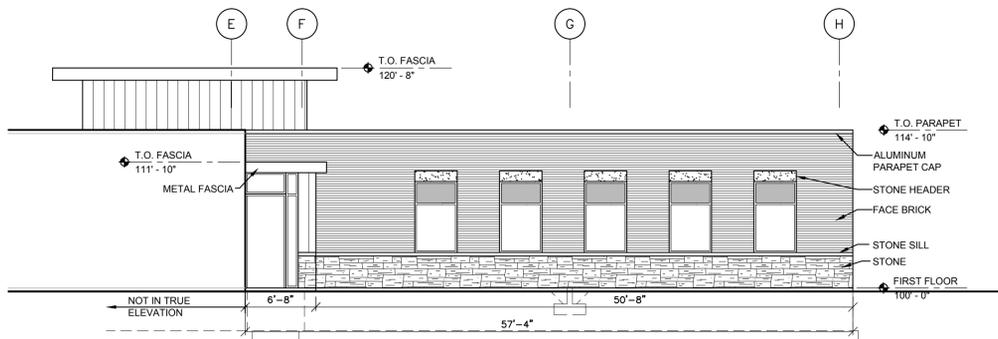
J1 ELEVATION 1
 A201 SCALE: 1/8" = 1'-0"



PERSPECTIVE A



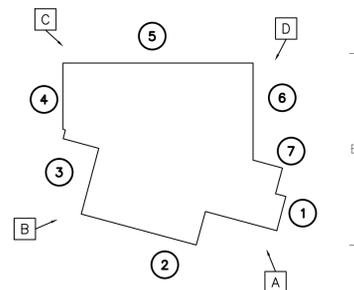
F1 ELEVATION 2
 A201 SCALE: 1/8" = 1'-0"



C1 ELEVATION 3
 A201 SCALE: 1/8" = 1'-0"



PERSPECTIVE B



**FOX VALLEY
 HEMATOLOGY
 ONCOLOGY - MENASHA**

**1444 PROVINCE TERRACE
 MENASHA, WI**

SITE PLAN REVIEW

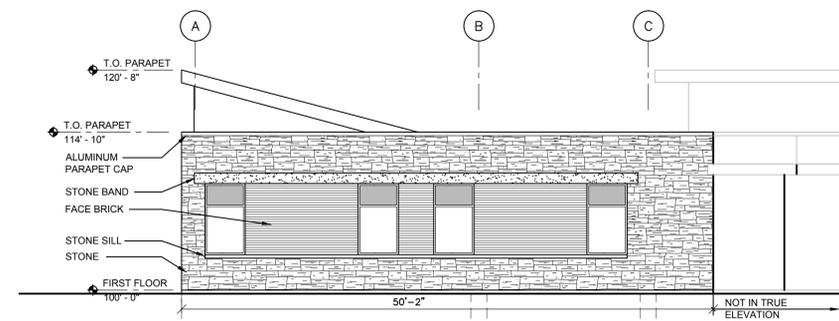
BSA
 Berners-Schober Associates, Inc.
 Architects / Engineers (920) 432-4865

REVISION	DATE
SITE PLAN INITIAL SUBMISSION	08/19/2010
BID PACK #1	08/20/2010
SITE PLAN FINAL SUBMISSION	08/25/2010

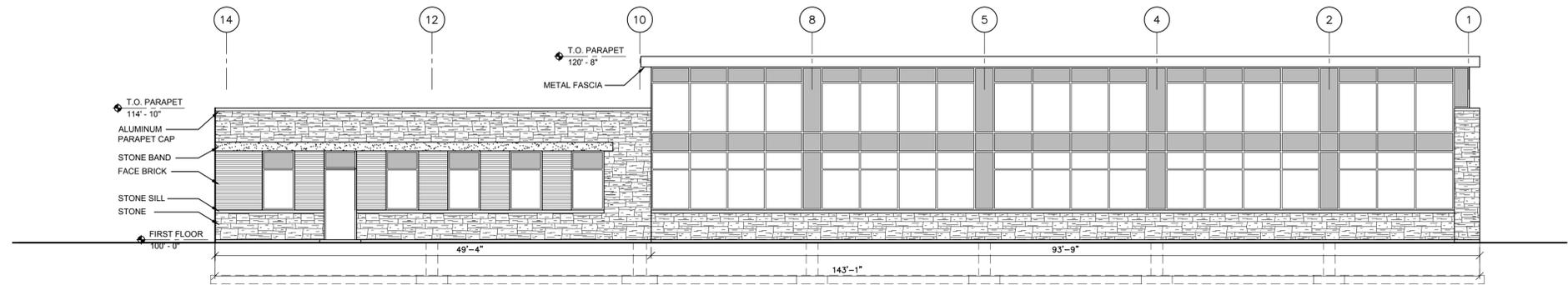
ELEVATIONS

A201 DATE: AUGUST 25, 2010
 COMMISSION **5250**

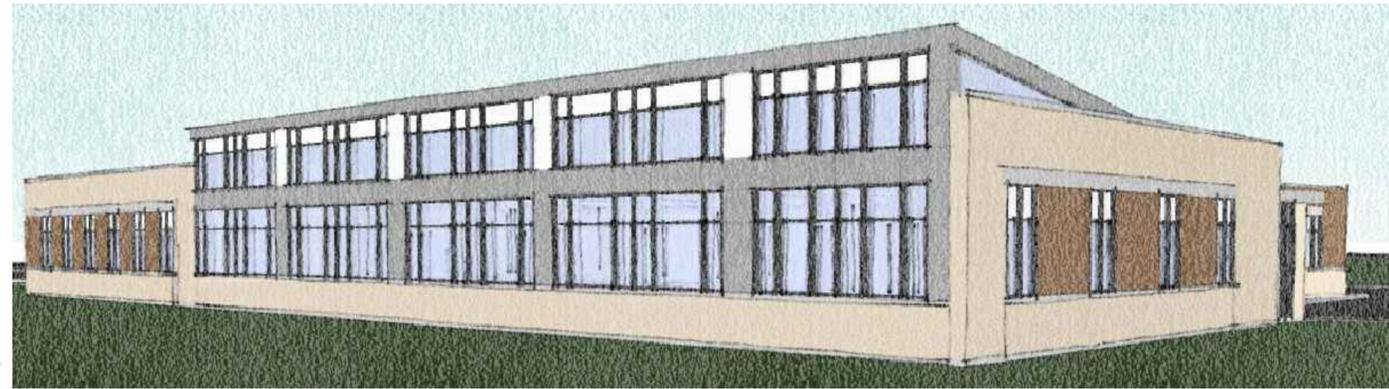
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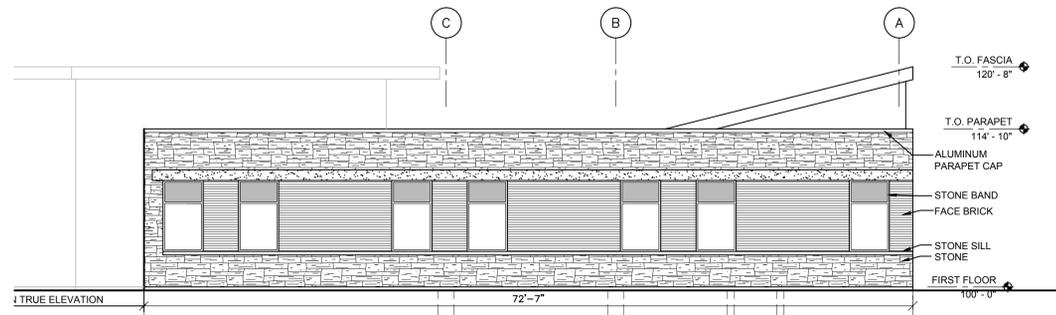
A10 ELEVATION 4
 A201 SCALE: 1/8" = 1'-0"



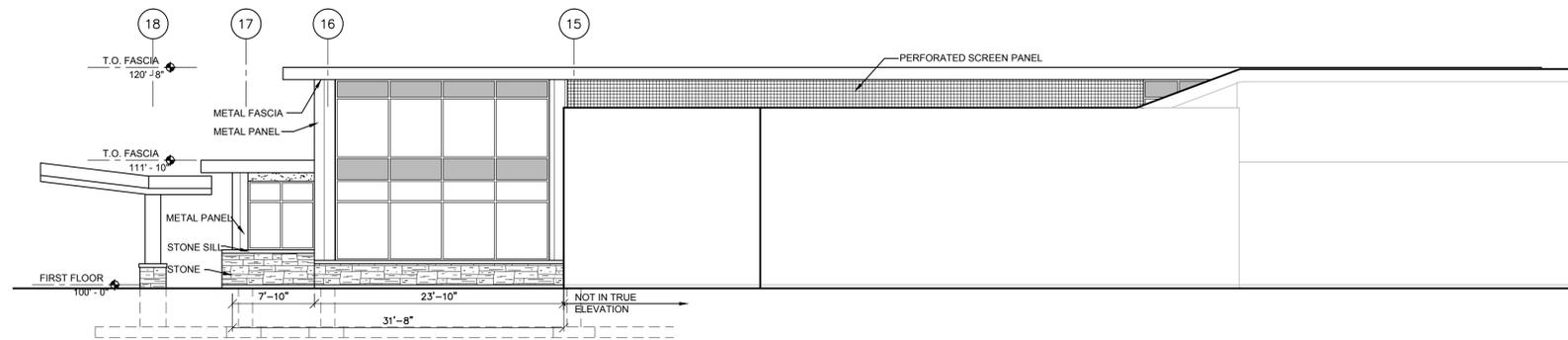
H4 ELEVATION 5
 A202 SCALE: 1/8" = 1'-0"



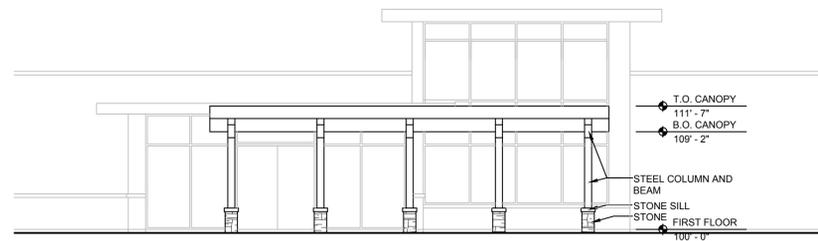
PERSPECTIVE C



F1 ELEVATION 6
 A202 SCALE: 1/8" = 1'-0"



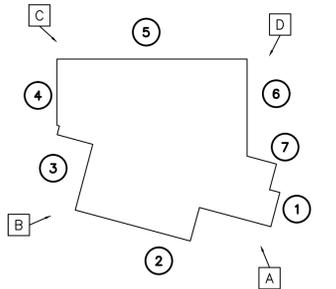
C5 ELEVATION 7
 A202 SCALE: 1/8" = 1'-0"



A1 CANOPY ELEVATION
 A202 SCALE: 1/8" = 1'-0"



PERSPECTIVE D



**FOX VALLEY
 HEMATOLOGY
 ONCOLOGY - MENASHA**

**1444 PROVINCE TERRACE
 MENASHA, WI**

SITE PLAN REVIEW



ARCHITECTS BUILDING
 310 PINE STREET
 GREEN BAY, WI 54301

Berners-Schober Associates, Inc.
 Architects / Engineers (920) 432-4865

REVISION	DATE
SITE PLAN INITIAL SUBMISSION	08/19/2010
BID PACK #1	08/20/2010
SITE PLAN FINAL SUBMISSION	08/25/2010

ELEVATIONS

A202 DATE: AUGUST 25, 2010
 COMMISSION **5250**

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GENERAL NOTES

- EXISTING CONDITIONS FOR THIS PLAN ARE BASED ON SURVEY BY HEBERT ASSOCIATES, INC. DATED JULY 2010. ALL UNDERGROUND UTILITIES HAVE BEEN SHOWN TO A REASONABLE DEGREE OF ACCURACY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND DEPTH.
- IN ACCORDANCE WITH WISCONSIN STATUTE 182.01, DAMAGE TO TRANSMISSION FACILITIES, EXCAVATOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE ADVANCE NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON THIS DRAWING, AND FURTHER, EXCAVATOR SHALL COMPLY WITH ALL OTHER REQUIREMENTS OF THIS STATUTE RELATIVE TO EXCAVATOR'S WORK.
- ALL COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY HEBERT ASSOCIATES, INC. COORDINATE GRID IS ASSUMED. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH HEBERT ASSOCIATES, INC. TO CONFIRM THEY ARE VALID PRIOR TO SITE LAYOUT.



LEGEND AND ABBREVIATIONS

	SECTION LINE		MONITORING WELL		YARD LIGHT		GAS		R.O.W.
	CLEAN OUT		TELEPHONE CO. MANHOLE		TRAFFIC SIGNAL		G.S.		RIGHT OF WAY
	EXISTING INLET		ELECTRIC CO. MANHOLE		1" DIA. IRON PIPE		G.V.		RIGHT
	PROPOSED INLET		P-K NAIL, TRAVERSE POINT		ASPH.		GRD.		S.
	WATER VALVE		SECTION CORNER		ASPH.		HORZ.		SF
	GAS VALVE		SERVICE POLE		B.M.		HYD.		SAN.
	WATER SERVICE VALVE		CLAY POLE		BIT.		INL.		STO, STM
	GAS SERVICE VALVE		FLAG POLE		CB.		I.E.		TELE
	EXISTING FENCE		CENTERLINE		C/L		TYP.		TEMP.
	POWER POLE		R/W VALVE		CONC.		LAT.		VERT.
	TELEPHONE/TELEGRAPH POLE		BUSH		CMP		L.F.		V.
	LIGHT POLE		TELEPHONE JUNCTION BOX		CTH		MH.		WEST
	EXISTING DITCH		C. & G.		CURB & GUTTER		PAV.		WITH
	UNDERGROUND ELECTRIC LINE		WELL		DUCTILE IRON PIPE		PROP.		W/L
	EXISTING WATER MAIN		ELECTRIC RISER		D.W.Y.		PVC		WM.
	EXISTING GAS MAIN		ELECTRIC TRANSFORMER		EXIST.		R. BAR		W.S.
	TOP OF BANK		SEPTIC TANK		F.F.		REQ'D.		W.V.
	SIGN POST		SOIL BORING				RED.		
	TREE LINE/BUSH LINE								
	DECIDUOUS TREE (SIZE)								
	CONIFEROUS TREE (SIZE)								
	STUMP								
	EXISTING CULVERT								
	HYDRANT								
	MONUMENT								

AREA
174,240 s.f.
4.000 ac.±

GRaEF
1150 SPRINGHURST DRIVE
SUITE 201
GREEN BAY, WI 54304-5947
920-592-9440 (P)
920-592-9445 (F)
www.graef-usa.com

**FOX VALLEY
HEMATOLOGY
ONCOLOGY - MENASHA**

**1444 PROVINCE TERRACE
MENASHA, WI
SITE PLAN REVIEW**

BSA
Berners-Schober Associates, Inc.
Architects / Engineers
(920) 432-4865

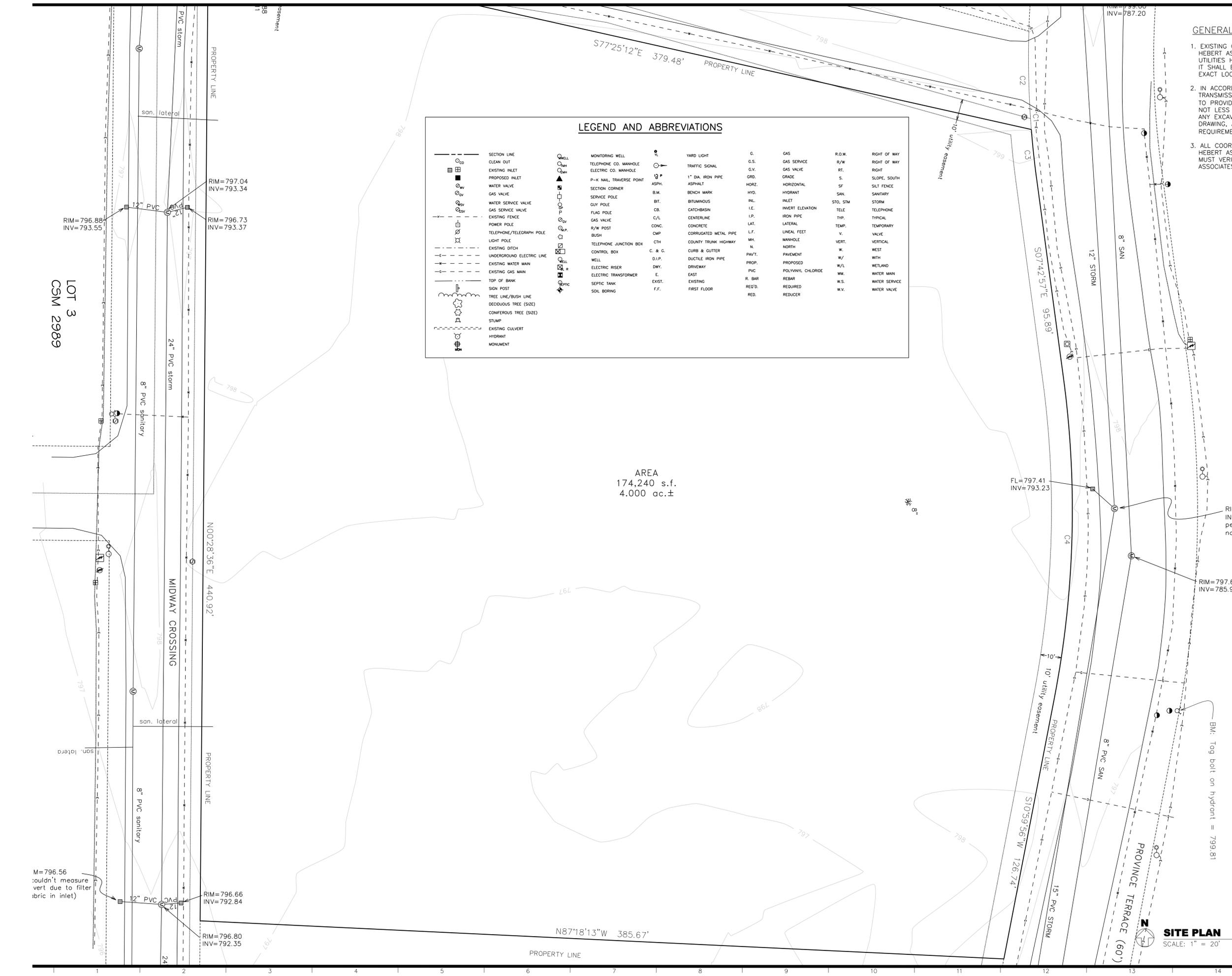
REVISION	DATE
SITE PLAN INITIAL SUBMITTAL	08/19/2010
BID PACK #1	08/20/2010
SITE PLAN FINAL SUBMITTAL	08/25/2010

TOPOGRAPHIC SURVEY

C100
DATE: AUGUST 25, 2010
COMMISSION
5250

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SITE PLAN
SCALE: 1" = 20'



LOT 3
CSM 2989

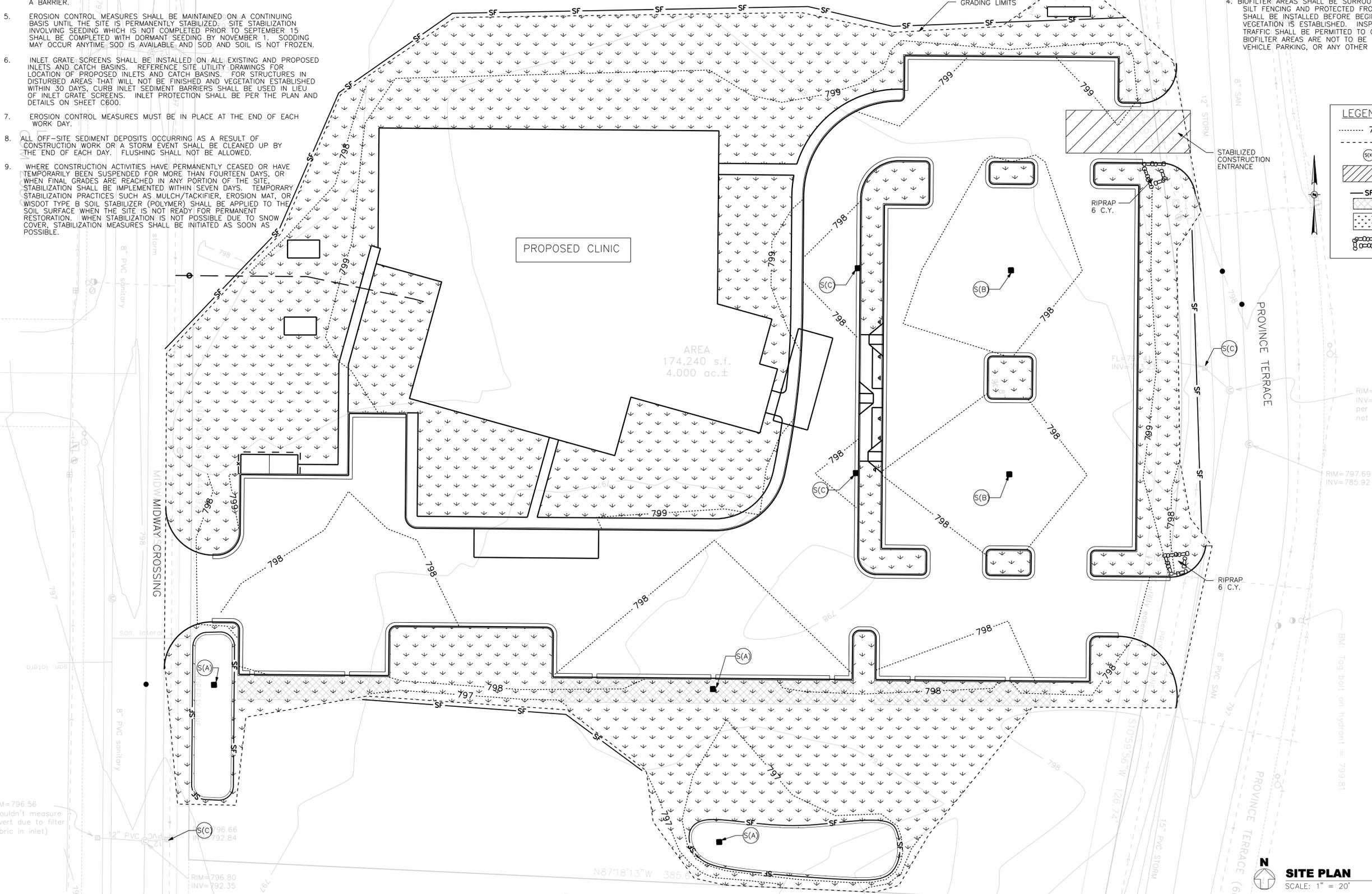
M=796.56
couldn't measure
vert due to filter
fabric in inlet)

EROSION CONTROL NOTES

- CONTRACTOR SHALL EMPLOY EROSION CONTROL METHODS AS SHOWN AND SPECIFIED IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONSTRUCTION SITE TECHNICAL STANDARDS AND THE WISDOT EROSION CONTROL PRODUCT ACCEPTABILITY LISTS (PAL).
- ALL EROSION CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND SHALL BE INSTALLED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON THE SITE.
- ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION AFTER A RAINFALL OF 0.5 INCHES OR MORE BUT NO LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY. WRITTEN REPORTS WILL BE KEPT OF ALL EROSION AND SEDIMENT CONTROL INSPECTIONS AS REQUIRED BY THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR).
- SILT FENCE SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. SILT FENCE SHALL BE INSTALLED PER DETAILS ON SHEET C410. SEDIMENT DEPOSITS WILL BE REMOVED FROM BEHIND THE SILT FENCE WHEN DEPOSITS REACH A DEPTH OF 6 INCHES. THE SILT FENCE WILL BE REPAIRED OR REPLACED AS NECESSARY TO MAINTAIN A BARRIER.
- EROSION CONTROL MEASURES SHALL BE MAINTAINED ON A CONTINUING BASIS UNTIL THE SITE IS PERMANENTLY STABILIZED. SITE STABILIZATION INVOLVING SEEDING WHICH IS NOT COMPLETED PRIOR TO SEPTEMBER 15 SHALL BE COMPLETED WITH DORMANT SEEDING BY NOVEMBER 1. SODDING MAY OCCUR ANYTIME SOD IS AVAILABLE AND SOD AND SOIL IS NOT FROZEN.
- INLET GRATE SCREENS SHALL BE INSTALLED ON ALL EXISTING AND PROPOSED INLETS AND CATCH BASINS. REFERENCE SITE UTILITY DRAWINGS FOR LOCATION OF PROPOSED INLETS AND CATCH BASINS. FOR STRUCTURES IN DISTURBED AREAS THAT WILL NOT BE FINISHED AND VEGETATION ESTABLISHED WITHIN 30 DAYS, CURB INLET SEDIMENT BARRIERS SHALL BE USED IN LIEU OF INLET GRATE SCREENS. INLET PROTECTION SHALL BE PER THE PLAN AND DETAILS ON SHEET C600.
- EROSION CONTROL MEASURES MUST BE IN PLACE AT THE END OF EACH WORK DAY.
- ALL OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION WORK OR A STORM EVENT SHALL BE CLEANED UP BY THE END OF EACH DAY. FLUSHING SHALL NOT BE ALLOWED.
- WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR HAVE TEMPORARILY BEEN SUSPENDED FOR MORE THAN FOURTEEN DAYS, OR WHEN FINAL GRADES ARE REACHED IN ANY PORTION OF THE SITE, STABILIZATION SHALL BE IMPLEMENTED WITHIN SEVEN DAYS. TEMPORARY STABILIZATION PRACTICES SUCH AS MULCH/TACKIFIER, EROSION MAT, OR WISDOT TYPE B SOIL STABILIZER (POLYMER) SHALL BE APPLIED TO THE SOIL SURFACE WHEN THE SITE IS NOT READY FOR PERMANENT RESTORATION. WHEN STABILIZATION IS NOT POSSIBLE DUE TO SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
- DUST CONTROL SHALL BE IMPLEMENTED THROUGHOUT CONSTRUCTION AND SHALL UTILIZE THE METHODS OUTLINED IN WDNR TECH STD. 1068.
- THE REMOVAL OF VEGETATIVE COVER AND EXPOSURE OF THE BARE GROUND MUST BE RESTRICTED TO THE MINIMUM AMOUNT NECESSARY FOR CONSTRUCTION. AREAS WHERE SOIL IS EXPOSED MUST BE PROTECTED FROM EROSION BY SEEDING AND MULCHING, SODDING, DIVERSION OF SURFACE RUNOFF, INSTALLATION OF STRAW BALES OR SILT SCREENS, CONSTRUCTION OF SETTLING BASINS, OR SIMILAR METHODS AS SOON AS POSSIBLE AFTER REMOVAL OF ORIGINAL GROUND COVER AS DESCRIBED IN THE WISCONSIN DNR TECHNICAL STANDARDS. ANY STOCKPILE THAT REMAINS OVER 7 DAYS MUST BE STABILIZED WITH MIXTURE NO. 20 FROM WISDOT SECTION 630. REFER TO SHEET C220 FOR FINAL GROUND COVER PLANTING REQUIREMENTS.
- STORM WATER AND GROUND WATER PUMPED FROM EXCAVATIONS AND/OR DEWATERING WELLS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE WISCONSIN STATUTES. SEDIMENT BASINS, SEDIMENT TRAPS AND/OR THE USE OF POLYMERS TO CONTROL SEDIMENT SHALL BE UTILIZED AND MEET THE REQUIREMENTS OF THE WISCONSIN DNR TECHNICAL STANDARDS. DISCHARGE OR PUMPED WATER TO SANITARY SEWERS WILL NOT BE ALLOWED.
- EROSION MAT SHALL CONSIST ENTIRELY OF BIODEGRADABLE COMPONENTS.
- AFTER THE SITE IS UNIFORMLY STABILIZED ACROSS 80% OF THE SITE AREA, OR PRIOR TO, AT THE DIRECTION OF THE DEPARTMENT OF NATURAL RESOURCES, ALL TEMPORARY EROSION CONTROL MEASURES MUST BE REMOVED AND DISPOSED OF PROPERLY. ANY REMAINING TEMPORARY EROSION CONTROL DEVICES AFTER THIS POINT CONSTITUTE LITTERING AND MAY BE ENFORCED AS DETERMINED NECESSARY BY THE DEPARTMENT OF NATURAL RESOURCES.
- CONTRACTOR SHALL MAINTAIN A LOG OF THE EROSION CONTROL INSPECTIONS, REPAIRS MADE, AND RAIN EVENTS. THIS MUST BE MADE AVAILABLE TO DEPARTMENT OF NATURAL RESOURCES PERSONNEL UPON REQUEST AND MUST REMAIN ON THE PROJECT SITE AT ALL TIMES WORK IS BEING PERFORMED.

GENERAL NOTES

- EXISTING CONDITIONS FOR THIS PLAN ARE BASED ON SURVEY BY HEBERT ASSOCIATES, INC. DATED JULY 2010. ALL UNDERGROUND STRUCTURES AND UTILITIES HAVE BEEN SHOWN TO A REASONABLE DEGREE OF ACCURACY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND DEPTH.
- IN ACCORDANCE WITH WISCONSIN STATUTE 182.0175, DAMAGE TO TRANSMISSION FACILITIES, EXCAVATOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE ADVANCE NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON THIS DRAWING, AND FURTHER, EXCAVATOR SHALL COMPLY WITH ALL OTHER REQUIREMENTS OF THIS STATUTE RELATIVE TO CONTRACTOR'S WORK.
- ALL CONSTRUCTION WASTE SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF IN ACCORDANCE WITH STATE STATUTES. CONCRETE TRUCK WASHOUT SHALL BE COMPLETED WITHIN THE CONSTRUCTION LIMITS ADJACENT TO SEDIMENTATION AREAS AND AWAY FROM ALL STORMWATER COLLECTION STRUCTURES. HARDENED CONCRETE WASTE SHALL EITHER BE REMOVED FROM SITE OR USED AS BACKFILL IN APPROVED LOCATIONS.
- BIOFILTER AREAS SHALL BE SURROUNDED WITH PROTECTIVE BARRIER FENCING AND SILT FENCING AND PROTECTED FROM TRAFFIC THROUGHOUT CONSTRUCTION. SILT FENCING SHALL BE INSTALLED BEFORE BEGINNING WORK AND MAINTAINED UNTIL SURROUNDING VEGETATION IS ESTABLISHED. INSPECT WEEKLY AND REPAIR AS NEEDED. NO VEHICLE TRAFFIC SHALL BE PERMITTED TO CROSS ANY BIOFILTER TO PREVENT COMPACTION. BIOFILTER AREAS ARE NOT TO BE USED FOR STAGING, MATERIAL STORAGE, STOCKPILING, VEHICLE PARKING, OR ANY OTHER ACTIVITY AFTER INSTALLATION OF ENGINEERED SOIL.



LEGEND

- 799..... - PROPOSED CONTOUR
- - - - - GRADING LIMITS
- (S(A)) - INLET PROTECTION (3) (C400)
- [Hatched Box] - STABILIZED CONSTRUCTION ENTRANCE (1) (C400)
- SF- - SILT FENCE (2) (C400)
- [Dotted Box] - EROSION MAT CLASS I, TYPE B
- [Cross-hatched Box] - SEEDING, FERTILIZER AND MULCH TEMPORARY - SEE NOTE 11
- [Chain Link Box] - MEDIUM RIPRAP

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1444 PROVINCE TERRACE MENASHA, WI SITE PLAN REVIEW

BSA		ARCHITECTS' BUILDING 310 PINE STREET GREEN BAY, WI 54301
Berners-Schober Associates, Inc. Architects / Engineers (920) 432-4865		
REVISION	DATE	
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BID PACK #1	08/20/2010	
SITE PLAN FINAL SUBMITTAL	08/25/2010	

SITE EROSION CONTROL PLAN C101 5250

DATE: AUGUST 25, 2010
 COMMISSION
 SCALE: 1" = 20'
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M=796.56
 couldn't measure
 vert due to filter
 fabric in inlet)

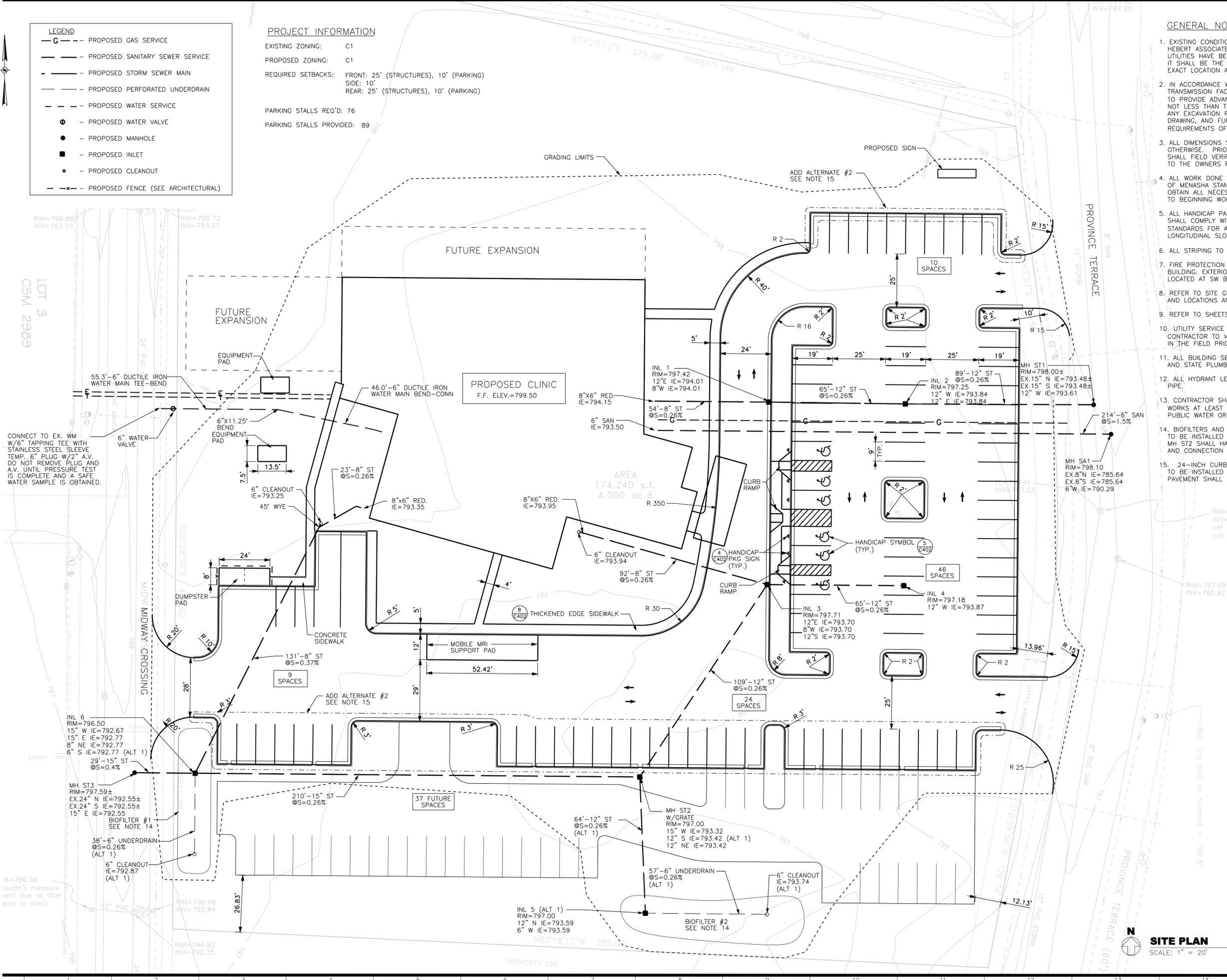
- LEGEND**
- G — PROPOSED GAS SERVICE
 - S — PROPOSED SANITARY SEWER SERVICE
 - SM — PROPOSED STORM SEWER MAIN
 - PU — PROPOSED PERFORATED UNDERDRAIN
 - W — PROPOSED WATER SERVICE
 - — PROPOSED WATER VALVE
 - — PROPOSED MANHOLE
 - — PROPOSED INLET
 - — PROPOSED CLEANOUT
 - X — PROPOSED FENCE (SEE ARCHITECTURAL)

PROJECT INFORMATION

EXISTING ZONING: C1
 PROPOSED ZONING: C1
 REQUIRED SETBACKS: FRONT: 25' (STRUCTURES), 10' (PARKING)
 SIDE: 10'
 REAR: 25' (STRUCTURES), 10' (PARKING)

PARKING STALLS REQ'D: 76
 PARKING STALLS PROVIDED: 89

- GENERAL NOTES**
1. EXISTING CONDITIONS FOR THIS PLAN ARE BASED ON SURVEY BY HEBERT ASSOCIATES, INC. DATED JULY 2010. ALL UNDERGROUND UTILITIES HAVE BEEN SHOWN TO A REASONABLE DEGREE OF ACCURACY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND DEPTH.
 2. IN ACCORDANCE WITH WISCONSIN STATUTE 182.01, DAMAGE TO TRANSMISSION FACILITIES, EXCAVATOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE ADVANCE NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON THIS DRAWING, AND FURTHER, EXCAVATOR SHALL COMPLY WITH ALL OTHER REQUIREMENTS OF THIS STATUTE RELATIVE TO EXCAVATOR'S WORK.
 3. ALL DIMENSIONS SHOWN ARE TO DECIMAL FEET UNLESS SPECIFIED OTHERWISE. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE OWNERS REPRESENTATIVE.
 4. ALL WORK DONE WITHIN THE RIGHT OF WAY SHALL BE DONE PER CITY OF MENASHA STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF MENASHA PRIOR TO BEGINNING WORK WITHIN THE RIGHT OF WAY.
 5. ALL HANDICAP PARKING STALLS, CURB RAMPS AND ADA ACCESSIBLE ROUTES SHALL COMPLY WITH PROVISIONS OF THE AMERICAN WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN (ADAAG) INCLUDING CROSS-SLOPE, LONGITUDINAL SLOPE, WIDTH, AND OTHER REQUIREMENTS.
 6. ALL STRIPING TO BE 4" WIDE (YELLOW).
 7. FIRE PROTECTION SYSTEM WILL BE INSTALLED IN PROPOSED BUILDING. EXTERIOR FIRE DEPARTMENT CONNECTION TO BE LOCATED AT SW BUILDING CORNER.
 8. REFER TO SITE GRADING AND PAVING PLANS FOR PAVING TYPES AND LOCATIONS AND PROPOSED ELEVATIONS.
 9. REFER TO SHEETS C400-C402 FOR SITE CONSTRUCTION DETAILS.
 10. UTILITY SERVICE LINE LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATIONS WITH OWNER'S REPRESENTATIVE IN THE FIELD PRIOR TO BEGINNING WORK.
 11. ALL BUILDING SERVICE LATERALS SHALL BE IN ACCORDANCE WITH LOCAL AND STATE PLUMBING CODES.
 12. ALL HYDRANT LEADS AND BUILDING LATERALS SHALL BE RESTRAINED JOINT PIPE.
 13. CONTRACTOR SHALL NOTIFY THE CITY OF MENASHA DIRECTOR OF PUBLIC WORKS AT LEAST THREE (3) WORKING DAYS PRIOR TO WORK INVOLVING PUBLIC WATER OR SEWER MAINS.
 14. BIOFILTERS AND ASSOCIATED UNDERDRAINS, CLEANOUTS AND GRADING TO BE INSTALLED AS ADD ALTERNATE NO.1. IF SELECTED, STRUCTURE MH ST2 SHALL HAVE A SOLID COVER. IF NOT SELECTED, ELIMINATE INL 5 AND CONNECTION TO MH ST2.
 15. 24-INCH CURB AND GUTTER ALONG NORTH AND SOUTH PARKING AREAS TO BE INSTALLED AS ADD ALTERNATE NO.2. IF NOT SELECTED, EDGE OF PAVEMENT SHALL BE LOCATED AT FACE OF CURB.



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**1444 PROVINCE TERRACE
 MENASHA, WI
 SITE PLAN REVIEW**

BSA		ARCHITECTS' BUILDING 310 PINE STREET GREEN BAY, WI 54301
Berners-Schober Associates, Inc. Architects / Engineers (920) 432-4865		
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SITE PLAN FINAL SUBMITTAL	08/25/2010	

SITE AND UTILITY PLAN

C200 DATE: AUGUST 25, 2010
5250 COMMISSION

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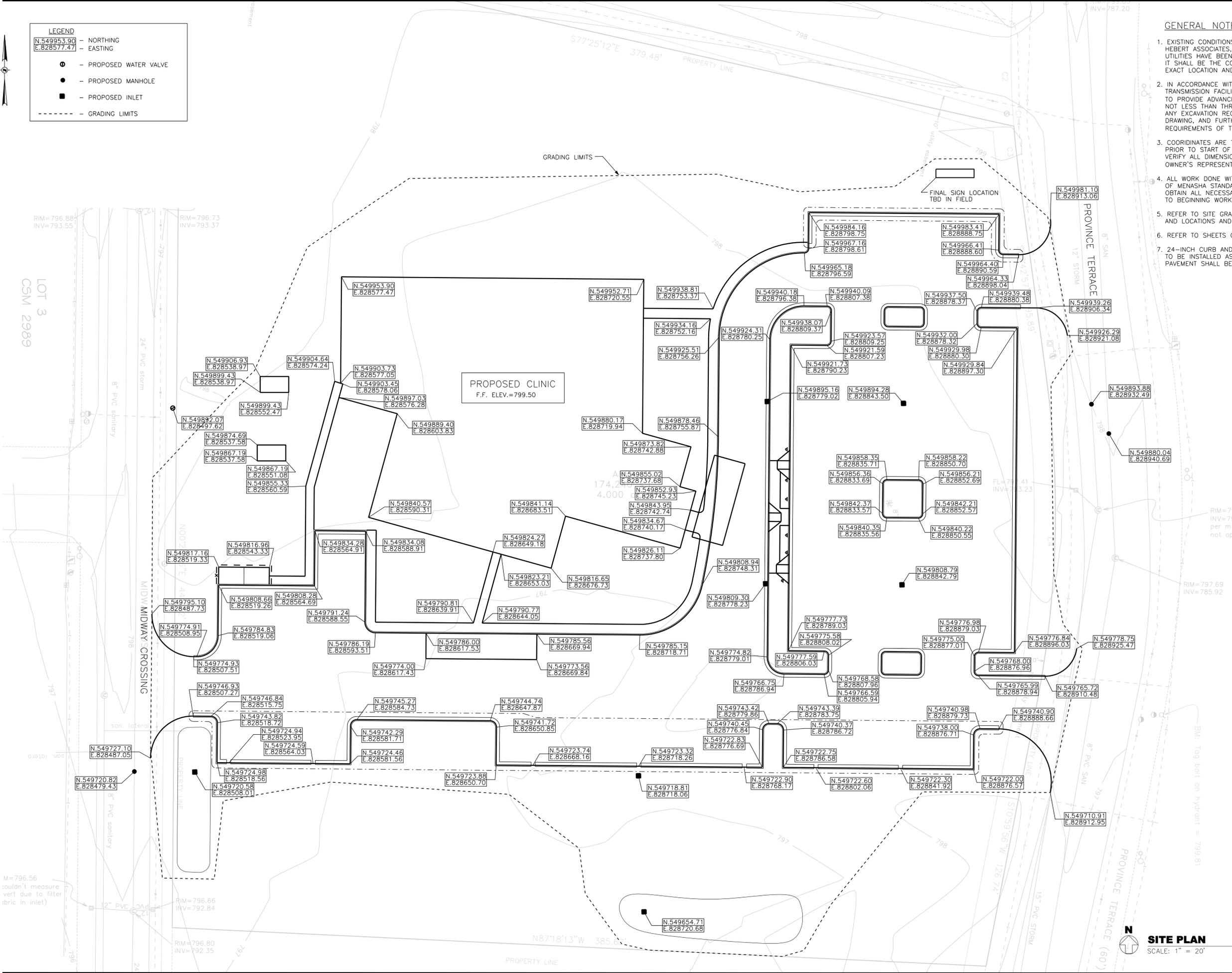
SITE PLAN
 SCALE: 1" = 20'

LEGEND

- N.549953.90
E.828577.47
- — PROPOSED WATER VALVE
- — PROPOSED MANHOLE
- — PROPOSED INLET
- - - - GRADING LIMITS

GENERAL NOTES

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3. COORDINATES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE.
4. ALL WORK DONE WITHIN THE RIGHT OF WAY SHALL BE DONE PER CITY OF MENASHA STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF MENASHA PRIOR TO BEGINNING WORK WITHIN THE RIGHT OF WAY.
5. REFER TO SITE GRADING AND PAVING PLANS FOR PAVING TYPES AND LOCATIONS AND PROPOSED ELEVATIONS.
6. REFER TO SHEETS C400-C402 FOR SITE CONSTRUCTION DETAILS.
7. 24-INCH CURB AND GUTTER ALONG NORTH AND SOUTH PARKING AREAS TO BE INSTALLED AS ADD ALTERNATE NO.2. IF NOT SELECTED, EDGE OF PAVEMENT SHALL BE LOCATED AT FACE OF CURB.



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**1444 PROVINCE TERRACE
MENASHA, WI
SITE PLAN REVIEW**

BSA		ARCHITECTS BUILDING 310 PINE STREET GREEN BAY, WI 54301
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BID PACK #1	08/20/2010	
SITE PLAN FINAL SUBMITTAL	08/25/2010	

SITE LAYOUT PLAN
C201
DATE: AUGUST 25, 2010
COMMISSION
5250

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SITE PLAN
SCALE: 1" = 20'

M=796.56
couldn't measure
vert due to filter
fabric in inlet)

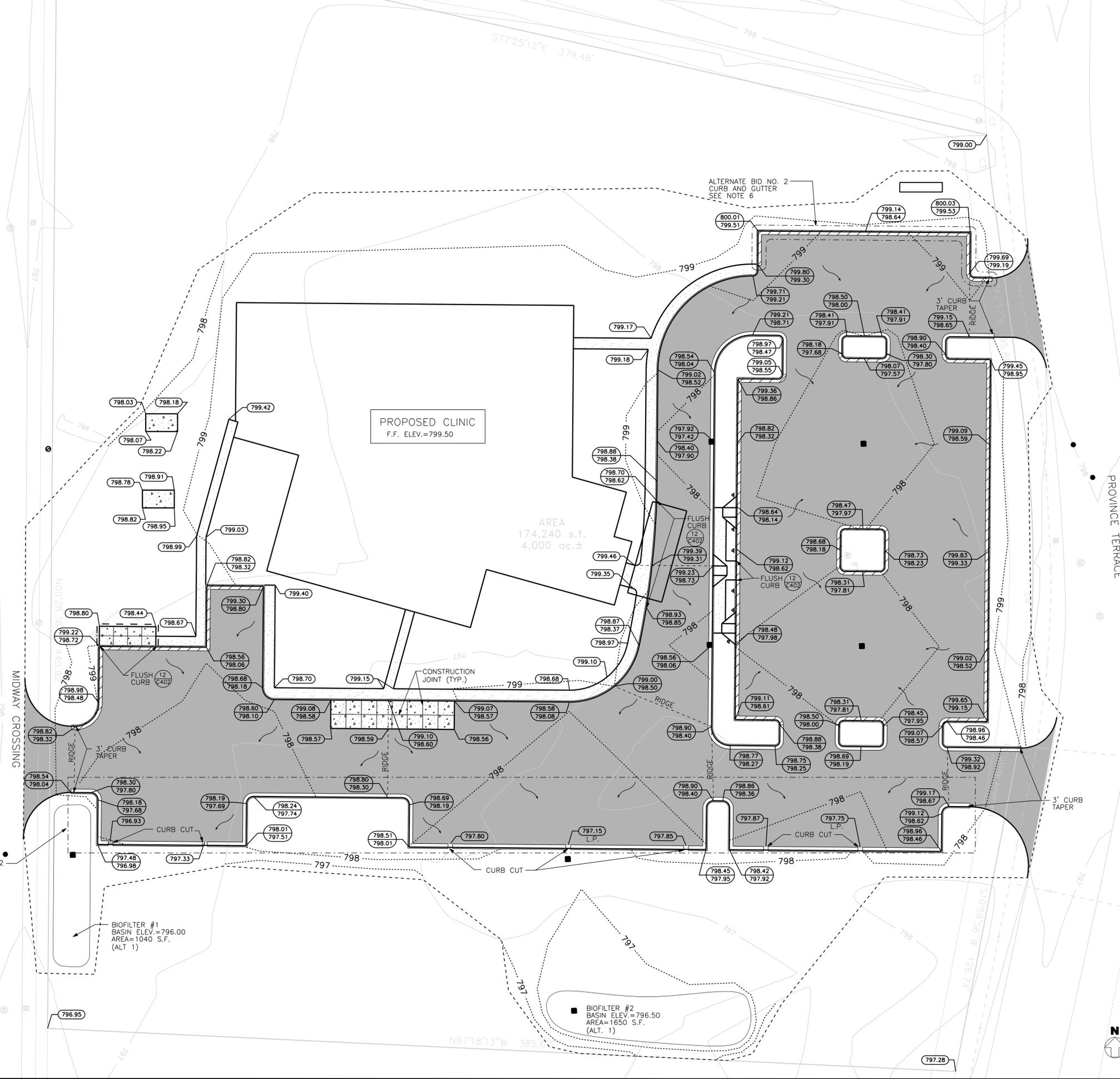
RIM=79
INV=79
per ma
not opt

BM: Top bolt on hydrant = 799.81

LEGEND

- 642 - PROPOSED CONTOUR
- - GRADING LIMITS
- ~ - DRAINAGE ARROW
- 751.00 - SPOT ELEVATION
- 751.50 / ○ 751.00 - TOP OF CURB / BOTTOM OF CURB
- - PROPOSED UTILITY STRUCTURES
- - ASPHALT PAVEMENT (1) (C402)
- - STANDARD DUTY CONCRETE PAVEMENT (2) (C402)
- ▨ - HEAVY DUTY CONCRETE PAVEMENT (2) (C402)
- ▩ - 24-INCH CURB AND GUTTER (10) (C402)
- ▧ - HIGH SIDE CURB AND GUTTER (7) (C402)

- GENERAL NOTES**
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 - REFER TO SITE LAYOUT PLAN FOR DETAILED LAYOUT INFORMATION OF SITE FEATURES.
 - REFER TO SITE ELECTRICAL DRAWINGS FOR COORDINATION OF PROPOSED SITE LIGHTING WITH PROPOSED PAVEMENT.
 - INSTALL FLUSH CURB BETWEEN ARROWS WHERE NOTED. LIMITS OF FLUSH CURB SHALL ALIGN WITH EDGES OF BUILDING ALONG FRONT DROP-OFF AREA.
 - IF ALTERNATE BID NO. 2 IS NOT SELECTED, ASPHALT PAVEMENT SHALL EXTEND TO FACE OF CURB SHOWN. LOCATION SHALL CORRESPOND TO COORDINATES ON SHEET C201.
 - IF ALTERNATE BID NO. 1 IS NOT SELECTED, TURF AREA ALONG SOUTH EDGE OF PARKING AREA SHALL BE GRADED TO DRAIN TO STORM SEWER STRUCTURES INL 6 AND ST MH 2. REFER TO SHEET C200 FOR STRUCTURE DETAILS.



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SITE PLAN FINAL SUBMITTAL	08/25/2010

**SITE GRADING AND PAVING
 PLAN**

C300 DATE: AUGUST 25, 2010
5250 COMMISSION

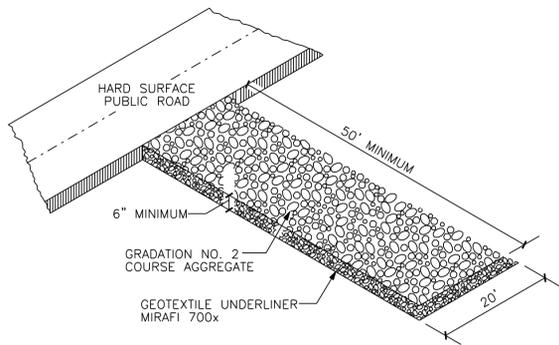
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SITE PLAN
 SCALE: 1" = 20'

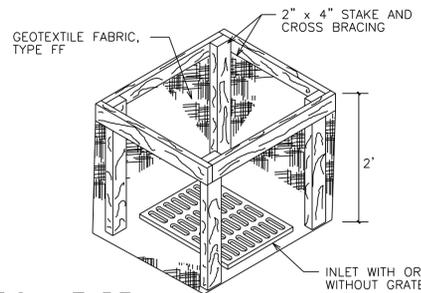
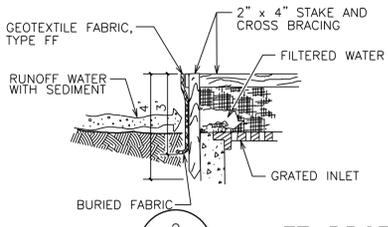
ALTERNATE BID NO. 2
 CURB AND GUTTER
 SEE NOTE 6

BIOFILTER #1
 BASIN ELEV.=796.00
 AREA=1040 S.F.
 (ALT. 1)

BIOFILTER #2
 BASIN ELEV.=796.50
 AREA=1650 S.F.
 (ALT. 1)



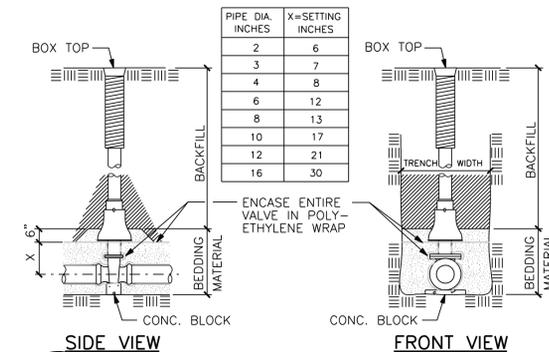
NOTE: ATTACH GEOTEXTILE FABRIC, TYPE FF TO THE TOP OF STAKES AND CROSS BRACINGS.



GENERAL NOTES

FABRIC SHALL BE REPLACED AT THE ENGINEERS DISCRETION. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX. MANUFACTURED ALTERNATIVES, APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

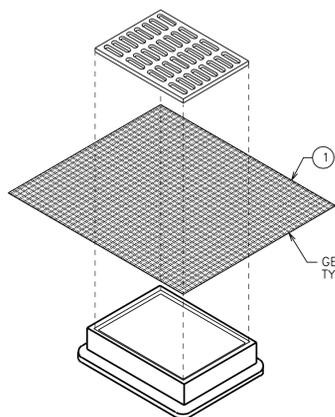
- ① FABRIC SIZE SHALL BE 8" (MIN) GREATER ON ALL SIDES OF THE INLET COVER TO PROVIDE A HAND HOLD WHEN MAINTENANCE OR REMOVAL IS REQUIRED.
- ② FOR INLET PROTECTION, TYPE C, WITH A CURB BOX, AND ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES.



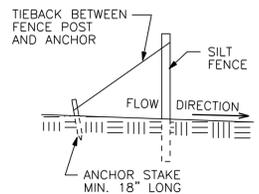
3 STANDARD GATE VALVE BOX SETTING DETAIL
N.T.S.

1 CRUSHED STONE CONSTRUCTION ENTRANCE
N.T.S.

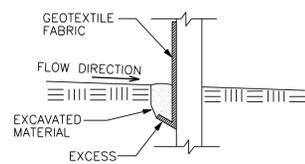
2 INLET PROTECTION, TYPE A
N.T.S.



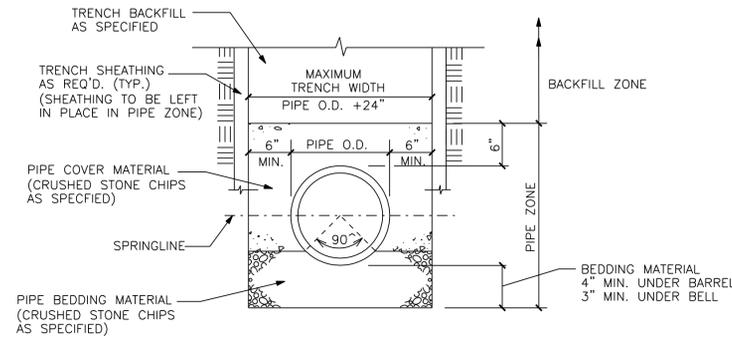
5 INLET PROTECTION, TYPE C (WITH CURB BOX)
N.T.S.



SILT FENCE TIE BACK
N.T.S.

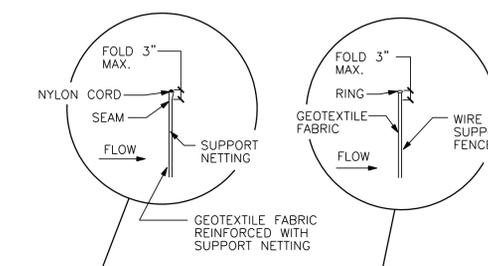


TRENCH DETAIL
N.T.S.

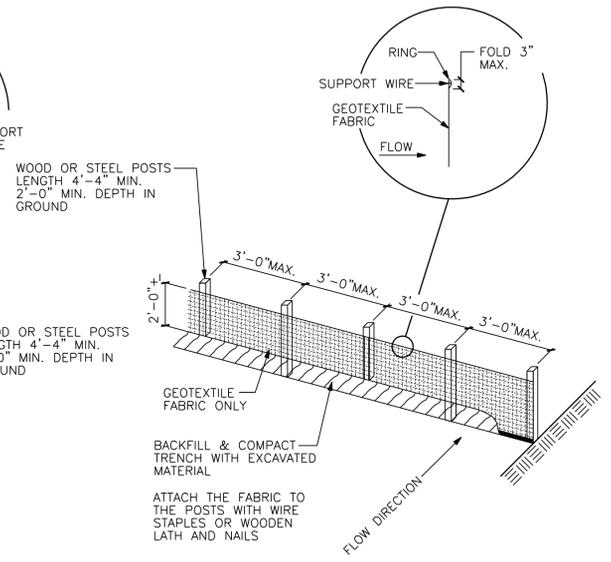


6 CLASS "C" BEDDING FOR STORM SEWER
N.T.S.

GENERAL NOTES:
DETAIL OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE WISCONSIN DNR CONSTRUCTION SITE BEST MANAGEMENT PRACTICE HANDBOOK. WHEN POSSIBLE THE SILT FENCE SHOULD BE CONSTRUCTED IN AN ARC OR HORSE SHOE SHAPE, WITH THE ENDS POINTING UP SLOPE TO MAXIMIZE BOTH STRENGTH AND EFFECTIVENESS. EXCAVATE A TRENCH A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.



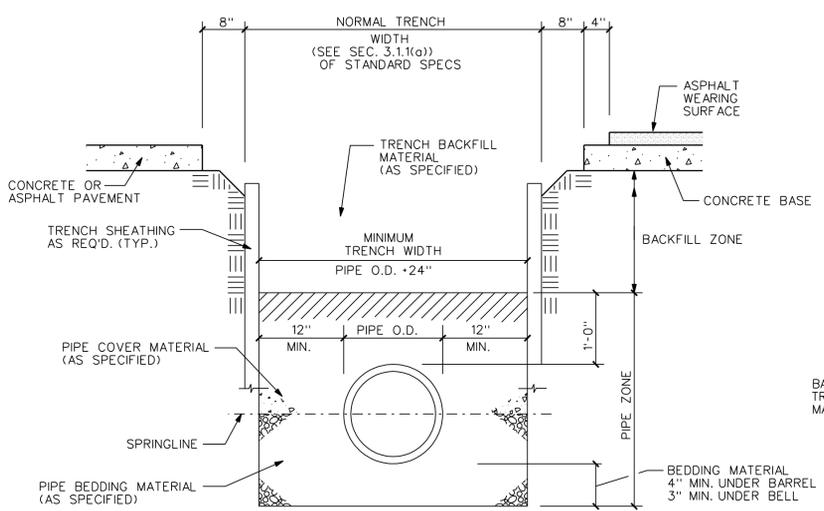
INSTALLATION "A"



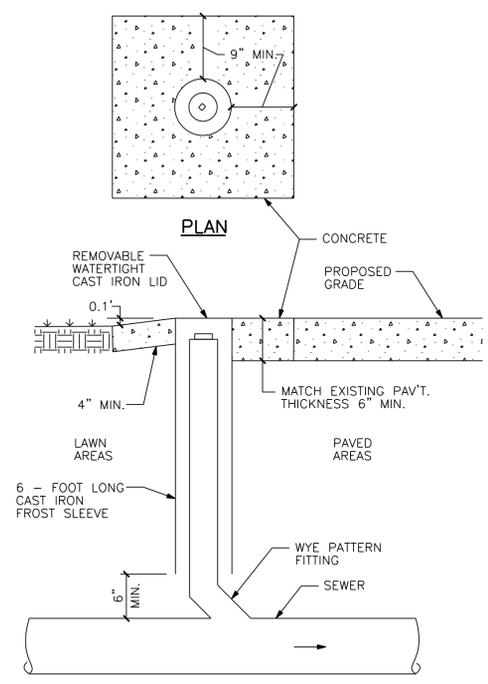
INSTALLATION "B"

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

8 SILT FENCE
N.T.S.



7 WATER MAIN TRENCH DETAIL
N.T.S.



9 CLEANOUT DETAIL
N.T.S.

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FOX VALLEY HEMATOLOGY ONCOLOGY - MENASHA

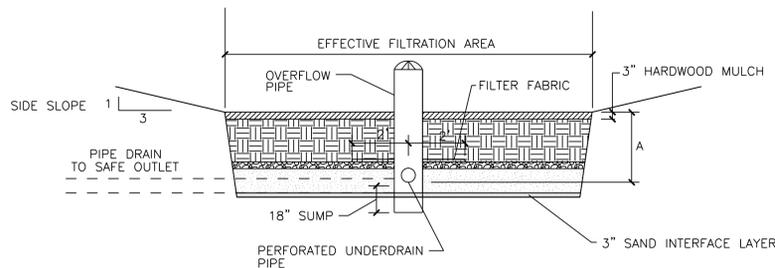
1444 PROVINCE TERRACE MENASHA, WI
SITE PLAN REVIEW

BSA		ARCHITECTS BUILDING
Berners-Schober Associates, Inc.		310 PINE STREET
Architects / Engineers		GREEN BAY, WI 54301
		(920) 432-4865
REVISION	DATE	
SITE PLAN INITIAL SUBMITTAL	08/19/2010	
BID PACK #1	08/20/2010	
SITE PLAN FINAL SUBMITTAL	08/25/2010	

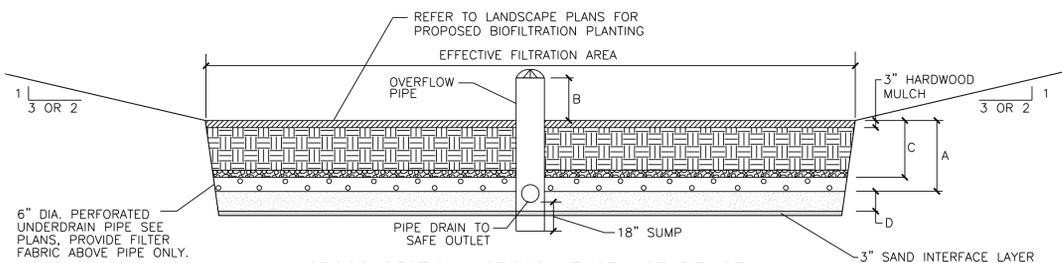
SITE CONSTRUCTION DETAILS

C400 5250
DATE: AUGUST 25, 2010
COMMISSION

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CROSS SECTION ACROSS WIDTH OF DEVICE



CROSS SECTION ACROSS LENGTH OF DEVICE

1 BIOFILTRATION BASIN DETAIL (ALTERNATE NO.1)
C401 N.T.S.

DEVICE NAME	DIMENSIONS				OVERFLOW ELEV.	TOP OF MULCH ELEVATION	BOTTOM ELEVATION
	A	B	C	D			
BIOFILTRATION BASIN 1	3.6'	0.50'	3.1'	0.50'	796.50	796.00	791.65
BIOFILTRATION BASIN 2	3.2'	0.50'	2.7'	0.50'	797.00	796.50	792.55

- HARDWOOD MULCH
- ENGINEERED SOIL
- PEA GRAVEL
- SAND STORAGE LAYER

BILFILTRATION NOTES:

THE NOTES BELOW ARE FROM THE WDRN CONSERVATION PRACTICE STANDARD (COS) 1004 FOR BIOTRETENTION FOR INFILTRATION. THE DOCUMENT IS LOCATED AT THE FOLLOWING LINK:
http://dnr.wi.gov/runoff/pdf/stormwater/techstds/post/Bioretenion_1004a.zip

ROOTSTOCK AND PLUGS SHALL BE USED IN ESTABLISHING TREES, SHRUBS AND HERBACEOUS PERENNIALS. SEED SHALL NOT BE USED TO ESTABLISH VEGETATION.

SHREDDED HARDWOOD MULCH OR CHIPS, AGED A MINIMUM OF 12 MONTHS, SHALL BE PLACED ON THE SURFACE OF THE BIOTRETENTION AREA. THE MULCH SHALL BE FREE OF FOREIGN MATERIAL, INCLUDING OTHER PLANT MATERIAL.

THE UNDERDRAIN PIPE SHALL BE PROTECTED WITH A FILTER SOCK. THE OPENINGS IN THE FABRIC SHALL BE SMALL ENOUGH TO PREVENT SAND PARTICLES FROM ENTERING THE UNDERDRAIN PIPE. THE FLOW RATE OF THE FABRIC SHALL BE CAPABLE OF PASSING WATER AT A RATE EQUAL TO OR GREATER THAN THE FLOW RATE CAPACITY OF THE TOTAL COMBINED PERFORATIONS IN THE UNDERDRAIN PIPE. THE FABRIC SHALL MEET THE OTHER REQUIREMENTS OF WISCONSIN STANDARDS AND SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, SECTION 612.2.8(1-3), 2003 EDITION, OR AN EQUIVALENT APPROVED BY THE JURISDICTION HAVING AUTHORITY.

FILTER FABRIC SHALL COVER THE UNDERDRAIN PIPE AND SHALL NOT EXTEND LATERALLY FROM EITHER SIDE OF THE PIPE MORE THAN TWO FEET. THE FABRIC SHALL MEET THE SPECIFICATIONS OF WISCONSIN STANDARDS AND SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, SECTION 645.2.4, SCHEDULE TEST B, 2003 EDITION, OR AN EQUIVALENT APPROVED BY THE ADMINISTERING AUTHORITY.

A CLEAN OUT SHALL BE RIGID, NON-PERFORATED PVC PIPE, COVERED WITH A WATERTIGHT CAP THAT IS FLUSH WITH THE GROUND ELEVATION OF THE DEVICE.

IF THERE IS NO UNDERDRAIN, ONE OR MORE OBSERVATION WELLS SHALL BE INSTALLED TO MONITOR DRAINAGE FROM THE DEVICE. THE OBSERVATION WELL SHALL BE A MINIMUM 6-INCH DIAMETER SLOTTED PVC PIPE, ANCHORED VERTICALLY TO A FOOTPLATE AT THE BOTTOM OF THE BIOTRETENTION DEVICE. THE TOP OF THE PIPE SHALL BE HIGH ENOUGH TO PREVENT THE ENTRY OF WATER PONDED WITHIN THE INFILTRATION DEVICE. IT SHALL HAVE A SECURED ABOVEGROUND CAP.

ENGINEERED SOIL MIX:

THE ENGINEERED SOIL COMPONENT SHALL BE PER SECTION V.B.6.d. OF THE WDRN CONSERVATION PRACTICE STANDARD 1004:

ENGINEERED SOIL COMPONENT	PERCENTAGE COMPOSITION (BY VOLUME)
SAND	40%
TOPSOIL	20% IF LOAM TEXTURE OR 30% IF SANDY LOAM OR LOAMY SAND TEXTURE
COMPOST	30%-40%

THE SAND COMPONENT SHALL MEET ONE OF THE FOLLOWING:

- USDA COARSE SAND (.02 - .04 INCHES)
- ASTM C33 (FINE AGGREGATE CONCRETE SAND)
- WISCONSIN STANDARDS AND SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, SECTION 501.2.5.3.4. (FINE AGGREGATE CONCRETE SAND) 2005 EDITION, OR AN EQUIVALENT AS APPROVED BY THE ADMINISTERING AUTHORITY

THE TOPSOIL COMPONENT SHALL BE A USDA CLASSIFIED SANDY LOAM, LOAMY SAND, LOAM TEXTURE. THE TOPSOIL COMPONENT TEXTURAL CLASS SHALL BE VERIFIED BY A LABORATORY ANALYSIS OR A PROFESSIONAL ACCEPTABLE TO THE JURISDICTION HAVING AUTHORITY.

THE COMPOST COMPONENT SHALL MEET THE REQUIREMENTS OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES SPECIFICATION S100, COMPOST.

THE ENGINEERED SOIL MIX SHALL BE FREE OF ROCKS, STUMPS, ROOTS, BRUSH OR OTHER MATERIAL OVER 1 INCH IN DIAMETER. NO OTHER MATERIALS SHALL BE MIXED WITH THE PLANTING MIX THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVE A HINDRANCE TO PLANTING OR MAINTENANCE.

THE ENGINEERED SOIL MIX SHALL HAVE A PH BETWEEN 5.5 AND 6.5.

THE ENGINEERED SOIL MIX SHALL HAVE ADEQUATE NUTRIENT CONTENT TO MEET PLANT GROWTH REQUIREMENTS.

THE FOLLOWING REQUIREMENTS SHALL BE MET IN DESIGNING THE SAND OR GRAVEL STORAGE LAYER:

THE GRAVEL SHALL MEET THE COARSE AGGREGATE #2 AND OTHER SPECIFICATIONS OF WISCONSIN STANDARDS AND SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, SECTION 501.2.5, 2003 EDITION, OR AN EQUIVALENT AS APPROVED BY THE ADMINISTERING AUTHORITY. GRAVEL SHALL BE DOUBLE-WASHED.

A LAYER OF SAND MAY BE USED IN LIEU OF GRAVEL TO FORM THE STORAGE LAYER. THE SAND SHALL BE WASHED QUARTZ OR SILICA. SAND PARTICLES SHALL BE 0.02 TO 0.04 INCHES IN DIAMETER (USDA COARSE SAND). CALCIUM CARBONATED, DOLOMITIC SAND, AND OTHER SUBSTITUTIONS ARE NOT ALLOWED.

THE CONTRACTOR SHALL SUBMIT CERTIFICATIONS PRIOR TO USE FOR ALL MATERIALS THAT ARE TO BE INCORPORATED INTO THE PROJECT STATING COMPLIANCE WITH THE STANDARDS.

EXECUTION:

CONSTRUCTION SITE RUNOFF FROM DISTURBED AREAS SHALL NOT BE ALLOWED TO ENTER THE BIOTRETENTION DEVICE. RUNOFF FROM PVIOUS AREAS SHALL BE DIVERTED FROM THE DEVICE UNTIL THE PVIOUS AREAS HAVE UNDERGONE FINAL STABILIZATION.

CONSTRUCTION SHALL BE SUSPENDED DURING PERIODS OF RAINFALL OR SNOWMELT. CONSTRUCTION SHALL REMAIN SUSPENDED IF PONDED WATER IS PRESENT OR IF RESIDUAL SOIL MOISTURE CONTRIBUTES SIGNIFICANTLY TO THE POTENTIAL FOR SOIL SMEARING, CLUMPING OR OTHER FORMS OF COMPACTION.

COMPACTION AND SMEARING OF THE SOILS BENEATH THE FLOOR AND SIDE SLOPES OF THE BIOTRETENTION AREA, AND COMPACTION OF THE SOILS USED FOR BACKFILL IN THE SOIL PLANTING BED, SHALL BE MINIMIZED. DURING SITE DEVELOPMENT, THE AREA DEDICATED TO THE BIOTRETENTION DEVICE SHALL BE CORDONED OFF TO PREVENT ACCESS BY HEAVY EQUIPMENT. ACCEPTABLE EQUIPMENT FOR CONSTRUCTING THE BIOTRETENTION DEVICE INCLUDES EXCAVATION HOES, LIGHT EQUIPMENT WITH TURF TYPE TIRES, MARSH EQUIPMENT OR WIDE-TRACK LOADERS.

IF COMPACTION OCCURS AT THE BASE OF THE BIOTRETENTION DEVICE, THE SOIL SHALL BE REFRACTURED TO A DEPTH OF AT LEAST 12 INCHES. IF SMEARING OCCURS, THE SMEARED AREAS OF THE INTERFACE SHALL BE CORRECTED BY RAKING OR ROTO-TILLING.

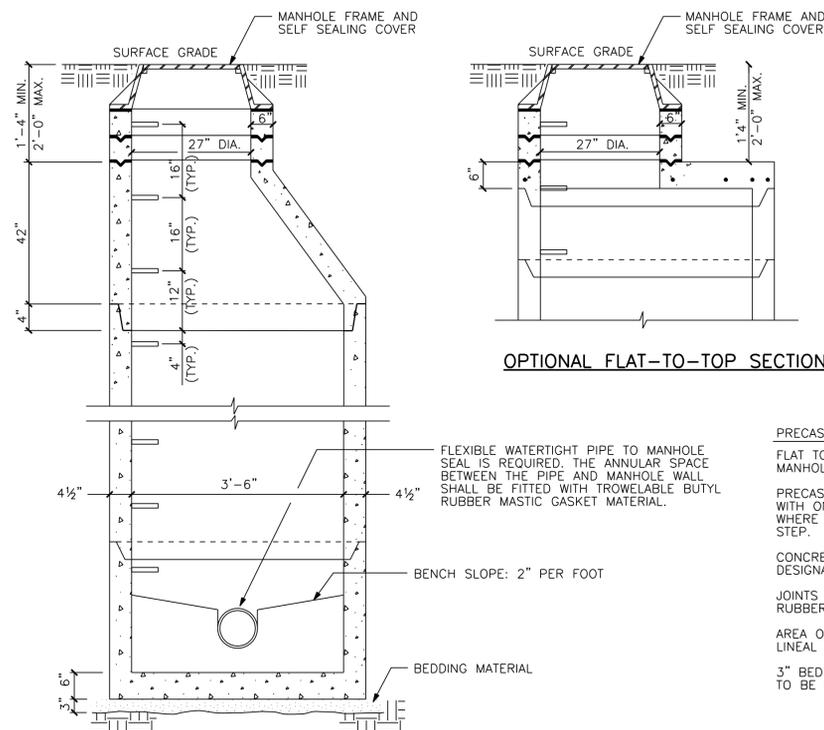
PRIOR TO PLACEMENT IN THE BIOTRETENTION DEVICE, THE ENGINEERED SOIL SHALL BE PREMIXED AND THE MOISTURE CONTENT SHALL BE LOW ENOUGH TO PREVENT CLUMPING AND COMPACTION DURING PLACEMENT.

THE ENGINEERED SOIL SHALL BE PLACED IN MULTIPLE LIFTS, EACH APPROXIMATELY 12 INCHES IN DEPTH.

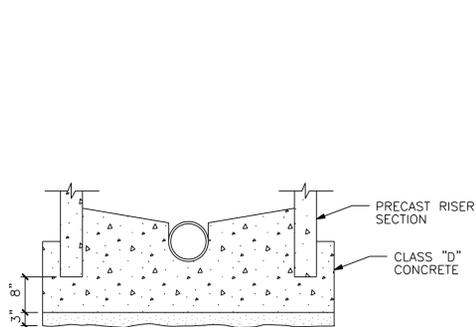
STEPS MAY BE TAKEN TO INDUCE MILD SETTLING OF THE ENGINEERED SOIL BED AS NEEDED TO PREPARE A STABLE PLANTING MEDIUM AND TO STABILIZE THE PONDING DEPTH. VIBRATING PLATE-STYLE COMPACTORS SHALL NOT BE USED TO INDUCE SETTLING.

THE ENTIRE SOIL PLANTING BED SHALL BE MULCHED PRIOR TO PLANTING VEGETATION TO HELP PREVENT COMPACTION OF THE PLANTING SOIL DURING THE PLANTING PROCESS. MULCH SHALL BE PUSHED ASIDE FOR THE PLACEMENT OF EACH PLANT.

THIS INFILTRATION DEVICE IS NOT SUITABLE FOR TREATING CHLORIDES. CHLORIDE USE ON SOURCE AREAS TRIBUTARY TO THE BIOTRETENTION DEVICE CAN BE REDUCED OR ELIMINATED BY MINIMIZING THE AMOUNT OF COMPOUND USED, USING ALTERNATIVE DE-ICERS OR USING CLEAN SAND. AGGRESSIVE SWEEPING IN THESE AREAS, ALONG WITH PRETREATMENT SUMPS AND FILTER STRIPS, WILL REDUCE THE IMPACT OF THE SAND ON THE BIOTRETENTION DEVICE.



OPTIONAL FLAT-TO-TOP SECTION



OPTIONAL POURED BASE

PRECAST MANHOLE GENERAL NOTES:

FLAT TOP SLAB MAY BE USED FOR 5'-0" AND 6'-0" DIA. MANHOLES.

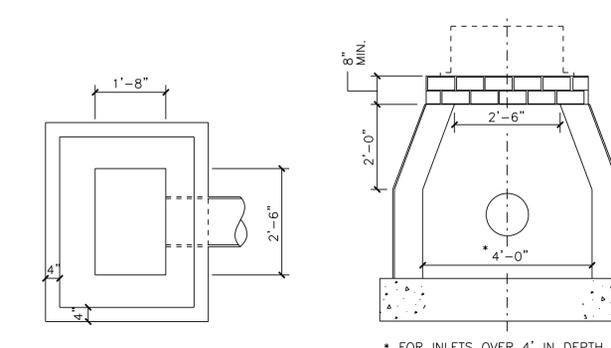
PRECAST CONCRETE ADJUSTING RINGS TO BE REINFORCED WITH ONE LINE OF STEEL CENTERED WITHIN THE RING. WHERE NECESSARY RINGS SHALL BE GROOVED TO RECEIVE STEP.

CONCRETE AND STEEL REINFORCEMENT SHALL CONFORM TO DESIGNATION C-478 REQUIREMENTS OF ASTM SPECIFICATIONS.

JOINTS SHALL BE WATERTIGHT AND SHALL BE MADE USING RUBBER GASKETS OR BUTYL RUBBER MASTIC MATERIAL.

AREA OF CIRCUMFERENTIAL STEEL = 0.12 SQ. INCH PER LINEAL FOOT.

3" BEDDING MATERIAL REQUIRED UNDER BASE. MANHOLES TO BE BACKFILLED WITH GRANULAR BACKFILL MATERIAL.



3 STANDARD INLET
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2 PRECAST MANHOLE
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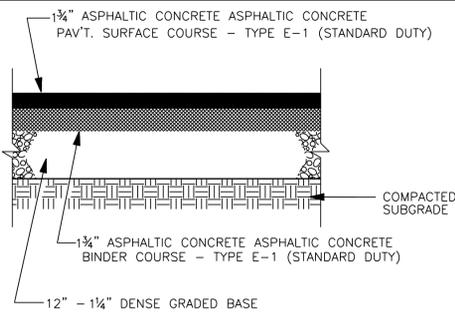
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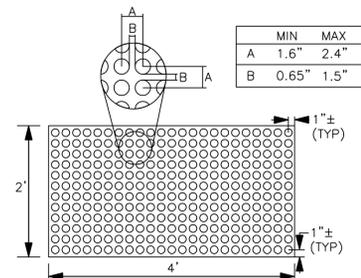
SITE CONSTRUCTION DETAILS

C401 5250
DATE: AUGUST 25, 2010
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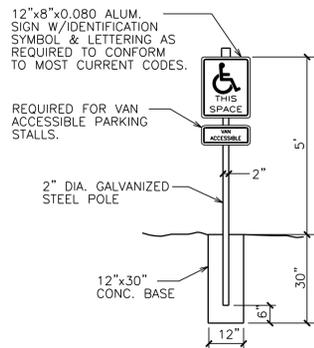
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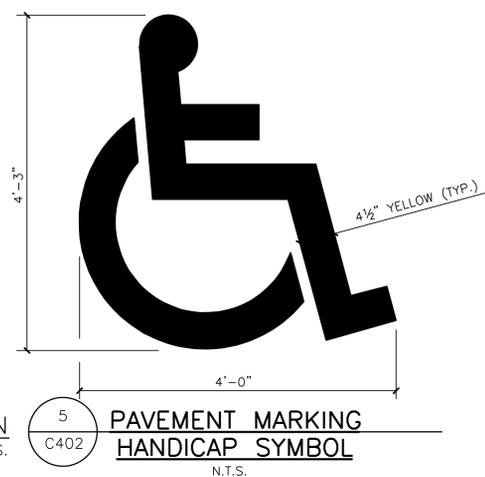
1 TYPICAL ASPHALT PAVEMENT
C402 N.T.S.



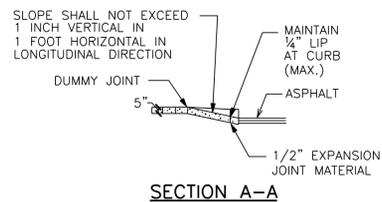
3 DETECTABLE WARNING FIELD
C402 N.T.S.



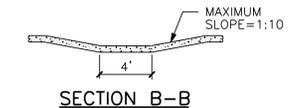
4 WHEELCHAIR ACCESSIBLE SIGN
C402 N.T.S.



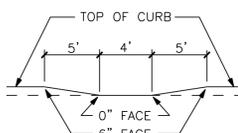
5 PAVEMENT MARKING HANDICAP SYMBOL
C402 N.T.S.



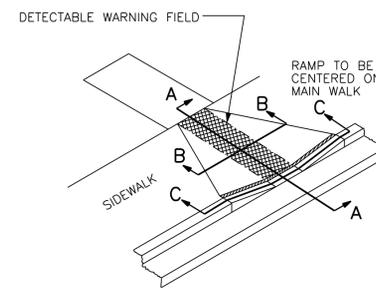
SECTION A-A



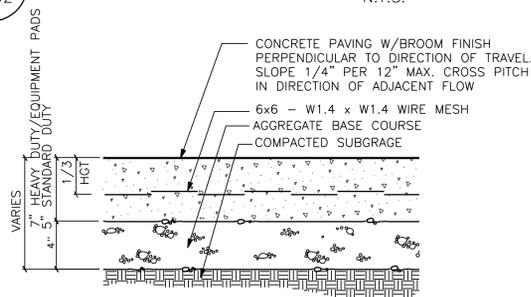
SECTION B-B



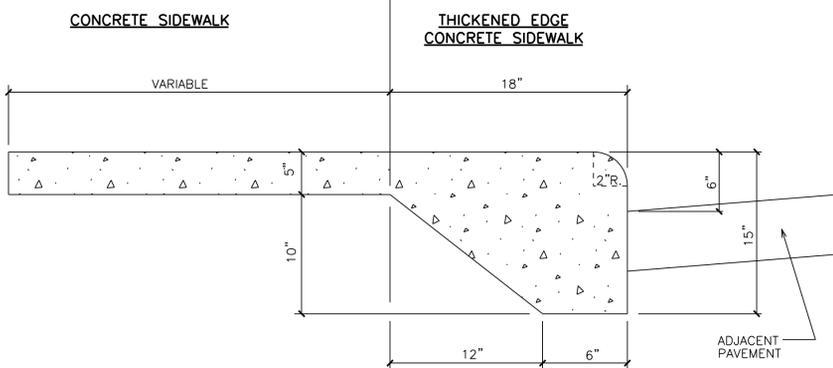
SECTION C-C



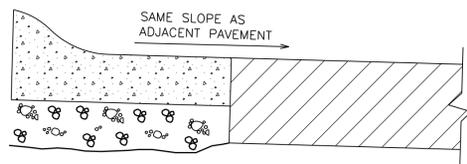
6 CURB AND SIDEWALK RAMP WHERE PEDESTRIANS CAN CROSS
C402 N.T.S.



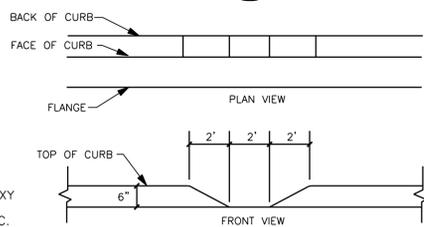
2 TYPICAL CONCRETE PAVEMENT
C402 N.T.S.



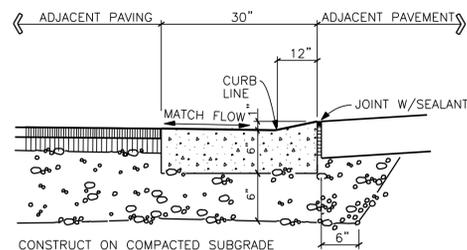
8 TYPICAL X-SECTION 5" CONCRETE SIDEWALK WITH THICKENED EDGE
C402 N.T.S.



7 HIGH SIDE SECTION
C402 (TYP. FOR ALL CURB & GUTTER) N.T.S.

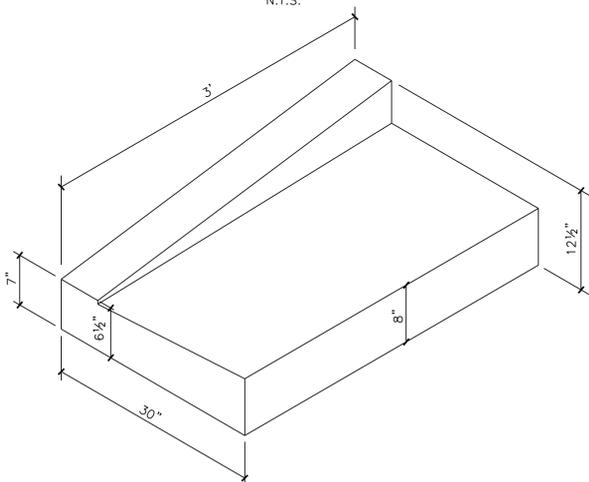


11 CURB CUT DETAIL
C402 N.T.S.



12 FLUSH CONCRETE CURB
C402 N.T.S.

10 VERTICAL FACE CONCRETE CURB & GUTTER
C402 N.T.S.



13 3' TAPER CURB SECTION
C402 N.T.S.

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Schmalz

Custom Landscaping and Garden Center

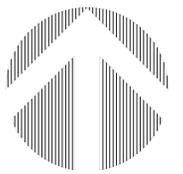
LANDSCAPE ARCHITECTURE DEVELOPMENT
CONSTRUCTION
AWARD WINNING DESIGN AND INSTALLATION

W2484 CTY RD KK
APPLETON, WI 54915-9464
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DD NDT SCALE
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NORTH



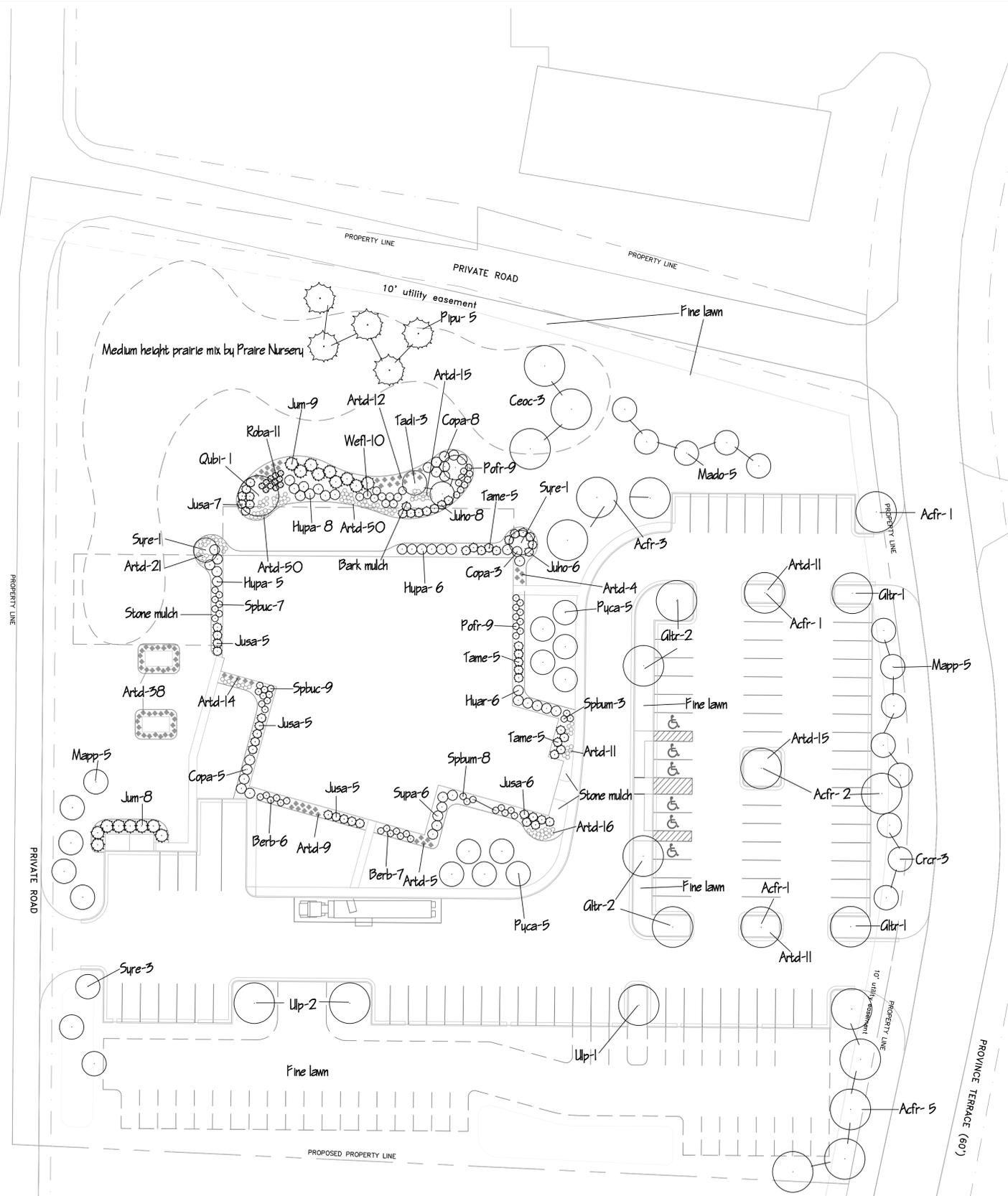
FVHO

DATE:	07/2010
REVISED:	
REVISED:	
SCALE:	1"=30'-0"
DRAWN BY:	NICK SCHMALZ
SHEET TITLE:	Landscape Plan
SHEET NO.:	L100
JOB #	FILE NO.

Plant Schedule

Code Name	Scientific Name	Common Name	Planting Size
Acfr	<i>Acer x freemanii</i>	Autumn Blaze Maple	2" cal.
Crcr	<i>Crataegus crusgalli inermis</i>	Cockspur Hawthorn	1.5" cal.
Altr	<i>Gleditsia triacanthos 'inermis'</i>	Thornless Common Honeylocust	1.5" cal.
Mapp	<i>Malus 'Purple Prince'</i>	Purple Prince Crabapple	1.5" cal.
Qubi	<i>Quercus bicolor</i>	Swamp White Oak	2" cal.
Masa1	<i>Malus sargentii 'Tina'</i>	Tina Crabapple	1.5" cal.
Pini	<i>Pinus nigra</i>	Austrian Pine	5-6'
Tadi	<i>Taxodium distichum</i>	Bald Cypress	1.5"
Pipu	<i>Picea pungens</i>	Colorado Spruce	5-6'
Jum	<i>Juniperus 'Mt. Batten'</i>	Mt. Batten Juniper	4-5'
Ceoc	<i>Celtis occidentalis</i>	Common Hackberry	2"
Ulp	<i>Ulmus 'pioneer'</i>	Pioneer Elm	2"
Sure	<i>Syringa reticulata 'Ivory Silk'</i>	Ivory Silk Lilac	2"
Amqr	<i>Amelanchier x grandifolia 'autumn brill'</i>	Autumn Brilliance Serviceberry	6-7'
Puca	<i>Pyrus calleryana 'Cleveland Select'</i>	Cleveland Select Pear	2"
Mado	<i>Malus 'Donald Wyman'</i>	Donald Wyman Crabapple	1.5"
Berb	<i>Berberis thunbergii 'Concorde'</i>	Concorde Barberry	15-18"
Copa	<i>Cornus alba 'Ballhalo'</i>	Ivory Halo Dogwood	2-3'
Hupa	<i>Hydrangea paniculata 'Limelight'</i>	Limelight hydrangea	2-3'
Huar	<i>Hydrangea arborescens 'Annabelle'</i>	Annabelle Hydrangea	2-3'
Pofr	<i>Potentilla fruticosa 'Mckau's White'</i>	Mckau's White Potentilla	15-18"
Spbuc	<i>Spiraea x bumalda 'Crispa'</i>	Crisp Leaf Spirea	15-18"
Spbum	<i>Spiraea x bumalda 'Magic Carpet'</i>	Magic Carpet Spirea	15-18"
Wefl	<i>Weigela florida 'Wine & Roses'</i>	Wine & Roses Weigela	2-3'
Supa	<i>Syringa patula 'Miss Kim'</i>	Miss Kim Lilac	2-3'
Tame	<i>Taxus x media 'Densiformis'</i>	Spreading Yew	18-24"
Jusa	<i>Juniperus sabina</i>	Savin Juniper	18-24"
Roba	<i>Rosa 'Balsuhe'</i>	Super Hero Rose	15-18"
Artid	Architect to Determine	Misc. Perennials approved by landscape designer	1 gal.
Juho	<i>Juniperus horizontalis 'Hughes'</i>	Hughes Juniper	18-24"

- ** All Beds to be edged using "cobra" brand edging
- ** Planting beds adjacent to building shall have tymp weed fabric and be mulched with 3" of 1.5" mississippi stone. All outlining beds and tree rings shall be mulched with shredded hardwood bark.
- ** Lawn areas to be seeded using custom #1 seed mix at 5lb/1000 sqft, fertilized with 16-8-8 at 25 lb/1000sqft mulched with straw
- ** Prairie areas to be seeded using approved prairie nursery seed mix and installed per suppliers instructions
- ** Treatment area planting island to have a minimum of minimum of 30 ton of depere 6-8" cutcroppings incorporated into bermed areas. Berms shall be created by landscape contractor.
- ** All trees will be staked and quied using metal tee posts and wire with hose bracing
- ** The landscape designer will approve all planting and bed locations prior to installation



DEVICE MOUNTING HEIGHT LEGEND

DESCRIPTION	MOUNTING HEIGHT
EXIT LIGHTS (WALL MOUNTED).....	CENTERED WITHIN 24" ABOVE DOOR.
WARNING LIGHTS (WALL MOUNTED).....	CENTERED WITHIN 24" ABOVE DOOR.
EMERGENCY BATTERY PACK.....	84" CENTERED AFF.
LT SWITCH.....	48" CENTERED AFF.
PUSHBUTTON SWITCH.....	42" CENTERED AFF.
PUSHBUTTON (EMERGENCY STOP).....	48" CENTERED AFF.
RECEPTACLES.....	18" CENTERED ABOVE FLOOR. 4" CENTERED ABOVE BACKSPLASH. 48" AFF MOUNTED ASIDE OF SINKS; COORDINATE WITH MIRROR LOCATION. 4" CENTERED ABOVE HYDRONIC HEATING. 24" OR NEXT HIGHEST MASONRY JOINT; AFG - OUTDOOR WEATHERPROOF
BLANK BOX.....	18" CENTERED AFF.
DATA/VOICE.....	18" CENTERED AFF. 4" CENTERED ABOVE BACKSPLASH.
WALL TELEPHONE.....	54" CENTERED AFF.
COUNTERTOP TELEPHONE.....	6" CENTERED ABOVE COUNTERTOP OR 4" CENTERED ABOVE BACKSPLASH
INTERCOM.....	48" CENTERED AFF.
T.V. OUTLET.....	18" AFF OR AS NOTED ON PLAN
F.A. PULL STATION.....	48" CENTERED AFF.
F.A. AUDIO/VISUAL DEVICES.....	80" AFF TO BOTTOM OF UNIT MINIMUM. MAXIMUM 96" AFF.
F.A. VISUAL DEVICES.....	80" AFF TO BOTTOM OF UNIT MINIMUM. MAXIMUM 96" AFF.
SPEAKER (WALL MOUNTED).....	80" AFF TO BOTTOM OF DEVICE.
VOLUME CONTROL.....	48" CENTERED AFF.
MICROPHONE JACK.....	18" CENTERED AFF CORRIDOR.
DIGITAL CLOCK.....	CENTERED 16" TO 8" BELOW CEILING. COMBINED CLOCK/SPEAKER.....
WALL CLOCK.....	CENTERED 18" TO 9" BELOW CEILING.
CARD READER.....	CENTERED 18" TO 9" BELOW CEILING.

LEGEND NOTES:

- THE ABOVE LIST OF MOUNTING HEIGHTS SHALL BE USED FOR INSTALLATION OF DEVICES UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- EXACT MOUNTING HEIGHTS OF DEVICES MAY BE SLIGHTLY ADJUSTED IN THE FIELD TO ACCOMMODATE BLOCK COURSES. THE ABOVE ITEMS COMPRISE A COMPLETE LIST AND NOT ALL ITEMS MAY BE APPLICABLE TO THIS PROJECT.

ELECTRICAL SYMBOLS LEGEND

SYMBOL	DESCRIPTION (MOUNTING)	SYMBOL	DESCRIPTION (MOUNTING)	SYMBOL	DESCRIPTION (MOUNTING)
LIGHTING FIXTURES			POWER EQUIPMENT		
	INCAND., HID, OR FLUOR. (RECESS, WALL, SURFACE/PENDANT)		PANELBOARD (EXISTING, NEW) - SEE SCHEDULE ON SHEET E500	FIRE ALARM AND DETECTOR DEVICES	
	INCAND., HID, OR FLUOR. (WALL WASH DOWNLIGHT)		TRANSFORMER - SEE SCHEDULE ON SHEET E500		MANUAL PULL STATION (NEW, EXISTING)
	FLUORESCENT, SIZE SCALED - RECESSED CEILING		AUTOMATIC TRANSFER SWITCH - SEE SCHEDULE ON SHEET E500		STROBE ONLY (NEW, EXISTING) (7)
	FLUORESCENT, SIZE SCALED - SURFACE CEILING		ELECTRIC MOTOR CONNECTION		SPEAKER/STROBE (NEW, EXISTING) (7)
	FLUORESCENT, UNDERCABINET LIGHT/NARROW STRIP LIGHT		DISCONNECT SWITCH - FUSED, NON-FUSED		SMOKE DETECTOR (NEW, EXISTING)
	FLUORESCENT, WALL MOUNTED		MAGNETIC STARTER		HEAT/THERMAL DETECTOR (NEW, EXISTING)
	EMERGENCY AND/OR UNSWITCHED NIGHT LIGHT		MANUAL STARTER		DUCT SMOKE DETECTOR (NEW, EXISTING) (6)
	TRACK LIGHTING		COMBINATION MAGNETIC STARTER/DISCONNECT		DOOR HOLD OPEN (NEW, EXISTING)
	EXIT SIGN - SINGLE, DOUBLE FACE (CEILING, WALL)		VARIABLE FREQUENCY DRIVE		SPRINKLER TAMPER SWITCH (NEW, EXISTING)
	WARNING LIGHT (CEILING, WALL)		RELAY CONTACTOR		SPRINKLER WATER FLOW SWITCH (NEW, EXISTING)
	EMERGENCY BATTERY PACK		OUTDOOR UTILITY POLE		MONITORING MODULE
	FLOOD LIGHT		FAN SPEED SWITCH		CONTROL MODULE
	BOLLARD	RACEWAYS			REMOTE TEST SWITCH W/ INDICATOR
	POLE TOP MOUNTED LUMINAIRE		CONDUIT STUBBED OR CAPPED		FIRE ALARM CONTROL PANEL (NEW, EXISTING)
	POLE ARM MOUNTED LUMINAIRE(S)		CONDUIT SLEEVES THRU WALL ABOVE ACCESSIBLE CEILING		FIRE ALARM ANNUNCIATOR PANEL (NEW, EXISTING)
AUTOMATIC LIGHTING CONTROLS			SECURITY EQUIPMENT		
	UNSWITCHED CIRCUIT CONNECTION		MOTION DETECTOR		
	OCCUPANCY SENSOR (WALL, CEILING-WIDE ANGLE, CEILING 360°) (2)		REQUEST TO EXIT		
	UNDERGROUND CONDUIT		DOOR ALARM SWITCH		
	SOLID STATE TIMER 'OFF' SWITCH (2)		DOOR ALARM KEY BY-PASS SWITCH		
	COMBINATION POWER/COMMUNICATION POLE		DOOR STRIKE		
	CABLE TRAY		CARD READER		
	JUNCTION & PULL BOX		ELECTRIC STRIKE		
	BLANK JUNCTION BOX (1)		ELECTRIC LATCH RETRACTION		
COMMUNICATIONS EQUIPMENT					
	DATA/VOICE/CATV RACK		MONITOR		
	DATA OUTLET (WALL, FLOOR, CEILING) (1,5)		SECURITY T.V. CAMERA		
	COMBINATION DATA/PHONE OUTLET (WALL, FLOOR) (1,5)		SECURITY SYSTEM CONTROL PANEL (SSCP)		
	TELEPHONE OUTLET (WALL, FLOOR) (1,5)	SYSTEMS CLOCKS			
	WALL TELEPHONE		12" WALL CLOCK (RECESS, SURFACE)		
	WIRELESS DATA ACCESS POINT (CEILING, WALL)		DIGITAL WALL CLOCK		
	CATV OUTLET (WALL, CEILING)	RESCUE ASSISTANCE			
	INTERCOM		RESCUE ASSISTANCE CALL STATION		
	INTERCOM (MASTER)		RESCUE ASSISTANCE ANNUNCIATOR PANEL (RAAP)		
SOUND SYSTEM DEVICES			PLAN NOTE / MISCELLANEOUS		
	SPEAKER, CEILING MOUNTED (RECESSED, SURFACE)		PROGRAM BELL		
	P.A. HORN SPEAKER, WALL MOUNTED		POWER SUPPLY		
	SPEAKER VOLUME CONTROL		PLAN NOTE		
	AMPLIFIER		DISTANCE FROM FINISHED FLOOR TO CENTERLINE ON CONDUIT, OR BOTTOM OF CABLE TRAY AND EQUIPMENT.		
	RECEIVER				
	ANTENNA				

NOTES:

- 1" CONDUIT STUBBED UP TO ACCESSIBLE SPACE ABOVE CEILING FROM 4" SQUARE JUNCTION BOX W/ SINGLE GANG DEVICE RING. ALL CONDUIT STUBS SHALL BE TERMINATED W/ BUSHINGS.
- REFERENCE THE AUTOMATIC LIGHTING CONTROL SCHEDULE (SHEET E500) FOR LABEL AND CLASSIFICATION TYPE.
- REFERENCE WIRING DETAIL ON SHEET **E500.
- REFERENCE WIRING DETAIL ON SHEET **E500.
- # INDICATES QUANTITY OF DROPS.
- (#) DESIGNATION INDICATES EQUIPMENT SERVED BY DUCT DETECTOR.
- (##) DESIGNATION INDICATES CANDELA OF VISUAL ALARM.

* THIS COMPRISES A COMPLETE LIST OF ITEMS. NOT ALL SYMBOLS MAY NECESSARILY BE REPRESENTED ON THIS PROJECT.

ABBREVIATIONS

A	AMPER(S)
A/C	AIR CONDITIONING UNIT
ADA	AMERICANS WITH DISABILITIES ACT
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	ANTICIPATED INTERRUPTING CURRENT
ALT	ALTERNATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
C	CONDUIT
CATV	CABLE ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DIST	DISTRIBUTION
DO	DOOR OPERATOR
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FDR	FEEDER
FLA	FULL LOAD AMPS
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFLGF	GROUND FAULT INTERRUPTER
GND	GROUND
H	HIGHT DENSITY DISCHARGE
HID	HIGH DENSITY DISCHARGE
HP	HORSE POWER
HVAC	HEATING, VENTILATING, A/C CONTRACTOR
HWR	HEAVY WALL RIGID CONDUIT
IMC	INTERMEDIATE METALLIC CONDUIT
J-BOX	JUNCTION BOX
KV	KILOVOLTS
KVA	KILOVOLT AMPERE(S)
KW	KILOWATT(S)
LCP	LIGHTING CONTROL PANEL
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MIL(S)
MDP	MAIN DISTRIBUTION PANEL
MGAP	MEDICAL GAS ALARM PANEL
MLG	MAIN LUG ONLY
N.E.C.	NATIONAL ELECTRIC CODE
OH	OVERHEAD
PLGC	PLUMBING CONTRACTOR
PNL	PANEL
PRI	PRIMARY
PVC	POLYVINYL CHLORIDE
(R)	ROOF
REC	RECEPTACLE
RT	RAIN TIGHT
SEC	SECONDARY
SPC	SPECIAL PURPOSE CONNECTION
SWBD	SWITCHBOARD
TC	TIME CLOCK
TCC	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TCPS	TEMPERATURE CONTROL POWER SUPPLY
TELE	TELEPHONE
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UC	UNDERCABINET
UG	UNDERGROUND
UH	UNIT HEATER
U.N.O.	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTED POWER SYSTEM
V	VOLT(S)
VFD	VARIABLE FREQUENCY DRIVE
W	WATT(S)
WP	WEATHERPROOF
XFMR	TRANSFORMER

NOTE:

- * THIS COMPRISES A COMPLETE LIST OF ITEMS. NOT ALL ABBREVIATIONS MAY NECESSARILY BE REPRESENTED ON THIS PROJECT.

FOX VALLEY HEMATOLOGY ONCOLOGY - MENASHA

1444 PROVINCE TERRACE MENASHA, WI

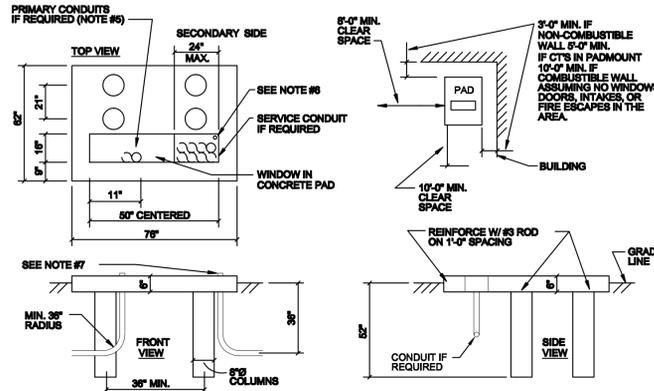
C SITE PLAN REVIEW

REVISION	DATE
SITE PLAN INITIAL SUBMISSION	08/19/2010
BID PACK #1	08/20/2010
SITE PLAN FINAL SUBMISSION	08/25/2010

LEGENDS

E001	DATE: AUGUST 25, 2010 COMMISSION 5250
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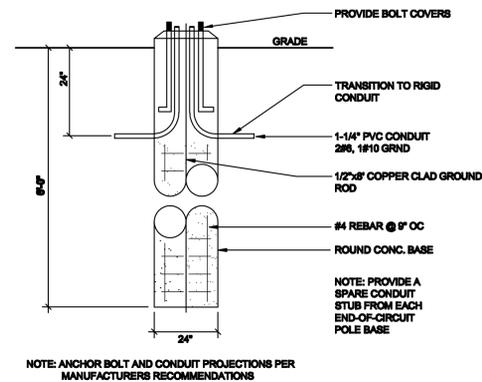
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NOTES:

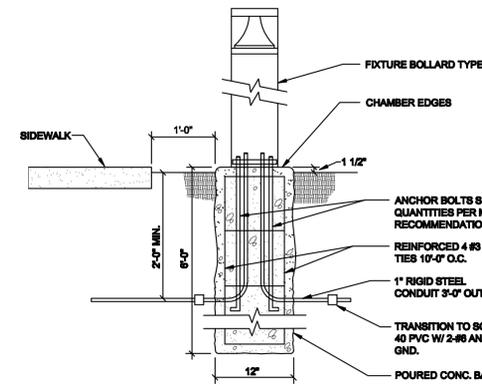
1. CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 3000 LBS. PER SQ. INCH & CONTAIN NOT LESS THAN 8 BAGS OF CEMENT PER CU. YD. APPROXIMATELY ONE BAG OF FLY ASH MAY BE SUBSTITUTED FOR ONE BAG OF CEMENT PER CU. YD OF CONCRETE.
2. THE TOP TO THE PAD SHALL BE REINFORCED W/ #3 RODS ON A ONE-FOOT SPACING.
3. THE FOOTINGS ARE MADE W/ FOUR 8-INCH DIA. CONCRETE COLUMNS. THESE TRANSFORMERS RANGE FROM 2,300 TO 6,000 LBS.
4. SERVICE CONDUITS SHALL ALWAYS START FROM THE FRONT RIGHT CORNER OF THE WINDOW. THE CONDUITS MUST BE POSITIONED TIGHT TO THE RIGHT SIDE OF THE WINDOW AND TIGHT TO EACH OTHER AND IN NUMBERED ORDER. THIS IS SO THAT THE CONDUITS DON'T CROSS OVER INTO THE PRIMARY SIDE OF THE TRANSFORMER.
5. POSITION PRIMARY CONDUITS IN THE FRONT OF THE WINDOW AND 11\"/>

H1
E002
CONCRETE PAD 75 TO 500 KVA
NO SCALE

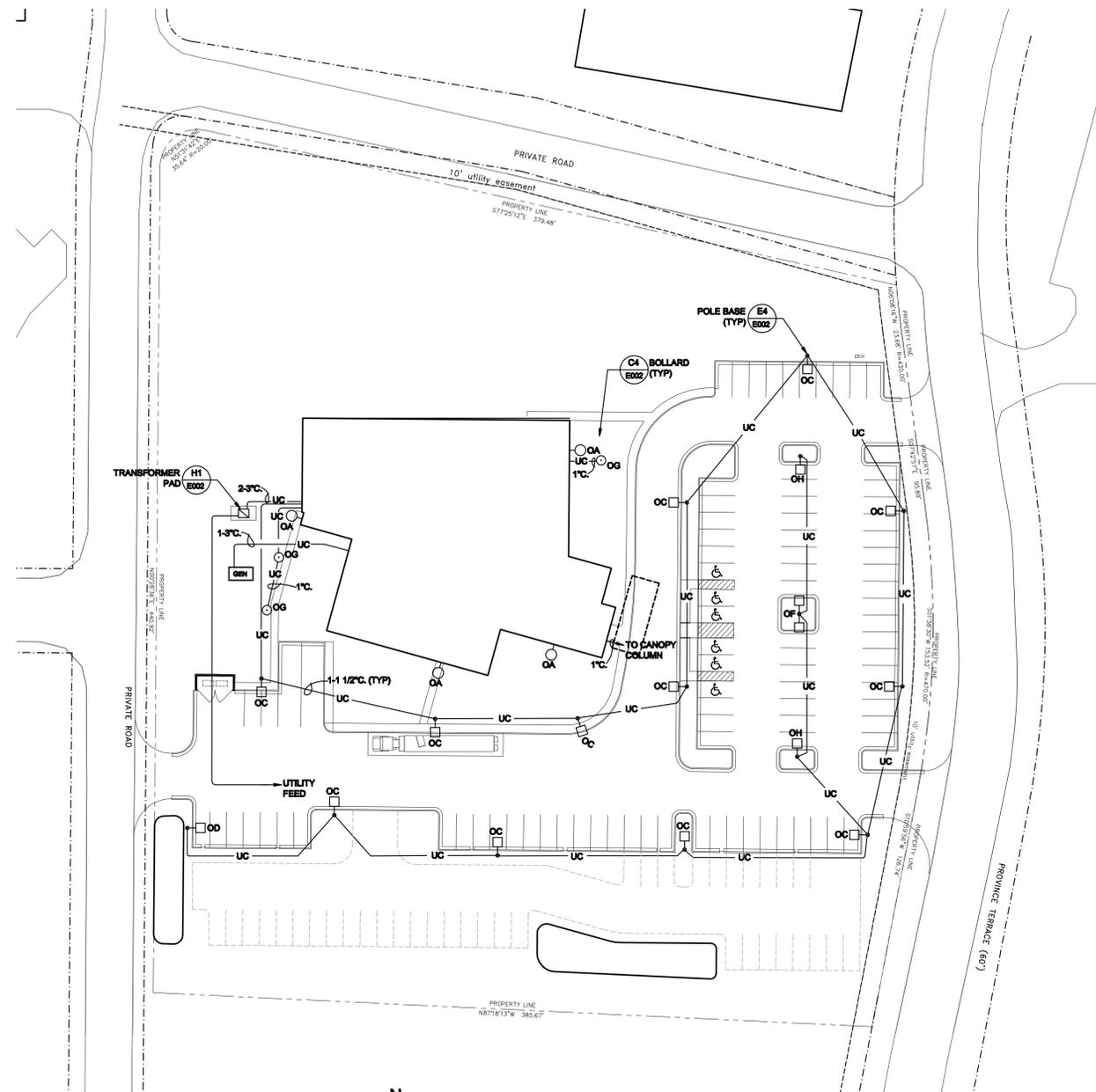


NOTE: ANCHOR BOLT AND CONDUIT PROJECTIONS PER MANUFACTURERS RECOMMENDATIONS

E4
E002
POLE BASE - FIXTURE TYPES - OC, OD, OF
NO SCALE



C4
E002
BOLLARD CONCRETE BASE
NO SCALE



SITE PLAN
SCALE = 1" = 40'-0"

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	FIXTURE	SERIES/CATALOG NUMBER	TYPE	CATALOG NUMBER	NO.	NO.	VOLTS	MOUNT	DEPTH	DESCRIPTION	NOTES
OA	INVUE	ENT-63-CP-EB-CPM-BZ-CPVMBAB		F	CP28DT/ERS/ECO	2	1	120	SURFACE	-	DECORATIVE SECURITY FIXTURE W/ EMERGENCY BATTERY	-
OC	LITHONIA	KAD-303M-R3-SPD04-SCWA		H	M200U	1	1	120	POLE	-	SQUARE, 4' ARM MOUNTED, FULL CUT-OFF LUMINAIRE, TYPE III ASYMMETRIC, ON 18FT. SQUARE POLE, DARK BRONZE	1,2
OD	LITHONIA	KAD-303M-R4-SPD04-SCWA-HB		H	M200U	1	1	120	POLE	-	SQUARE, 4' ARM MOUNTED, FULL CUT-OFF LUMINAIRE, TYPE IV FORWARD THROW, ON 18FT. SQUARE POLE, DARK BRONZE	1,2
OF	LITHONIA	KAD-178M-R4-SPD04-SCWA		H	M128U	2	2	120	POLE	-	SQUARE, 4' ARM MOUNTED, FULL CUT-OFF DUAL LUMINAIRE, TYPE IV FORWARD THROW, ON 18FT. SQUARE POLE, DARK BRONZE	1,2
OG	KIM	VRS342PL/DBH2EM-CP		F	CP28DT/ERS/ECO	1	1	120	-	-	42" ROUND VANDAL RESISTANT BOLLARD W/ HOUSE SIDE SHIELD AND COLD RATED EMERGENCY BATTERY	2
OH	LITHONIA	KAD-178M-R4-SPD04-SCWA		H	M128U	1	1	120	POLE	-	SQUARE, 4' ARM MOUNTED, FULL CUT-OFF DUAL LUMINAIRE, TYPE IV FORWARD THROW, ON 18FT. SQUARE POLE, DARK BRONZE	1,2
OJ	LUMBER	480-MR7078-120-EL-8M-CS		H	MC70TBAUG12	1	1	120	SURFACE	-	CANOPY FIXTURE MOUNTED ON TOP OF CANOPY COLUMN, SILVER	2

ABBREVIATIONS:

AGC - AIRCRAFT CABLE
BX - EXISTING
F - FLUORESCENT
H - HD
I - INCANDESCENT
L - LED

P.A.F. - PAINT AFTER FABRICATION
PB - PULSE START
RFI - RADIO INTERFERENCE FILTER
UNIV. - UNIVERSAL
WU - WITH UNIT

NOTES:

1. PROVIDE POLE SIZED PER TOTAL EPA. PROVIDE BOLT COVERS. PROVIDE VIBRATION DAMPNER IN POLE. POLE FINISH TO MATCH LUMINAIRE. PROVIDE FUSING AT HAND POLE.
2. APPROVED EQUALS WILL BE ALLOWED.

**FOX VALLEY
HEMATOLOGY
ONCOLOGY - MENASHA**

**1444 PROVINCE TERRACE
MENASHA, WI**

SITE PLAN REVIEW

BSA
Berners-Schober Associates, Inc.
Architects / Engineers

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(920) 432-4865

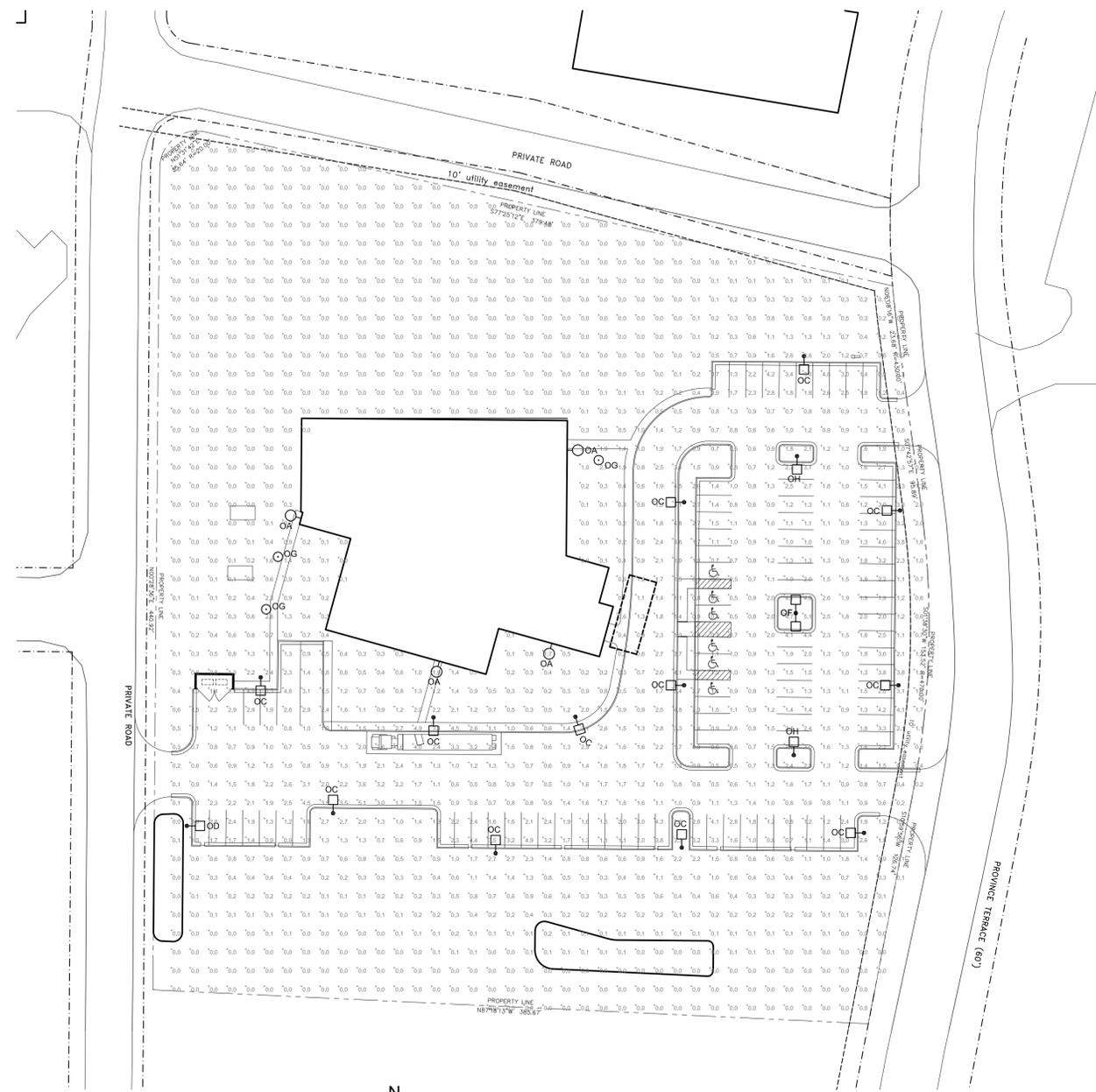
REVISION	DATE
SITE PLAN INITIAL SUBMISSION	08/19/2010
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SITE PLAN FINAL SUBMISSION	08/25/2010

SITE PLAN AND DETAILS

E002

DATE: AUGUST 25, 2010
COMMISSION
5250

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N
 SITE PLAN
 SCALE = 1" = 40'-0"

PARKING LOT STATISTICS					
AREA	AVG.	MAX.	MIN.	MAX./MIN.	AVG./MIN.
PARKING LOT	1.7 fc	5.2 fc	.05 fc	10.4:1	3.4:1

FOX VALLEY HEMATOLOGY ONCOLOGY - MENASHA

1444 PROVINCE TERRACE
 MENASHA, WI

SITE PLAN REVIEW

BSA^{INC}
 Berners-Schober Associates, Inc.
 Architects / Engineers (920) 432-4865

REVISION	DATE
SITE PLAN INITIAL SUBMISSION	08/19/2010
BID PACK #1	08/20/2010
SITE PLAN FINAL SUBMISSION	08/25/2010

SITE CODE PLAN

EC001
 DATE: AUGUST 25, 2010
 COMMISSION
5250

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STORM WATER MANAGEMENT PLAN FOX VALLEY HEMATOLOGY AND ONCOLOGY CLINIC

Prepared for

City of Menasha

August 2010

Prepared by

GRAEF
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Project No. 2010-2023.00

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3. REGULATORY REQUIREMENTS	1
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8. STORM WATER QUALITY ANALYSIS	3
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FIGURES

Figure 1 – Site Soils Map

APPENDICES

Appendix A – Stormwater Management Drainage Areas
Appendix B – Storm Water Quality Analysis (WinSLAMM V9.4.0)
Appendix C – Storm Sewer Design Computations

Storm Water Management Plan For Fox Valley Hematology and Oncology Clinic In The City of Menasha

1. INTRODUCTION

Construction of a new clinic is being proposed in the City of Menasha. The project will consist of the redevelopment of the site located at the southwest corner of the intersection of Province Terrace with a private roadway, just south of Midway Road. The project includes the construction of a new clinic building, pedestrian walkways, landscaped areas, and designated parking area. The purpose of this report is to summarize the analysis of the storm water runoff conditions and design of storm water management facilities at the project site and provide narrative and computations confirming the project will meet City of Menasha and Wisconsin Department of Commerce (DCOMM) requirements.

2. BACKGROUND

The site is located in the Southwest $\frac{1}{4}$ of the Northwest $\frac{1}{4}$ of Section 7, T 20 N, R 18 E in the City of Menasha, Calumet County, Wisconsin. See Figure 1 for a location map of the site. Figure 2 contains an aerial photograph of the site with the development boundary outlined. The study area includes approximately 4.34 acres with access from Province Terrace and Midway Crossing.

3. REGULATORY REQUIREMENTS

Drainage for the site is under the jurisdiction of the City of Menasha and DCOMM. This site is classified as a new development site by definition of the regulating agencies. For storm water quantity, this site needs to maintain the pre-development peak discharge rates for the 2-, 10- and 100-year, 24-hour design storms. For storm water quality, this site needs to meet a 80% total suspended solids (TSS) reduction. Considering actual site features, this development is exempt or excluded from the post-construction infiltration requirements due to low infiltration rate of the soils within the site. Despite the site's exempted status, site screening for infiltration was performed for the site.

Rainfall values used in the hydrological analysis are shown in Table 1. The design rainfall values are from the City of Menasha post-construction stormwater management ordinance. A Type II rainfall distribution, as defined in the NRCS's TR-55 methodology, was used in the analysis.

Table 1 – Design Rainfall Values	
Storm Recurrence Interval	24-hour Rainfall Volume
2 year	2.50 inches
10-year	3.80 inches
100 year	5.30 inches

4. EXISTING 2009 CONDITIONS

The existing site, located at the southwest corner of Province terrace and a private road, is undeveloped, with little vegetation. Various underground utilities serve the site from the adjacent roadways. The drainage area and land cover were determined based on the topographic survey of the site and are as follows:

- Area E1 – The northwest portion of the site. This area is composed of turf and drains offsite to the north and west. Storm runoff from this area is collected by an existing storm sewer system located in Midway Crossing.
- Area E2 – The south and east portions of the site composed of turf and draining offsite to the south. Runoff from this area sheet flows to the south and is collected by a stub from the City storm sewer system located in Province Terrace.

Soils for the site were determined by a review of the NRCS's soil survey for Calumet County and are shown in Figures 4a-4c. Soils on the site are classified as Kewaunee Loam and Manawa Silt Loam, and fall under Hydrological Soils Group C.

5. DEVELOPED CONDITIONS

The proposed work includes the construction of a new building, parking and drive areas, sidewalk, and adjacent landscaping. The proposed disturbed area is 2.88 acres. Sub-areas for the entire site can be described as follows:

- Area P1 (Biofilter #1) – This area encompasses the south and west portions of the site. It contains the west entry drive and parking area, as well as the landscaped and sidewalk areas southwest of the proposed building. Storm runoff from this area is collected in a biofilter where it receives treatment prior to discharge to the storm sewer system in Midway Crossing.
- Area P2 (Biofilter #2) – This area consists of the southeast portion of the site. It contains the southeast entrance drive and adjacent parking, the southeast portions of sidewalk and adjacent landscaped areas. Storm runoff from this area sheet flows to the south and is collected by a biofilter where it receives treatment prior to discharge to the existing storm sewer system in Province Terrace.
- Area P3 (Offsite areas) – This area consists of the north portion of the site. It contains the entire roof area, the northeast entrance and drive areas, the east parking lot and as the adjacent landscape and sidewalk areas. Stormwater from this area is collected by an on-site storm sewer system and discharged to existing storm sewer systems in Midway Crossing and Province Terrace.

The proposed site data was used in the analysis of post-construction stormwater quality and the site's effectiveness in total suspended solids removal. A drainage map of the developed condition sub basins can be found in Appendix A.

6. INFILTRATION ANALYSIS

The site was evaluated for suitability for infiltration using the criteria found in Step A of the WDNR's Technical Standard 1002 – Site Evaluation for Stormwater Infiltration. Results of this analysis are as follows:

1. No areas of the site contain slopes greater than 20%.
2. According to the NRCS Calumet County soil survey, soil infiltration capacity ranges between 0.06 and 0.6 inches per hour.
3. Soil material consists of clayey glacial till.

4. According to the NRCS Calumet County soil survey, the depth to bedrock is greater than 5 feet, and depth to groundwater is greater than 3 feet.
5. No sites listed on the GIS Registry of Closed Remediation sites exists within 500 feet of the perimeter of the development site.
6. No sites listed on the Bureau of Remediation and Redevelopment Tracking System exist within 500 feet of the perimeter of the development site.
7. No endangered species habitats exist on this site.
8. The site is not located within the 500-year floodplain for adjacent waterways.
9. No hydric soils exist on this site.
10. Stormwater infiltration devices are not excluded from this site by Chapter NR151 of the Wisconsin Administrative Code.
11. The site is exempted from the requirement to install infiltration devices by Chapter NR151.12(5)(c) 6.a and c of the Wisconsin Administrative Code based on low soil infiltration rates.
12. The proposed development does not adversely impact adjacent property.

Based on the analysis and field investigation of the site and its status as a redevelopment, the proposed project is not required to meet infiltration requirements set forth in NR151.

7. STORMWATER QUANTITY ANALYSIS

This site is considered a new development by the regulating agencies. Proposed development on the site will increase the impervious area by approximately 1.64 acres. As a result, this site is required by the City of Menasha and the Wisconsin DNR to address stormwater quantity. This project site drains to an existing stormwater management facility which has been sized to accommodate the development on site. Stormwater runoff from the site will be discharged to an existing storm sewer system adjacent to the property and carried to this pond for peak attenuation. No on-site stormwater quantity reductions are required for this development.

8. STORM WATER QUALITY ANALYSIS

The proposed development is classified by the regulating agencies as a new development. As a result, this site is required to provide an 80% reduction in total suspended solids in post-construction stormwater runoff. This project site drains to an existing stormwater management facility which has been sized to accommodate the development on site. Stormwater runoff from the site will be discharged to an existing storm sewer system adjacent to the property and carried to this pond for suspended solids removal. No on-site stormwater quality reductions are required for this development.

Despite the site's exempted status, Two biofiltration basins have been included on the site to assist in removing debris and sediment washed off the contributing areas. An analysis was performed to quantify the amount of suspended solids reduction obtained by placement of these basins. The table below summarizes the reduction in total suspended solids by design when implementing the described measures. WinSLAMM version 9.4.0 was used to quantify the suspended solids reduction achieved at the site through the methods employed. Appendix B contains a more detailed analysis of the site.

Table 2 – Analysis of Treatment Measures					
	Disturbed Area (acres)	Particulate Solids Yield, No Controls (lbs)	Particulate Solids Yield after Treatment (lbs)	Particulate Solids Reduction (lbs)	Percent Reduction
Biofiltration Basin #1	0.39	106.90	32.25	74.65	69.8
Biofiltration Basin #2	0.67	159.90	46.02	113.88	71.2
Untreated Areas	1.82	470.50	470.50	0	0
Total	2.88	737.30	548.77	188.53	25.6

Storm sewer design computations are included in Appendix C for the on-site storm sewer system

9. SUMMARY OF FINDINGS

The subject site drains to an existing stormwater management facility which has been sized to accommodate the proposed development. Stormwater runoff from the site will be discharged to an existing storm sewer system adjacent to the property and carried to this pond for suspended solids removal. No on-site stormwater quantity reductions or quality controls are required for this development. Biofiltration basins were evaluated for the site to assist in achieving additional cleansing of stormwater. Overall, these biofiltration basins contribute to a 25.6% reduction in suspended solids for the site

Prepared by:

Kendra A. Hansen, P.E., LEED AP
 Design Engineer
 GRAEF

FIGURES



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

 A

 A/D

 B

 B/D

 C

 C/D

 D

 Not rated or not available

Political Features

 Cities

Water Features

 Oceans

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

MAP INFORMATION

Map Scale: 1:1,810 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N NAD83

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

Soil Survey Area: Calumet and Manitowoc Counties, Wisconsin
Survey Area Data: Version 9, Apr 27, 2009

Date(s) aerial images were photographed: 6/1/2005

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

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Calumet and Manitowoc Counties, Wisconsin				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KnB	Kewaunee loam, 2 to 6 percent slopes	C	4.9	35.3%
MbA	Manawa silt loam, 0 to 3 percent slopes	C	9.0	64.7%
Totals for Area of Interest			13.8	100.0%

Description

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

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

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

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

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

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

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

Rating Options

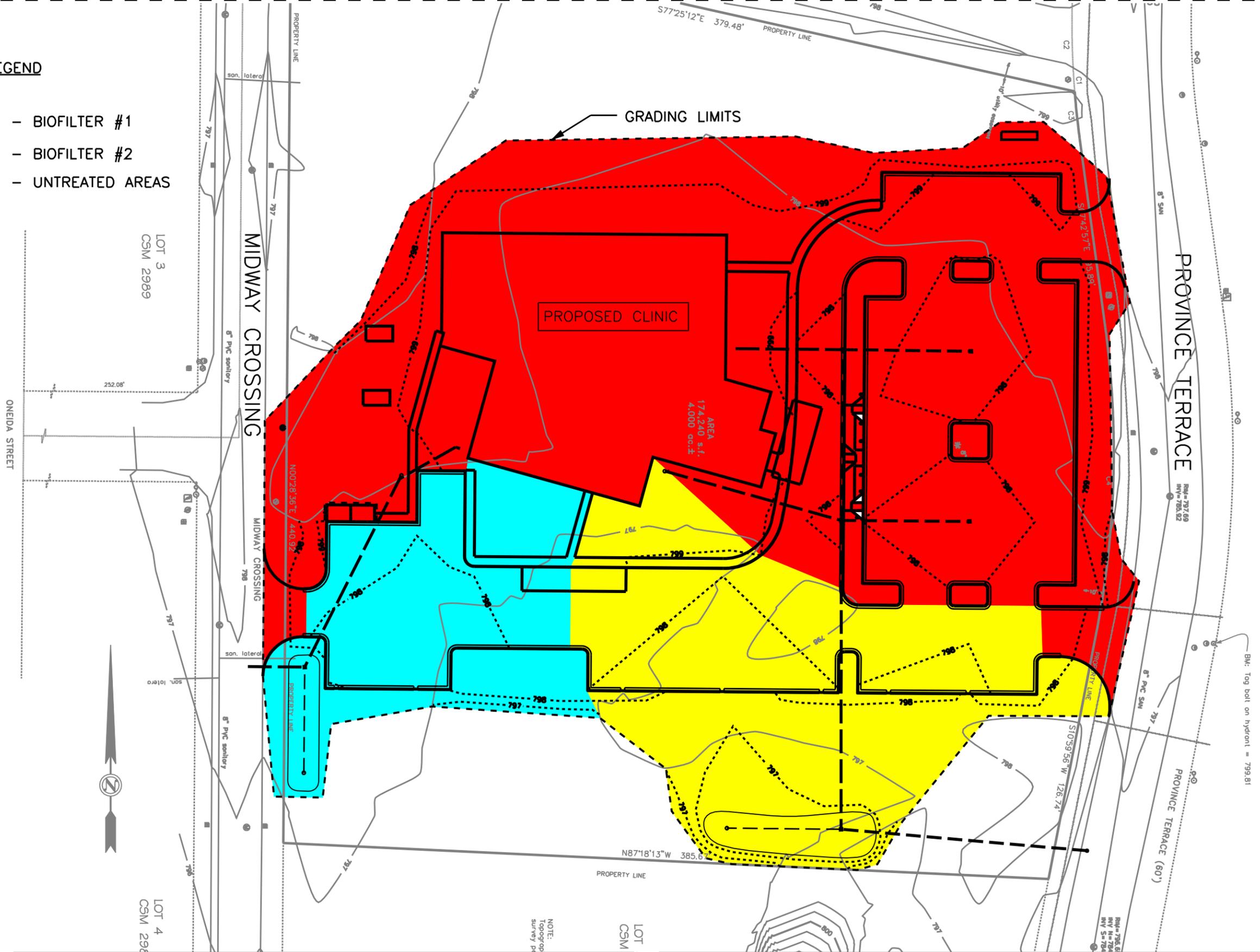
Aggregation Method: Dominant Condition

APPENDIX A

STORMWATER MANAGEMENT DRAINAGE AREAS

LEGEND

-  - BIOFILTER #1
-  - BIOFILTER #2
-  - UNTREATED AREAS



PROJECT NUMBER: 2010-2023.00
DATE: 8/12/10
SCALE: 1"=50'
DRAWN BY: kah
CHECKED BY:
APPROVED BY:
REFERENCE SHEET:

PROJECT TITLE: FOX VALLEY
HEMATOLOGY & ONCOLOGY
CLINIC

SHEET TITLE: PROPOSED SWM AREAS

J:\Jobs2010\20102023\CAD\Site\dgn\misc\SWM Areas_Proposed.dgn

APPENDIX B

STORMWATER QUALITY ANALYSIS (WinSLAMM V9.4.0)

Data file name: J:\Jobs2010\20102023\Project_Information\Calcs\SLAMM\Biofilter #1.dat
 SLAMM Version 9.4.0
 Rain file name: C:\Program Files\WinSLAMM\Rain Files\WI Green Bay 69.RAN
 Particulate Solids Concentration file name: C:\Program Files\WinSLAMM\WI_AVG01.psc
 Runoff Coefficient file name: C:\Program Files\WinSLAMM\WI_SL06 Dec06.rsv
 Particulate Residue Delivery file name: C:\Program Files\WinSLAMM\WI_DLV01.prr
 Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Freeway Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
 Pollutant Relative Concentration file name: C:\Program Files\WinSLAMM\WI_GEO01.ppd
 Seed for random number generator: -42
 Study period starting date: 01/02/69 Study period ending date: 12/28/69
 Start of Winter Season: 11/25 End of Winter Season: 03/29
 Date: 08-18-2010 Time: 11:21:24

Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0
 Curb and Gutters, 'valleys', or sealed swales in:
 3. Poor condition (or very flat) 0
 4. Fair condition 1
 5. Good condition (or very steep) 0

Site information:
 FVHO Proposed Site

Source Area	<==== Areas for each Source (acres) =====>				
	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	0.000	0.000	0.000	0.000	0.000
Roofs 2	0.000	0.000	0.000	0.000	0.000
Roofs 3	0.000	0.000	0.000	0.000	0.000
Roofs 4	0.000	0.000	0.000	0.000	0.000
Roofs 5	0.000	0.000	0.000	0.000	0.000
Paved Parking/Storage 1	0.000	0.000	0.085	0.000	0.000
Paved Parking/Storage 2	0.000	0.000	0.000	0.000	0.000
Paved Parking/Storage 3	0.000	0.000	0.000	0.000	0.000
Unpaved Prkng/Storage 1	0.000	0.000	0.000	0.000	0.000
Unpaved Prkng/Storage 2	0.000	0.000	0.000	0.000	0.000
Playground 1	0.000	0.000	0.000	0.000	0.000
Playground 2	0.000	0.000	0.000	0.000	0.000
Driveways 1	0.000	0.000	0.121	0.000	0.000
Driveways 2	0.000	0.000	0.000	0.000	0.000
Driveways 3	0.000	0.000	0.000	0.000	0.000
Sidewalks/Walks 1	0.000	0.000	0.013	0.000	0.000
Sidewalks/Walks 2	0.000	0.000	0.000	0.000	0.000
Street Area 1	0.000	0.000	0.000	0.000	0.000
Street Area 2	0.000	0.000	0.000	0.000	0.000
Street Area 3	0.000	0.000	0.000	0.000	0.000
Large Landscaped Area 1	0.000	0.000	0.170	0.000	0.000
Large Landscaped Area 2	0.000	0.000	0.000	0.000	0.000
Undeveloped Area	0.000	0.000	0.000	0.000	0.000
Small Landscaped Area 1	0.000	0.000	0.000	0.000	0.000
Small Landscaped Area 2	0.000	0.000	0.000	0.000	0.000
Small Landscaped Area 3	0.000	0.000	0.000	0.000	0.000
Isolated/Water Body Area	0.000	0.000	0.000	0.000	0.000
Other Pervious Area	0.000	0.000	0.000	0.000	0.000
Other Dir Cnctd Imp Area	0.000	0.000	0.000	0.000	0.000
Other Part Cnctd Imp Area	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.389	0.000	0.000

Freeway Source Area Area (acres)

Pavd Lane & Shldr Area 1	0.000
Pavd Lane & Shldr Area 2	0.000
Pavd Lane & Shldr Area 3	0.000

Pavd Lane & Shldr Area 4 0.000
 Pavd Lane & Shldr Area 5 0.000
 Large Turf Areas 0.000
 Undeveloped Areas 0.000
 Other Pervious Areas 0.000
 Other Directly Conctd Imp 0.000
 Other Partially Conctd Imp 0.000

 Total 0.000

Total of All Source Areas 0.389

 Total of All Source Areas
 less All Isolated Areas 0.389
 =====

Outfall Control Practice: Biofiltration Device

Fraction of Runoff from Outfall Routed to Outfall Biofilters: 1

Control Practice 1 : Wet Detention Ponds

1. Area served by detention ponds (acres)= 0
2. Particle Size Distribution file name:
3. Initial stage elevation (ft): 0
4. Peak to Average Flow Ratio: 0
5. Maximum flow allowed into pond (cfs): No maximum value entered
6. Outlet Characteristics:
7. Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00

1. Top Area (square feet) = 1450
2. Bottom Area (square feet) = 1040
3. Depth (ft): 5.3
4. Depth of Biofilter that is Rock Filled (ft) 0.5
5. Fraction of Rock Filled Volume as Voids = 0.33
6. Engineered Soil Depth (ft) = 3.6
7. Engineered Soil Void Ratio = 0.27
8. Infiltration Rate (in/hr) = 0.05
9. Infiltration Rate Coefficient of Variation 0
10. Random Infiltration Rate Generation? No
11. Infiltration Rate Fraction (Side): 1
12. Infiltration Rate Fraction (Bottom): 1
13. Biofilter Width (ft) - for Cost Purposes Only: 20
14. Number of Biofiltration Control Devices = 1
15. Biofilter Peak to Average Flow Ratio = 3.8
16. Percent Solids Reduction Due to Flow Through Engineered Soil = 0
17. Particle Size Distribution File: C:\Program Files\WinSLAMM\NURP.CPZ
18. Engineered Soil Media: Compost-Sand
19. Engineered Soil Infiltration Rate: 2.1
21. Biofilter Outlet/Discharge Characteristics:
 - Biofilter Outlet/Discharge Option Number 1
 - Outlet type: Vertical Stand Pipe
 1. Stand pipe diameter (ft): 2.5
 2. Stand pipe height above datum (ft): 4.6
 - Biofilter Outlet/Discharge Option Number 2
 - Outlet type: Orifice
 1. Underdrain outlet diameter (ft): 0.5
 2. Invert elevation above datum (ft): 0.5
 3. Number of underdrain outlets: 1
 - Biofilter Outlet/Discharge Option Number 3
 - Outlet type: Broad Crested Weir
 1. Weir crest length (ft): 2
 2. Weir crest width (ft): 5
 3. Height of datum to bottom of weir opening: 5.1
 4. Default weir coefficients: Yes
 - Weir Coefficient: 0

Source Area Control Practice Information

Land Use: Commercial

Paved Parking/Storage 1 Source area number: 66

The Source Area is draining to a pervious area (partially connected impervious area)

The SCS Hydrologic Soil Type is Clayey

The building density is low

Driveways 1 Source area number: 73
The Source Area is draining to a pervious area (partially connected impervious area)
The SCS Hydrologic Soil Type is Clayey
The building density is low
Sidewalks/Walks 1 Source area number: 76
The Source Area is draining to a pervious area (partially connected impervious area)
The SCS Hydrologic Soil Type is Clayey
The building density is low
Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Clayey
The building density is low

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
----- Solids	----- Particulate

SLAMM for Windows Version 9.4.0
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Data file name: J:\Jobs2010\20102023\Project_Information\Calcs\SLAMM\Biofilter #1.dat
Data file description: FVHO Proposed Site
Rain file name: C:\Program Files\WinSLAMM\Rain Files\WI Green Bay 69.RAN
Particulate Solids Concentration file name: C:\Program Files\WinSLAMM\WI_AVG01.psc
Runoff Coefficient file name: C:\Program Files\WinSLAMM\WI_SL06 Dec06.rsv
Particulate Residue Delivery file name: C:\Program Files\WinSLAMM\WI_DLV01.prr
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Pollutant Relative Concentration file name: C:\Program Files\WinSLAMM\WI_GEO01.ppd
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Model Run Start Date: 01/02/69 Model Run End Date: 12/28/69
Date of run: 08-18-2010 Time of run: 11:20:15
Total Area Modeled (acres): 0.389
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Source Area Total without Controls:	11720	0 %	146.1	106.9	0 %
Total Before Drainage System:	11720	0.00%	146.1	106.9	0.00%
Total After Drainage System:	11720	0.00%	146.1	106.9	0.00%
Total After Outfall Controls:	7038	39.95%	73.39	32.25	69.83%
Annualized Total After Outfall Controls:	7136			32.70	

Biofilter Water Balance Performance Summary, by Event - Biofilter #1

BioF Source Area Number	Rain Number	Rain Depth (in)	Rain Duration (days)	Time (Julian Date)	Maximum BioF Stage (ft)	Minimum BioF Stage (ft)	Event Peak Inflow (cfs)	Event Peak Outflow (cfs)	Surface Ponding Duration (hrs)	Total Ponding Duration (hrs)	Event Inflow Volume (cf)	Event Hydraulic Outflow (cf)	Event Total Inflow (cf)	Event Orifice Outflow (cf)	Event Standpipe Outflow (cf)	Event Total Outflow (cf)	Event Flow Balance (cf)	Cumulative Flow Balance (cf)	Volume Reduction Fraction	Solids Reduction Fraction
162	1	0.01	0.04	6211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	2	0.17	0.58	6215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	3	0.46	0.79	6217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	4	0.96	0.79	6224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	5	0.08	0.21	6226	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	6	0.19	0.54	6231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	7	0.04	0.04	6232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	8	0.01	0.04	6232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	9	0.06	0.25	6233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	10	0.23	0.88	6237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	11	0.39	0.38	6238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	12	0.02	0.13	6262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	13	0.02	0.08	6262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	14	0.02	0.08	6274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	15	0.53	0.67	6288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	16	0.06	0.13	6291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	17	0.33	1.04	6292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	18	0.01	0.04	6293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	19	0.09	0.42	6296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	20	0.16	0.21	6300	4.091	0	0.0029	0.0028	0	6.2	16.7764	0	16.7764	0	0	16.7764	0	0	1	0.4962
162	21	0.7	0.33	6303	4.099	0	0.0455	0.0466	0	42.6	413.7953	228.455	185.3404	228.455	0	413.7955	-0.0002	-0.0002	0.4479	0.4957
162	22	0.18	0.21	6308	4.091	0	0.0051	0.0048	0	8.5	28.8248	0	28.8249	0	0	28.8249	0	-0.0002	1	0.4962
162	23	0.04	0.08	6309	4.09	0	0	0	0	0	0	0	0	0	0	0	0	-0.0002	1	0.4962
162	24	0.28	0.67	6314	4.091	0	0.0048	0.0047	0	23.7	87.8157	0	87.8155	0	0	87.8155	0.0002	0	1	0.496
162	25	0.24	0.38	6315	4.091	0	0.0061	0.006	0	16.4	62.9386	0	62.9258	0	0	62.9258	0.0128	0.0127	1	0.4961
162	26	0.46	0.38	6316	4.094	0	0.0226	0.022	0	43.5	231.4828	42.5372	188.9581	42.5372	0	231.4954	-0.0126	0.0001	0.8162	0.4959
162	27	0.19	0.46	6320	4.091	0	0.0029	0.0028	0	12.6	35.9104	0	35.9103	0	0	35.9103	0	0.0002	1	0.4962
162	28	0.58	0.71	6325	4.093	0	0.0168	0.0187	0	49.5	325.545	97.0563	218.344	97.0563	0	315.4004	10.1447	10.1448	0.7019	0.4958
162	29	0.03	0.04	6327	4.09	0	0	0.0012	0	3.2	0	0	10.1454	0	0	10.1454	-10.1454	-0.0006	1	0.4958
162	30	0.06	0.08	6330	4.09	0	0	0	0	0	0	0	0	0	0	0	0	-0.0006	1	0.4958
162	31	0.05	0.04	6331	4.09	0	0	0	0	0	0	0	0	0	0	0	0	-0.0006	1	0.4958
162	32	0.51	0.42	6335	4.095	0	0.0236	0.023	0	44.7	268.8283	74.6005	194.228	74.6005	0	268.8284	-0.0001	-0.0006	0.7225	0.4959
162	33	0.2	0.25	6337	4.091	0	0.0062	0.006	0	11.5	42.6403	0	42.6403	0	0	42.6403	0	-0.0006	1	0.4962
162	34	0.15	0.42	6338	4.09	0	0.001	0.001	0	9.8	11.7682	0	11.7682	0	0	11.7682	0	-0.0007	1	0.4962
162	35	1.04	0.46	6345	4.102	0	0.0548	0.0507	0.4	37.8	685.2422	483.6591	168.9158	483.6591	0	652.5753	32.6669	32.6663	0.2942	0.4956
162	36	0.18	0.13	6347	4.092	0	0.0084	0.0077	0	14.9	28.8909	0	61.5585	0	0	61.5585	-32.6676	-0.0013	1	0.4962
162	37	0.12	0.38	6348	4.09	0	0.0001	0.0001	0	0	0.5292	0	0.5292	0	0	0.5292	0	-0.0013	1	0.4962
162	38	0.15	0.04	6356	4.092	0	0.0103	0.0076	0	3.9	12.1355	0	12.1355	0	0	12.1355	0	-0.0013	1	0.4962
162	39	0.2	0.21	6360	4.091	0	0.0075	0.0071	0	11.2	42.623	0	42.6229	0	0	42.6229	0.0001	-0.0012	1	0.4962
162	40	0.01	0.04	6361	4.09	0	0	0	0	0	0	0	0	0	0	0	0	-0.0013	1	0.4962
162	41	0.03	0.04	6362	4.09	0	0	0	0	0	0	0	0	0	0	0	0	-0.0013	1	0.4962
162	42	0.17	0.17	6364	4.091	0	0.0049	0.0046	0	6.8	22.4806	0	22.4806	0	0	22.4806	0	-0.0012	1	0.4962
162	43	0.19	0.29	6365	4.091	0	0.0045	0.0043	0	10.6	35.9062	0	35.9062	0	0	35.9062	0	-0.0012	1	0.4962
162	44	0.33	0.29	6371	4.093	0	0.0158	0.0152	0	16.7	125.7626	0	72.6282	0	0	72.6282	53.1344	53.1332	1	0.496

Biofilter Water Balance Performance Summary, by Event - Biofilter #1

BioF Source Area Number	Rain Number	Rain Depth (in)	Rain Duration (days)	Time (Julian Date)	Maximum BioF Stage (ft)	Minimum BioF Stage (ft)	Event Peak Inflow (cfs)	Event Peak Outflow (cfs)	Surface Ponding Duration (hrs)	Total Ponding Duration (hrs)	Event Inflow Volume (cf)	Event Hydraulic Outflow (cf)	Event Total Infil Outflow (cf)	Event Orifice Outflow (cf)	Event Standpipe Outflow (cf)	Event Total Outflow (cf)	Event Flow Balance (cf)	Cumulative Flow Balance (cf)	Volume Reduction Fraction	Solids Reduction Fraction
162	45	0.62	0.21	6372	4.107	0	0.0625	0.0526	0.5	12	355.4633	237.3376	54.476	237.3376	0	291.8137	63.6496	116.7827	0.3323	0.4958
162	46	0.03	0.29	6372	0	0	0	0.0013	0	27.2	0	0	116.7843	0	0	116.7843	-116.784	-0.0015	1	0.4958
162	47	0.03	0.04	6374	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0015	1	0.4958
162	48	0.04	0.04	6375	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0015	1	0.4958
162	49	0.06	0.04	6376	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0015	1	0.4958
162	50	0.05	0.04	6376	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0015	1	0.4958
162	51	0.28	0.08	6378	4.097	0	0.0386	0.0335	0	21	88.1832	0	88.1832	0	0	88.1832	0	-0.0015	1	0.496
162	52	1.31	1.08	6381	4.096	0	0.0313	0.031	0	31.6	925.079	645.9332	140.6868	645.9332	0	786.6198	138.4592	138.4577	0.3018	0.4955
162	53	0.01	0.04	6383	4.09	0	0	0.0013	0	32	0	0	138.4566	0	0	138.4566	-138.457	0.0011	1	0.4955
162	54	1.3	0.42	6385	4.173	0	0.0806	0.0506	2.3	20.9	916.0081	719.0755	93.8271	719.0756	0	812.9025	103.1057	103.1067	0.215	0.4955
162	55	0.31	0.04	6386	4.114	0.36	0.0964	0.061	0.3	9	113.0752	66.3197	40.8921	66.3197	0	107.2118	5.8634	108.9701	0.4135	0.496
162	56	2.34	0.33	6386	4.706	0	0.2158	0.0588	8.3	45.3	1963.526	1873.111	199.3828	1841.945	31.1661	2072.49	-108.964	0.006	0.046	0.495
162	57	0.21	0.13	6389	4.093	0	0.0139	0.0126	0	12	47.4003	0	47.3963	0	0	47.3963	0.004	0.01	1	0.4961
162	58	0.3	0.29	6389	4.092	0	0.0128	0.0123	0	24.5	102.0594	0	102.0633	0	0	102.0633	-0.0039	0.0061	1	0.496
162	59	0.01	0.04	6392	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0061	1	0.496
162	60	0.03	0.04	6392	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0061	1	0.496
162	61	0.96	0.25	6394	4.17	0	0.0906	0.068	1.8	40.3	618.6678	442.9486	175.7192	442.9487	0	618.6675	0.0003	0.0064	0.284	0.4956
162	62	0.02	0.04	6401	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0064	1	0.4956
162	63	0.01	0.04	6405	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0064	1	0.4956
162	64	0.03	0.04	6413	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0064	1	0.4956
162	65	0.43	0.29	6417	4.095	0	0.0264	0.0254	0	13.7	210.2825	31.2072	60.5313	31.2072	0	91.7384	118.544	118.5504	0.8516	0.4959
162	66	0.78	0.54	6417	4.096	0	0.0321	0.0316	0	48.6	474.8519	378.9525	214.4431	378.9525	0	593.3958	-118.544	0.0066	0.202	0.4957
162	67	0.24	0.13	6421	4.093	0	0.0184	0.0168	0	15.4	63.0967	0	63.0967	0	0	63.0967	0	0.0066	1	0.4961
162	68	0.3	0.04	6424	4.11	0	0.0898	0.0506	0.3	24.8	105.2533	0	105.2532	0	0	105.2532	0.0001	0.0066	1	0.496
162	69	0.01	0.04	6426	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0066	1	0.496
162	70	0.01	0.04	6427	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0066	1	0.496
162	71	0.05	0.04	6428	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0066	1	0.496
162	72	0.97	0.54	6452	4.098	0	0.0424	0.0417	0	48.5	626.5599	414.9647	211.5945	414.9647	0	626.5589	0.001	0.0076	0.3377	0.4956
162	73	0.81	0.29	6456	4.11	0	0.0626	0.0579	0.8	18.9	497.9805	317.4265	84.6188	317.4265	0	402.0453	95.9352	95.9429	0.3626	0.4957
162	74	0.13	0.08	6457	4.09	0	0.0016	0.0014	0	23.4	3.6871	0	99.6222	0	0	99.6222	-95.9351	0.0078	1	0.4962
162	75	0.02	0.04	6459	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0078	1	0.4962
162	76	0.03	0.21	6466	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0078	1	0.4962
162	77	0.5	0.08	6466	4.147	0.002	0.1148	0.0767	0.9	33	262.21	107.6593	146.7454	107.6593	0	254.4046	7.8054	7.8132	0.5894	0.4959
162	78	0.15	0.29	6468	4.09	0	0.0015	0.0014	0	8.5	11.7673	0	19.5725	0	0	19.5725	-7.8052	0.0079	1	0.4962
162	79	0.09	0.33	6477	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0079	1	0.4962
162	80	0.06	0.08	6477	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0079	1	0.4962
162	81	0.04	0.04	6481	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0079	1	0.4962
162	82	0.07	0.21	6482	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0079	1	0.4962
162	83	0.04	0.04	6488	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0079	1	0.4962
162	84	0.01	0.04	6492	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0079	1	0.4962
162	85	0.35	0.38	6492	4.093	0	0.014	0.0136	0	33.8	143.1941	0	143.1933	0	0	143.1933	0.0008	0.0087	1	0.496
162	86	1.1	0.83	6494	4.096	0	0.0324	0.032	0	56.6	736.6575	489.0281	247.6297	489.0282	0	736.6578	-0.0004	0.0083	0.3362	0.4956

Biofilter Water Balance Performance Summary, by Event - Biofilter #1

BioF Source Area Number	Rain Number	Rain Depth (in)	Rain Duration (days)	Time (Julian Date)	Maximum BioF Stage (ft)	Minimum BioF Stage (ft)	Event Peak Inflow (cfs)	Event Peak Outflow (cfs)	Surface Ponding Duration (hrs)	Total Ponding Duration (hrs)	Event Inflow Volume (cf)	Event Hydraulic Outflow (cf)	Event Total Infil Outflow (cf)	Event Orifice Outflow (cf)	Event Standpipe Outflow (cf)	Event Total Outflow (cf)	Event Flow Balance (cf)	Cumulative Flow Balance (cf)	Volume Reduction Fraction	Solids Reduction Fraction
162	87	0.64	0.71	6497	4.094	0	0.0191	0.022	0	52.8	369.624	140.3621	229.2612	140.3621	0	369.6231	0.0009	0.0092	0.6203	0.4958
162	88	0.79	0.71	6501	4.095	0	0.025	0.0257	0	28.6	482.5786	251.9136	126.7275	251.9136	0	378.6408	103.9378	103.947	0.478	0.4957
162	89	0.04	0.04	6502	4.09	0.024	0	0.0013	0	22	0	0	97.3309	0	0	97.3309	-97.3309	6.6161	1	0.4957
162	90	0.13	0.13	6503	4.09	0	0.0011	0.0012	0	3.9	3.6816	0	10.2874	0	0	10.2874	-6.6058	0.0103	1	0.4962
162	91	0.01	0.04	6503	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0102	1	0.4962
162	92	0.03	0.13	6508	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0102	1	0.4962
162	93	0.3	0.75	6513	4.091	0	0.005	0.0049	0	27.1	102.0559	0	102.0559	0	0	102.0559	0	0.0103	1	0.496
162	94	0.01	0.04	6524	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0103	1	0.496
162	95	0.01	0.04	6527	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0103	1	0.496
162	96	0.18	0.21	6529	4.091	0	0.0051	0.0048	0	8.5	28.8248	0	28.8249	0	0	28.8249	0	0.0103	1	0.4962
162	97	0.1	0.33	6530	4.09	0	0	0	0	0	0	0	0	0	0	0	0	0.0103	1	0.4962
Summary Statistics																				
Number of Events	112	112	-	-	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112
Total	26.31	25.13	-	-	-	-	-	-	15.6	1118	11731.66	7042.548	4689.11	7011.382	31.166	11731.65	0.01	0.01	-	-
Equivalent Annual Tot	26.67	25.47	-	-	-	-	-	-	15.811	1133.134	11890.47	7137.882	4752.587	7106.294	31.588	11890.46	0.01	-	-	-
Minimum	0.01	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-138.457	-0.002	0.046	0.495
Maximum	2.34	1.08	0	4.706	0.36	0.216	0.077	8.3	56.6	1963.526	1873.111	247.63	1841.945	31.166	2072.49	138.459	138.458	1	0.496	Maximum
Average of All Events	0.23	0.22		2.31	0	0.01	0.01	0.14	9.98	104.75	62.88	41.87	62.6	0.28	104.75	0	8	0.77	0.35	Average of All Events
Median	0.08	0.13		4.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5
Std. Deviation	0.36	0.25		2.05	0.03	0.03	0.02	0.83	15.28	263.57	218.75	66.68	216.43	2.94	261.64	36.84	27.88	0.38	0.23	Std. Deviation
COV	1.54	1.13		0.89	9.89	2.42	1.92	5.99	1.53	2.52	3.48	1.59	3.46	10.58	2.5	402172	3.48	0.49	0.66	COV
First Rain Date: 01/02/69																				
Last Rain Date: 12/28/69																				
Total Time Period (yrs): 0.9866439																				

Data file name: J:\Jobs2010\20102023\Project_Information\Calcs\SLAMM\Biofilter #2.dat
 SLAMM Version 9.4.0
 Rain file name: C:\Program Files\WinSLAMM\Rain Files\WI Green Bay 69.RAN
 Particulate Solids Concentration file name: C:\Program Files\WinSLAMM\WI_AVG01.psc
 Runoff Coefficient file name: C:\Program Files\WinSLAMM\WI_SL06 Dec06.rsv
 Particulate Residue Delivery file name: C:\Program Files\WinSLAMM\WI_DLV01.prr
 Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Freeway Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
 Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
 Pollutant Relative Concentration file name: C:\Program Files\WinSLAMM\WI_GEO01.ppd
 Seed for random number generator: -42
 Study period starting date: 01/02/69 Study period ending date: 12/28/69
 Start of Winter Season: 11/25 End of Winter Season: 03/29
 Date: 08-18-2010 Time: 11:24:19

Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0
 Curb and Gutters, 'valleys', or sealed swales in:
 3. Poor condition (or very flat) 0
 4. Fair condition 1
 5. Good condition (or very steep) 0

Site information:
 FVHO Proposed Site

Source Area	<==== Areas for each Source (acres) =====>				
	Residential Areas	Institutional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	0.000	0.000	0.000	0.000	0.000
Roofs 2	0.000	0.000	0.000	0.000	0.000
Roofs 3	0.000	0.000	0.000	0.000	0.000
Roofs 4	0.000	0.000	0.000	0.000	0.000
Roofs 5	0.000	0.000	0.000	0.000	0.000
Paved Parking/Storage 1	0.000	0.000	0.102	0.000	0.000
Paved Parking/Storage 2	0.000	0.000	0.000	0.000	0.000
Paved Parking/Storage 3	0.000	0.000	0.000	0.000	0.000
Unpaved Prkng/Storage 1	0.000	0.000	0.000	0.000	0.000
Unpaved Prkng/Storage 2	0.000	0.000	0.000	0.000	0.000
Playground 1	0.000	0.000	0.000	0.000	0.000
Playground 2	0.000	0.000	0.000	0.000	0.000
Driveways 1	0.000	0.000	0.190	0.000	0.000
Driveways 2	0.000	0.000	0.000	0.000	0.000
Driveways 3	0.000	0.000	0.000	0.000	0.000
Sidewalks/Walks 1	0.000	0.000	0.010	0.000	0.000
Sidewalks/Walks 2	0.000	0.000	0.000	0.000	0.000
Street Area 1	0.000	0.000	0.000	0.000	0.000
Street Area 2	0.000	0.000	0.000	0.000	0.000
Street Area 3	0.000	0.000	0.000	0.000	0.000
Large Landscaped Area 1	0.000	0.000	0.372	0.000	0.000
Large Landscaped Area 2	0.000	0.000	0.000	0.000	0.000
Undeveloped Area	0.000	0.000	0.000	0.000	0.000
Small Landscaped Area 1	0.000	0.000	0.000	0.000	0.000
Small Landscaped Area 2	0.000	0.000	0.000	0.000	0.000
Small Landscaped Area 3	0.000	0.000	0.000	0.000	0.000
Isolated/Water Body Area	0.000	0.000	0.000	0.000	0.000
Other Pervious Area	0.000	0.000	0.000	0.000	0.000
Other Dir Cnctd Imp Area	0.000	0.000	0.000	0.000	0.000
Other Part Cnctd Imp Area	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.674	0.000	0.000

Freeway Source Area	Area (acres)
Pavd Lane & Shldr Area 1	0.000
Pavd Lane & Shldr Area 2	0.000
Pavd Lane & Shldr Area 3	0.000

Pavd Lane & Shldr Area 4 0.000
 Pavd Lane & Shldr Area 5 0.000
 Large Turf Areas 0.000
 Undeveloped Areas 0.000
 Other Pervious Areas 0.000
 Other Directly Conctd Imp 0.000
 Other Partially Conctd Imp 0.000

 Total 0.000

Total of All Source Areas 0.674

 Total of All Source Areas
 less All Isolated Areas 0.674
 =====

Outfall Control Practice: Biofiltration Device

Fraction of Runoff from Outfall Routed to Outfall Biofilters: 1

Control Practice 1 : Wet Detention Ponds

1. Area served by detention ponds (acres)= 0
2. Particle Size Distribution file name:
3. Initial stage elevation (ft): 0
4. Peak to Average Flow Ratio: 0
5. Maximum flow allowed into pond (cfs): No maximum value entered
6. Outlet Characteristics:
7. Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00

1. Top Area (square feet) = 2060
2. Bottom Area (square feet) = 1650
3. Depth (ft): 4.7
4. Depth of Biofilter that is Rock Filled (ft) 0.5
5. Fraction of Rock Filled Volume as Voids = 0.33
6. Engineered Soil Depth (ft) = 3.2
7. Engineered Soil Void Ratio = 0.27
8. Infiltration Rate (in/hr) = 0.05
9. Infiltration Rate Coefficient of Variation 0
10. Random Infiltration Rate Generation? No
11. Infiltration Rate Fraction (Side): 1
12. Infiltration Rate Fraction (Bottom): 1
13. Biofilter Width (ft) - for Cost Purposes Only: 20
14. Number of Biofiltration Control Devices = 1
15. Biofilter Peak to Average Flow Ratio = 3.8
16. Percent Solids Reduction Due to Flow Through Engineered Soil = 0
17. Particle Size Distribution File: C:\Program Files\WinSLAMM\NURP.CPZ
18. Engineered Soil Media: Compost-Sand
19. Engineered Soil Infiltration Rate: 2.1
21. Biofilter Outlet/Discharge Characteristics:
 - Biofilter Outlet/Discharge Option Number 1
 - Outlet type: Vertical Stand Pipe
 1. Stand pipe diameter (ft): 2.5
 2. Stand pipe height above datum (ft): 4.2
 - Biofilter Outlet/Discharge Option Number 2
 - Outlet type: Orifice
 1. Underdrain outlet diameter (ft): 0.5
 2. Invert elevation above datum (ft): 0.5
 3. Number of underdrain outlets: 1
 - Biofilter Outlet/Discharge Option Number 3
 - Outlet type: Broad Crested Weir
 1. Weir crest length (ft): 2
 2. Weir crest width (ft): 5
 3. Height of datum to bottom of weir opening: 4.5
 4. Default weir coefficients: Yes
 - Weir Coefficient: 0

Source Area Control Practice Information

Land Use: Commercial

Paved Parking/Storage 1 Source area number: 66

The Source Area is draining to a pervious area (partially connected impervious area)

The SCS Hydrologic Soil Type is Clayey

The building density is low

Driveways 1 Source area number: 73
The Source Area is draining to a pervious area (partially connected impervious area)
The SCS Hydrologic Soil Type is Clayey
The building density is low
Sidewalks/Walks 1 Source area number: 76
The Source Area is draining to a pervious area (partially connected impervious area)
The SCS Hydrologic Soil Type is Clayey
The building density is low
Large Landscaped Area 1 Source area number: 81
The SCS Hydrologic Soil Type is Clayey
The building density is low

Drainage System

Outfall

Pollutants to be Analyzed and Printed:

Pollutant Name	Pollutant Type
-----	-----
Solids	Particulate

SLAMM for Windows Version 9.4.0
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Data file name: J:\Jobs2010\20102023\Project_Information\Calcs\SLAMM\Biofilter #2.dat
Data file description: FVHO Proposed Site
Rain file name: C:\Program Files\WinSLAMM\Rain Files\WI Green Bay 69.RAN
Particulate Solids Concentration file name: C:\Program Files\WinSLAMM\WI_AVG01.psc
Runoff Coefficient file name: C:\Program Files\WinSLAMM\WI_SL06 Dec06.rsv
Particulate Residue Delivery file name: C:\Program Files\WinSLAMM\WI_DLV01.prr
Residential Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Institutional Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Freeway Street Delivery file name: C:\Program Files\WinSLAMM\WI_Com Inst Indust Dec06.std
Pollutant Relative Concentration file name: C:\Program Files\WinSLAMM\WI_GEO01.ppd
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Model Run Start Date: 01/02/69 Model Run End Date: 12/28/69
Date of run: 08-18-2010 Time of run: 11:22:49
Total Area Modeled (acres): 0.674
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Source Area Total without Controls:	16825	0 %	152.2	159.9	0 %
Total Before Drainage System:	16825	0.00%	152.2	159.9	0.00%
Total After Drainage System:	16825	0.00%	152.2	159.9	0.00%
Total After Outfall Controls:	9637	42.72%	76.49	46.02	71.22%
Annualized Total After Outfall Controls:	9771			46.66	

Biofilter Water Balance Performance Summary, by Event - Biofilter #2

BioF Source Area		Rain	Rain	Rain	Time	Maximum	Minimum	Event	Event	Surface	Total	Event	Event	Event	Event	Event	Event	Cumulative	Volume	Solids
Number	Number	Depth (in)	Duration (days)	(Julian Date)	BioF Stage (ft)	BioF Stage (ft)	Peak Inflow (cfs)	Peak Outflow (cfs)	Ponding Duration (hrs)	Ponding Duration (hrs)	Inflow Volume (cf)	Hydraulic Outflow (cf)	Infilt Outflow (cf)	Total Outflow (cf)	Vert Standpipe Outflow (cf)	Total Outflow (cf)	Event Flow Balance (cf)	Flow Balance (cf)	Reduction Fraction	Reduction Fraction
162	1	0.01	0.04	6211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	2	0.17	0.58	6215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	3	0.46	0.79	6217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	4	0.96	0.79	6224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	5	0.08	0.21	6226	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	6	0.19	0.54	6231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	7	0.04	0.04	6232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	8	0.01	0.04	6232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	9	0.06	0.25	6233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	10	0.23	0.88	6237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	11	0.39	0.38	6238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	12	0.02	0.13	6262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	13	0.02	0.08	6262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	14	0.02	0.08	6274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	15	0.53	0.67	6288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	16	0.06	0.13	6291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	17	0.33	1.04	6292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	18	0.01	0.04	6293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	19	0.09	0.42	6296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4962
162	20	0.16	0.21	6300	3.7	0	0.0041	0.0039	0	6.1	23.1346	0	23.1346	0	23.1346	0	0	0	1	0.4959
162	21	0.7	0.33	6303	3.708	0	0.0646	0.0808	7.8	42.8	587.838	293.9328	293.9053	293.9328	0	587.839	-0.001	-0.001	0.5	0.4952
162	22	0.18	0.21	6308	3.701	0	0.007	0.0066	0	7.7	39.7494	0	39.7493	0	39.7493	0	-0.001	1	0.4959	
162	23	0.04	0.08	6309	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.001	1	0.4959
162	24	0.28	0.67	6314	3.701	0	0.0067	0.0066	0	21.7	122.4587	0	122.4587	0	122.4587	-0.0001	-0.001	1	0.4956	
162	25	0.24	0.38	6315	3.701	0	0.0085	0.0083	0.2	14.9	87.3977	0	87.3954	0	87.3954	0.0023	0.0012	1	0.4957	
162	26	0.46	0.38	6316	3.704	0	0.0318	0.0309	2.6	43.8	325.6732	26.296	299.38	26.296	0	325.6759	-0.0027	-0.0014	0.9193	0.4954
162	27	0.19	0.46	6320	3.7	0	0.004	0.0039	0	12.4	49.5202	0	49.5202	0	49.5202	0	-0.0015	1	0.4959	
162	28	0.58	0.71	6325	3.703	0	0.0238	0.0234	4.4	49.4	459.7245	98.6151	343.5907	98.6151	0	442.2055	17.519	17.5175	0.7855	0.4954
162	29	0.03	0.04	6327	0	0	0	0.0019	0	3.4	0	0	17.5181	0	17.5181	-17.5181	-0.0006	1	0.4954	
162	30	0.06	0.08	6330	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0006	1	0.4954
162	31	0.05	0.04	6331	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0006	1	0.4954
162	32	0.51	0.42	6335	3.704	0	0.0333	0.0324	3	45	378.8477	71.1743	307.6732	71.1743	0	378.8474	0.0002	-0.0004	0.8121	0.4954
162	33	0.2	0.25	6337	3.701	0	0.0086	0.0082	0.2	10.5	58.8377	0	58.8377	0	58.8377	0	-0.0004	1	0.4958	
162	34	0.15	0.42	6338	3.7	0	0.0014	0.0014	0	9.4	16.2283	0	16.2283	0	16.2283	0	-0.0004	1	0.4959	
162	35	1.04	0.46	6345	3.71	0	0.0785	0.0766	11.2	37.8	981.9011	662.4929	265.8406	662.4929	0	928.3331	53.568	53.5676	0.3253	0.4951
162	36	0.18	0.13	6347	3.701	0	0.0116	0.0106	0.4	14.3	39.8404	0	93.4087	0	93.4087	-53.5683	-0.0007	1	0.4959	
162	37	0.12	0.38	6348	3.7	0	0.0001	0.0001	0	0	0.7298	0	0.7298	0	0.7298	0	-0.0007	1	0.4959	
162	38	0.15	0.04	6356	3.701	0	0.0143	0.0105	0.2	3.6	16.7348	0	16.7348	0	16.7348	0	-0.0007	1	0.4959	
162	39	0.2	0.21	6360	3.701	0	0.0103	0.0098	0.4	10.1	58.8137	0	58.8137	0	58.8137	0	-0.0007	1	0.4958	
162	40	0.01	0.04	6361	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0007	1	0.4958
162	41	0.03	0.04	6362	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0007	1	0.4958
162	42	0.17	0.17	6364	3.701	0	0.0068	0.0064	0	6.3	31.0007	0	31.0007	0	31.0007	0	-0.0007	1	0.4959	
162	43	0.19	0.29	6365	3.701	0	0.0062	0.006	0	9.6	49.5144	0	49.5144	0	49.5144	0	-0.0007	1	0.4959	
162	44	0.33	0.29	6371	3.703	0	0.0221	0.0213	1.8	16.7	175.9959	0	113.962	0	113.962	62.0339	62.0332	1	0.4955	
162	45	0.62	0.21	6372	3.711	0.135	0.0884	0.0803	5.2	12	502.9079	293.1021	85.519	293.1021	0	378.621	124.2868	186.32	0.4172	0.4953
162	46	0.03	0.29	6372	3.7	0	0	0.002	0	27.5	0	0	186.3211	0	186.3211	-186.3211	-0.0011	1	0.4953	
162	47	0.03	0.04	6374	3.7	0	0	0	0	0	0	0	0	0	0	0	0	-0.0011	1	0.4953
162	48	0.04	0.04	6375	3.7	0	0	0	0	0	0	0	0	0	0	0	0	-0.0011	1	0.4953
162	49	0.06	0.04	6376	3.7	0	0	0	0	0	0	0	0	0	0	0	0	-0.0011	1	0.4953
162	50	0.05	0.04	6376	3.7	0	0	0	0	0	0	0	0	0	0	0	0	-0.0011	1	0.4953
162	51	0.28	0.08	6378	3.706	0	0.0539	0.0468	1.8	18.7	122.9715	0	122.9715	0	122.9715	0	-0.0011	1	0.4956	
162	52	1.31	1.08	6381	3.706	0	0.0452	0.0448	23	31.6	1334.946	894.1498	220.6767	894.1498	0	1114.826	220.1204	220.1193	0.3302	0.4949
162	53	0.01	0.04	6383	3.7	0	0	0.002	0	32.2	0	0	220.1248	0	220.1248	-220.1248	-0.0055	1	0.4949	
162	54	1.3	0.42	6385	3.756	0	0.1162	0.0803	10.8	20.9	1321.273	1009.138	147.3388	1009.138	0	1156.476	164.7974	164.7919	0.2362	0.495
162	55	0.31	0.04	6386	3.718	0.361	0.1348	0.0814	1.1	9	158.0458	84.3761	64.2624	84.3761	0	148.6386	9.4072	174.1991	0.4661	0.4956
162	56	2.34	0.33	6386	4.279	0	0.3233	0.0846	11.4	44.9	2942.026	2805.012	311.2183	2791.414	13.5982	3116.229	-174.2031	-0.004	0.0466	0.4943
162	57	0.21	0.13	6389	3.702	0	0.0192	0.0175	0.6	10.6	65.5267	0	65.5259	0	65.5259	0.0008	-0.0032	1	0.4958	
162	58	0.3	0.29	6389	3.702	0	0.0179	0.0172	1.5	21.9	142.5494	0	142.5502	0	142.5502	-0.0009	-0.0041	1	0.4956	
162	59	0.01	0.04	6392	3.7	0	0	0	0	0	0	0	0	0	0	0	0	-0.0041	1	0.4956
162	60	0.03	0.04	6392	3.7	0	0	0	0	0	0	0	0	0	0	0	0	-0.0041	1	0.4956
162	61	0.96	0.25	6394	3.757	0	0.1297	0.0855	6.6	40.6	885.6697	606.7917	278.8777	606.7917	0	885.6697	0	-0.0041	0.3149	0.4951
162	62	0.02	0.04	6401	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0041	1	0.4951
162	63	0.01	0.04	6405	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0041	1	0.4951
162	64	0.03	0.04	6413	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0041	1	0.4951

Biofilter Water Balance Performance Summary, by Event - Biofilter #2

BioF Source Area		Rain Number	Rain Depth (in)	Rain Duration (days)	Time (Julian Date)	Maximum BioF Stage (ft)	Minimum BioF Stage (ft)	Event Peak Inflow (cfs)	Event Peak Outflow (cfs)	Surface Ponding Duration (hrs)	Total Ponding Duration (hrs)	Event Inflow Volume (cf)	Event Hydraulic Outflow (cf)	Event Total Infil Outflow (cf)	Event Orifice Outflow (cf)	Event Vert Standpipe Outflow (cf)	Event Total Outflow (cf)	Event Flow Balance (cf)	Cumulative Flow Balance (cf)	Volume Reduction Fraction	Solids Reduction Fraction
162	65	0.43	0.29	6417	3.704	0	0.0371	0.0357	2.2	13.7	295.5242	11.5836	94.9414	11.5836	0	106.525	188.9992	188.9951	0.9608	0.4955	
162	66	0.78	0.54	6417	3.706	0	0.0458	0.045	11.6	48.9	677.1707	526.6363	339.5338	526.6362	0	866.1696	-188.999	-0.0038	0.2223	0.4952	
162	67	0.24	0.13	6421	3.703	0	0.0256	0.0234	0.8	13.7	87.6173	0	87.6173	0	0	87.6173	0	-0.0039	1	0.4957	
162	68	0.3	0.04	6424	3.715	0	0.1254	0.0802	1	22	147.0102	0	147.0103	0	0	147.0103	-0.0001	-0.004	1	0.4956	
162	69	0.01	0.04	6426	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.004	1	0.4956
162	70	0.01	0.04	6427	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.004	1	0.4956
162	71	0.05	0.04	6428	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.004	1	0.4956
162	72	0.97	0.54	6452	3.707	0	0.0607	0.0596	12.6	48.8	897.1398	562.0519	335.0875	562.0519	0	897.1381	0.0017	-0.0023	0.3735	0.4951	
162	73	0.81	0.29	6456	3.712	0	0.0893	0.0879	7.3	18.9	710.7402	424.3185	132.9173	424.3185	0	557.2358	153.5045	153.5022	0.403	0.4952	
162	74	0.13	0.08	6457	3.7	0	0.0022	0.002	0	23.6	5.0846	0	158.5889	0	0	158.5889	-153.5043	-0.0022	1	0.4959	
162	75	0.02	0.04	6459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0022	1	0.4959
162	76	0.03	0.21	6466	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0022	1	0.4959
162	77	0.5	0.08	6466	3.744	0.002	0.1618	0.081	2.2	33	369.4022	123.5985	231.4111	123.5985	0	355.0091	14.3931	14.3909	0.6654	0.4954	
162	78	0.15	0.29	6468	3.7	0	0.002	0.002	0	8.4	16.227	0	30.6199	0	0	30.6199	-14.393	-0.002	1	0.4959	
162	79	0.09	0.33	6477	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.002	1	0.4959
162	80	0.06	0.08	6477	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.002	1	0.4959
162	81	0.04	0.04	6481	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.002	1	0.4959
162	82	0.07	0.21	6482	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.002	1	0.4959
162	83	0.04	0.04	6488	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.002	1	0.4959
162	84	0.01	0.04	6492	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.002	1	0.4959
162	85	0.35	0.38	6492	3.702	0	0.0196	0.019	2	30.1	200.5991	0	200.5995	0	0	200.5995	-0.0004	-0.0024	1	0.4955	
162	86	1.1	0.83	6494	3.706	0	0.0464	0.0459	17.9	56.9	1056.103	664.6657	391.4385	664.6656	0	1056.103	0.0006	-0.0018	0.3706	0.4951	
162	87	0.64	0.71	6497	3.703	0	0.0271	0.0267	4.6	53	523.4909	161.0736	362.4163	161.0736	0	523.4899	0.001	-0.0008	0.6923	0.4953	
162	88	0.79	0.71	6501	3.704	0	0.0356	0.038	5	28.5	688.4628	323.6767	198.9223	323.6767	0	522.5994	165.8634	165.8627	0.5299	0.4952	
162	89	0.04	0.04	6502	3.7	0.027	0	0.002	0	22	0	0	153.7984	0	0	153.7984	-153.7984	12.0642	1	0.4952	
162	90	0.13	0.13	6503	3.7	0	0.0015	0.0019	0	3.9	5.0769	0	17.1423	0	0	17.1423	-12.0654	-0.0011	1	0.4959	
162	91	0.01	0.04	6503	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0012	1	0.4959
162	92	0.03	0.13	6508	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0012	1	0.4959
162	93	0.3	0.75	6513	3.701	0	0.007	0.0069	0	24.9	142.5444	0	142.5445	0	0	142.5445	-0.0001	-0.0013	1	0.4956	
162	94	0.01	0.04	6524	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0013	1	0.4956
162	95	0.01	0.04	6527	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0013	1	0.4956
162	96	0.18	0.21	6529	3.701	0	0.007	0.0066	0	7.7	39.7494	0	39.7493	0	0	39.7493	0	-0.0012	1	0.4959	
162	97	0.1	0.33	6530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.0012	1	0.4959

Summary Statistics

	Rain Number	Rain Depth (in)	Rain Duration (days)	Maximum BioF Stage (ft)	Minimum BioF Stage (ft)	Event Peak Inflow (cfs)	Event Peak Outflow (cfs)	Surface Ponding Duration (hrs)	Total Ponding Duration (hrs)	Event Inflow Volume (cf)	Event Hydraulic Outflow (cf)	Event Total Infil Outflow (cf)	Event Orifice Outflow (cf)	Event Vert Standpipe Outflow (cf)	Event Total Outflow (cf)	Event Flow Balance (cf)	Volume Reduction Fraction	Solids Reduction Fraction			
Number of Events	112	112	-	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112
Total	26.31	25.13	-	-	-	-	-	161.4	1093.399	16841.8	9642.686	7199.121	9629.087	13.598	16841.8	-0.001	0	-	-	-	-
Equivalent Annual Tot	26.67	25.47	-	-	-	-	-	163.585	1108.201	17069.79	9773.218	7296.575	9759.436	13.782	17069.79	-0.001	-	-	-	-	-
Minimum	0.01	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	-220.125	-0.005	0.047	0.494	0.494	
Maximum	2.34	1.08	0	4.279	0.361	0.323	0.088	23	56.9	2942.026	2805.012	391.438	2791.414	13.598	3116.229	220.12	220.119	1	0.496	0.496	
Average of All Events	0.23	0.22	-	1.99	0	0.02	0.01	1.44	9.76	150.37	86.1	64.28	85.97	0.12	150.37	0	12.62	0.78	0.43	0.43	
Median	0.08	0.13	-	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5	0.5	
Std. Deviation	0.36	0.25	-	1.86	0.04	0.04	0.02	3.77	15.18	386.04	317.92	104.39	316.87	1.28	383.8	58.91	44.22	0.37	0.17	0.17	
COV	1.54	1.13	-	0.94	7.75	2.47	1.92	2.61	1.55	2.57	3.69	1.62	3.69	10.58	2.55	0	3.5	0.48	0.4	0.4	

First Rain Date: 01/02/69

Last Rain Date: 12/28/69

Total Time Period (yrs): 0.9866439

APPENDIX C

STORM SEWER CALCULATIONS

STORM SEWER DESIGN COMPUTATION SHEET

(Based on Department of Commerce, Chapter Comm 82, Tables 82.36-1 to 82.36-3)

PROJECT TITLE: Fox Valley Hematology & Oncology Clinic

COMPUTED BY: kah

CHECKED BY:

SHEET NO.: 1 OF

Manning's n: 0.013

LOCATION OF SEWER			Drainage Area							Total Area			Total Runoff			DESIGN COMPUTATIONS							Upstream Elev.		Downstream Elev.		Cover To Top		
			a ₁	q ₁	a ₂	q ₂	a ₃	q ₃	q ₄	A	A	A	Q	Q	Q	Sewer Length	Sewer Diameter	Parts Full - Design	Required Slope	Actual Slope	Parts Full - Actual	Velocity - Actual	Rim	Invert	Rim	Invert	Upstream	Downstream	
IN	FROM	TO	Roof Area SF	Roof Runoff GPM	Paved Area SF	Paved Runoff GPM	Lawn Area SF	Lawn Runoff GPM	Sump Pumps GPM	Indiv. Area SF	Accum. Area SF	Accum. Area Acres	Indiv. Runoff GPM	Accum. Runoff GPM	Accum. Runoff CFS	Feet	In.	d/D	Ft./Ft.	Ft./Ft.	d/D	Ft./Sec.	Feet	Feet	Feet	Feet	Feet	Feet	
	INL1	INL2	5,960	229	4,370	134	2,988	29		13,318	13,318	0.31	392	392	0.87	65	12	0.80	0.0006	0.0026	0.48	2.29	797.42	794.01	797.25	793.84	2.24	2.24	
	INL2	MH ST1			13,040	401	303	3		13,343	26,661	0.61	404	797	1.77	89	12	0.80	0.0026	0.0026	0.79	2.69	797.25	793.84	798.00	793.61	2.24	3.22	
	INL4	INL3			5,722	176	15,074	145		20,796	20,796	0.48	321	321	0.72	65	12	0.80	0.0004	0.0026	0.43	2.15	797.18	793.84	797.71	793.67	2.17	2.87	
	INL3	MH ST2	5,725	220	2,775	85	1,931	19		10,431	31,227	0.72	324	645	1.44	109	12	0.80	0.0017	0.0026	0.66	2.61	797.71	793.57	797.00	793.29	2.97	2.55	
	INL5	MH ST2			8,202	252	330	3		8,532	8,532	0.20	256	256	0.57	64	12	0.80	0.0003	0.0026	0.38	1.99	797.00	793.18	797.00	793.01	2.65	2.82	
	MH ST2	INL6									39,759	0.91		901	2.01	210	15	0.80	0.0010	0.0026	0.56	2.85	797.00	793.18	796.60	792.63	2.38	2.53	
	INL6	MH ST3	5,425	209	17,743	546	10,466	101		33,634	73,393	1.68	855	1,756	3.91	29	15	0.80	0.0038	0.0040	0.77	3.85	796.50	792.97	797.59	792.85	2.09	3.30	
				</																									

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal for parking areas, street lighting, walkways and car lots.

CONSTRUCTION — Rugged, die-cast, soft corner aluminum housing with 0.12" nominal wall thickness. Die-cast door frame has impact-resistant, tempered, glass lens that is fully gasketed with one-piece tubular silicone.

FINISH — Standard finish is dark bronze (DDB) polyester powder finish, with other architectural colors available.

OPTICAL SYSTEM — Anodized, aluminum hydroformed reflectors: IES full cutoff distributions R2 (asymmetric), R3 (asymmetric), R4 (forward throw) and R5S (square) are interchangeable. High-performance anodized, segmented aluminum reflectors IES full cutoff distributions SR2 (asymmetric), SR3 (asymmetric) and SR4SC (forward throw, sharp cutoff). Segmented reflectors attach with tool-less fasteners and are rotatable and interchangeable.

ELECTRICAL SYSTEM — Ballast: High pressure sodium: 70-150W is high reactance, high power factor. Constant wattage autotransformer for 200-400W. Metal halide: 70-150W is high reactance, high power factor and is standard with pulse-start ignitor technology. "SCWA" not required. Constant wattage autotransformer for 175-400W. Super CWA (pulse start ballast), 88% efficient and EISA legislation compliant, is required for metal halide 151-400W (SCWA option) for US shipments only. CSA, NOM or INTL required for probe start shipments outside of the US. Pulse-start ballast (SCWA) required for 200W, 320W, or 350W. Ballast is 100% factory-tested.

Socket: Porcelain, horizontally oriented medium base socket for 70-150M. Mogul base socket for 175M and above, and 70-400S, with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V.

LISTING — UL Listed (standard). CSA Certified (see Options). UL listed for 25°C ambient and wet locations. IP65 rated in accordance with standard IEC 529.

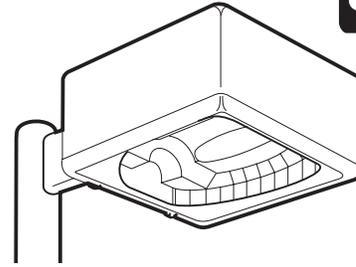
Specifications subject to change without notice.

Catalog Number	
Notes	Type

CONTOUR®
SERIES

Soft Square Lighting

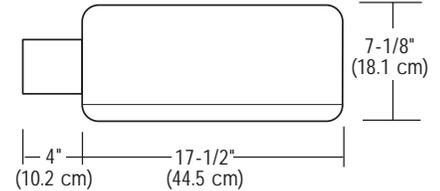
KAD



Specifications

EPA: 1.2 ft.²
 *Weight: 35.9 lbs (16.28 kg)
 Length: 17-1/2" (44.5 cm)
 Width: 17-1/2" (44.5 cm)
 Depth: 7-1/8" (18.1 cm)
 *Weight as configured in example below.

MH: 70W-400W
 HPS: 70W-400W
 20' to 35' Mounting



ORDERING INFORMATION

For shortest lead times, configure product using **standard options (shown in bold)**.

Example: KAD 400M R3 TB SCWA SPD04 LPI

KAD

Series	Wattage		Voltage	Mounting		Ballast	Options	Lamp ¹⁸	
KAD	Metal halide	High pressure sodium ¹	120	Type	Length ¹⁰	(blank) Magnetic ballast	Shipped installed in fixture	LPI	Lamp included
	70M ^{1,2}	70S	208 ⁷	SPD_ Square pole	04 4" arm	CWI Constant wattage isolated ⁹	SF Single fuse 120, 277, 347V ¹³	L/LP	Less lamp
	100M ¹	100S	240 ⁷	RPD_ Round pole	06 6" arm	 SCWA Super CWA pulse start ballast	DF Double fuse 208, 240, 480 ¹³	Finish ¹⁷ (blank) Dark bronze DWH White DBL Black DMB Medium bronze DNA Natural aluminum	
	150M	150S	277	WBD_ Wall bracket	09 9" arm		QRS Quartz restrrike system ¹⁵ QRSTD QRS time delay ¹⁵ WTB Terminal wiring block ¹⁴ HS House-side shield		
	175M ²⁰	250S	347	WWD_ Wood pole or wall	12 12" arm	NOTE: For shipments to U.S. territories, SCWA must be specified to comply with EISA.	PER NEMA twist-lock receptacle only (no photocontrol)		
	200M ³	400S	480 ⁷	DAD12P Degree arm (pole) ¹¹			QRS Quartz restrrike system ¹⁵		
	250M ²¹	Ceramic metal halide	23050HZ ⁹	DAD12WB Degree arm (wall) ¹¹			QRSTD QRS time delay ¹⁵		
	320M ³	70MHC ^{1,2}		WBA Decorative wall bracket ^{11,12}			WTB Terminal wiring block ¹⁴		
	350M ^{3,20}	100MHC ¹		KMA Mast arm external fitter			HS House-side shield		
	400M ^{4,21}	150MHC		KTMB Twin mounting bar			CSA CSA Certified		
Distribution			INTL Available for MH probe start shipping outside the U.S. REGC1 California Title 20 effective 1/1/2010 Shipped separately ¹⁶ PE1 NEMA twist-lock PE (120, 208, 240V) PE3 NEMA twist-lock PE (347V) PE4 NEMA twist-lock PE (480V) PE7 NEMA twist-lock PE (277V) SC Shortening cap for PER option VG Vandal guard WG Wire guard						

NOTES:
 1 Not available with SCWA.
 2 Not available with 480V.
 3 Must be ordered with SCWA.
 4 Reduced jacket ED28 required for SR2, SR3 and SR4SC optics.
 5 House-side shield available.
 6 Segmented reflectors not available with QRSTD.
 7 Must specify CWI for use in Canada.
 8 Optional multi-tap ballast (120, 208, 240, 277V; in Canada: 120, 277, 347V).
 9 Consult factory for available.
 10 9" arm is required when two or more luminaires are oriented on a 90° drilling pattern.
 11 Ships separately.
 12 Available with SPD04 and SPD09.
 13 Must specify voltage. N/A with TB.
 14 Only available with SR2, SR3, & SR4SC optics.
 15 Max allowable wattage lamp included.
 16 May be ordered as an accessory.
 17 See www.lithonia.com/archolors for additional color options.
 18 Must be specified.
 19 Must use RPD09
 20 These wattages do not comply with California Title 20 regulations.
 21 These wattages require the REGC1 option to be chosen for shipments into California for Title 20 compliance. 250M REGC1 in not available in 347 or 480V.

Accessories

Order as separate catalog number.

Tenon Mounting Slipfitter	Number of fixtures							
Tenon O.D.	One	Two@180°	Two@90°	Three@120°	Three@90°	Four@90°		
2-3/8"	T20-190	T20-280	T20-290 ¹⁹	T20-320 ¹⁹	T20-390 ¹⁹	T20-490 ¹⁹		
2-7/8"	T25-190	T25-280	T25-290 ¹⁹	T25-320	T25-390 ¹⁹	T25-490 ¹⁹		
4"	T35-190	T35-280	T35-290 ¹⁹	T35-320	T35-390 ¹⁹	T35-490 ¹⁹		

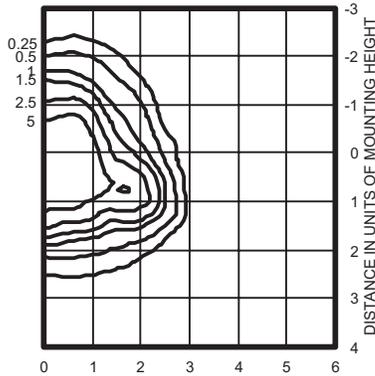
KADVG Vandal guard
 KADWG Wire guard



KAD Arm-mounted Soft Square Cutoff

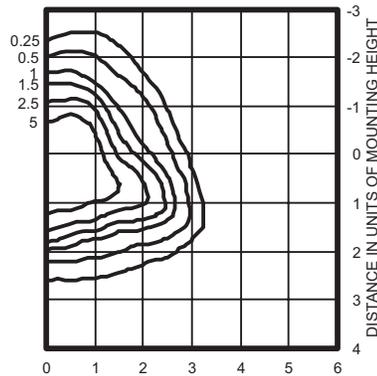
Coefficient of Utilization _____
 Initial Footcandles _____

KAD 400M R2 Test no. 1193083101P
ISOILLUMINANCE PLOT (Footcandle)



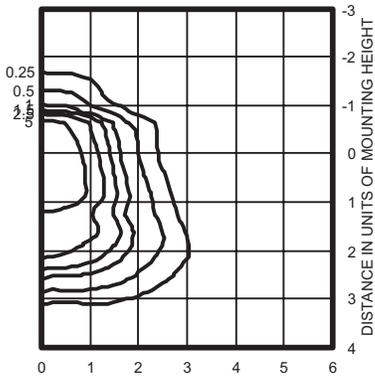
400W pulse start metal halide lamp, rated 38000 lumens. Footcandle values based on 20' mounting height.
 Classification: Type II, Short, Full Cutoff

KAD 400M R3 Test no. 1192040902P
ISOILLUMINANCE PLOT (Footcandle)



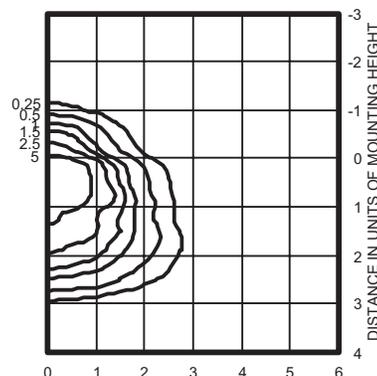
400W pulse start metal halide lamp, rated 42,000 lumens. Footcandle values based on 20' mounting height.
 Classification: Type II, Short, Full Cutoff

KAD 400M R4 Test no. 1191110101P
ISOILLUMINANCE PLOT (Footcandle)



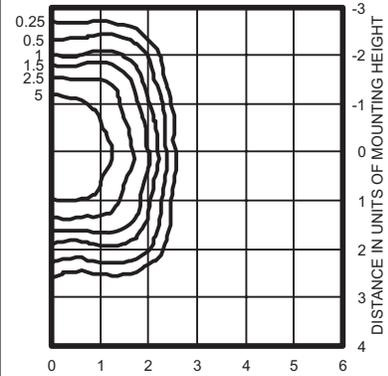
400W pulse start metal halide lamp, rated 38,000 lumens. Footcandle values based on 20' mounting height.
 Classification: Unclassified (Type III, Very Short), Full Cutoff

KAD 400M R4HS Test no. 1192061101P
ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38,000 lumens. Footcandle values based on 20' mounting height.
 Classification: Unclassified (Type III, Very Short), Full Cutoff

KAD 400M R5S Test no. 1194040801P
ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38000 lumens. Footcandle values based on 20' mounting height.
 Classification: Unclassified (Type NC, Very Short), Full Cutoff

Electrical Characteristics

	Primary voltage	Line current (Amps) Start/Operating	Primary dropout voltage	Input watts	Power factor (%)	Regulation Line V = Lamp lumens
400CWA	120	2.50/4.00	55			
Peak-lead Autotransformer	208	1.45/2.30	95			
	240	1.25/2.00	110	455	90+	±10% = ±10%
	277	1.10/1.75	125			
	480	.73/1.00	225			

Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory data and actual field measurements. Dimensions and specifications on this sheet are based on the most current available data and are subject to change without notice.

Mounting Height Correction Factor

(Multiply the fc level by the correction factor)

25 ft. = 1.44

35 ft. = 0.73

40 ft. = .56

$$\left(\frac{\text{Existing Mounting Height}}{\text{New Mounting Height}} \right)^2 = \text{Correction Factor}$$

NOTES:

1 Photometric data for other distributions can be accessed from www.lithonia.com.





BT37

BT56

E17

BT28

ET18

METALARC® SUPERSAVER® Energy Saving, Metal Halide Retrofit

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
360	BT37	EX39 Excl Mogul	64738	MSP360/C/SS/BU-ONLY	M59/O, M165/O	6	Coated	BU ± 15°	O	20000	34000	22500	70	3600	12,17,46
950	BT56	E39 Mogul	64850	M950/SS/U/BT56	M47/E, M176/E	6	Clear	Universal	E	18000V 12000H	103000V 90000H	80000V 64000H	65	4000	18,44

METALARC® STANDARD

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
<u>175</u>	E17	E26 Med	64479	M175/U/MED	M57/E	20	Clear	Universal	E	10000V 7500H	14400V 12800H	9300	65	4000	18
			64480	M175/C/U/MED	M57/E	20	Coated	Universal	E	10000V 7500H	13000V 11080H	8400	70	3600	18
	<u>BT28</u>	<u>E39 Mogul</u>	64471	M175/U	M57/E	6	Clear	Universal	E	10000V 7500H	14400V 12800H	9300	<u>65</u>	4200	18
			64472	M175/C/U	M57/E	6	Coated	Universal	E	10000V 7500H	14000V 12000H	8400	70	3800	18
			64473	M175/3K/BU-ONLY	M57/E	6	Coated	BU ± 15°	E	10000	11800	7600	70	3200	18
250	ET18	E39 Mogul	64474	M250/U/ET18	M58/E	10	Clear	Universal	E	10000V 7500H	22000V 20000H	17500V 13500H	65	4000	18
	BT28	E39 Mogul	64457	M250/U	M58/E	6	Clear	Universal	E	10000V 7500H	22000V 20000H	15000V 13000H	65	4200	18
			64458	M250/C/U	M58/E	6	Coated	Universal	E	10000V 7500H	21500V 19500H	17000V 14000H	70	3800	18
			64475	M250/3K/BU-ONLY	M58/E	6	Coated	BU ± 15°	E	10000	17500	13000	70	3200	18
400	ET18	E39 Mogul	64575	M400/U/ET18	M59/E	10	Clear	Universal	E	20000V 15000H	36000V 33000H	25000V 21500H	65	4000	18
	BT28	E39 Mogul	64488	M400/U/BT28	M59/E	6	Clear	Universal	E	20000V 15000H	36000V 32000H	25000V 20500H	65	4000	18
			64489	M400/C/U/BT28	M59/E	6	Coated	Universal	E	20000V 15000H	36000V 32000H	25000V 20500H	70	3600	18
	BT37	E39 Mogul	64490	M400/U	M59/S	6	Clear	Universal	S	20000V 15000H	36000V 32000H	23500V 20500H	65	4000	6,20,47
			64492	M400/C/U	M59/S	6	Coated	Universal	S	20000V 15000H	36000V 32000H	22500V 20500H	70	3700	6,20,47
1000	BT37	E39 Mogul	64469	M1000/U/BT37	M47/E	6	Clear	Universal	E	15000V 9000H	110000V 107800H	96000V 86300H	65	3800	18
	BT56	E39 Mogul	64468	M1000/U	M47/S	6	Clear	Universal	S	18000V 12000H	110000V 107800H	86000V 86000H	65	4000	20
			64470	M1000/C/U	M47/S	6	Coated	Universal	S	18000V 12000H	107000V 101600H	80000V 80700H	70	3400	20
1500	BT56	E39 Mogul	64431	M1500/BU-HOR	M48/E	6	Clear	BU-HOR	E	3000	170000V 153000H	140000	70	4000	18,28
			64432	M1500/BD	M48/E	6	Clear	BD ± 15°	E	3000	167000	140000	70	4000	18

OF,OM

POWERBALL® CERAMIC METALARC® E17 & HIGH WATTAGE High CRI, Pulse Start – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
150	E17	E26 Med	64741	MCP150/U/MED/830PB	M102/O	12	Clear	Universal	0	12000	13000	11000	88	3000	☀️ 1,4,17,30,31,48
			64742	MCP150/C/U/MED/830PB	M102/O	12	Coated	Universal	0	12000	12000	10000	88	3000	☀️ 1,4,17,30,31,48
250	BT28	EX39 Excl Mogul	64786	MCP250/PS/BU-ONLY/940PB	M153/O	6	Clear	BU ± 15°	0	15000	24000	19200	94	4200	☀️ 1,4,17,23,48
			64821	MCP250/C/PS/BU-ONLY/940PB	M153/O	6	Coated	BU ± 15°	0	15000	22500	18000	94	4000	☀️ 1,4,17,23,48
320	BT37	EX39 Excl Mogul	64834	MCP320/PS/BU-ONLY/840PB	M154/O	6	Clear	BU ± 15°	0	20000	37500	28125	88	4000	☀️ 1,4,17,48
			64851	MCP320/C/PS/BU-ONLY/840PB	M154/O	6	Coated	BU ± 15°	0	20000	36000	27000	88	3900	☀️ 1,4,17,48

METALARC® PULSE START High Output, Reduced Color Shift – Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
175	ED17	E26 Med	64171	MS175/PS/BU-ONLY/MED	M152/E, M137/E	12	Clear	BU ± 15°	E	15000	17500	12800	65	4000	4,18,23,39
			64170	MS175/C/PS/BU-ONLY/MED	M152/E, M137/E	12	Coated	BU ± 15°	E	15000	16600	12500	70	3700	4,18,23,39
	ED28	E39 Mogul	64815	MS175/PS/BU-ONLY	M152/E, M137/E	12	Clear	BU ± 15°	E	15000	17500	12800	65	4000	4,18,23,39
			64816	MS175/C/PS/BU-ONLY	M152/E, M137/E	12	Coated	BU ± 15°	E	15000	16600	12500	70	3700	4,18,23,39
200	ET23.5	E39 Mogul	64837	MS200/PS/BU-ONLY/ET23.5	M136/E	12	Clear	BU ± 15°	E	15000	19000	13300	65	4200	4,18,23
	BT28	E39 Mogul	64838	MS200/PS/BU-ONLY/BT28	M136/E	6	Clear	BU ± 15°	E	15000	19000	13500	65	4000	4,18,23
			64839	MS200/C/PS/BU-ONLY/BT28	M136/E	6	Coated	BU ± 15°	E	15000	18000	12800	70	3800	4,18,23
250	BT28	E39 Mogul	64320	MS250/PS/U	M153/E, M138/E	6	Clear	Universal	E	15000V 12000H	22000V 19000H	15400V 14000H	65	3800	☀️ 4,18,23
			64578	MS250/PS/BU-ONLY	M153/E, M138/E	6	Clear	BU ± 15°	E	20000	23000	17000	65	4200	4,18,23
			64617	MS250/C/PS/BU-ONLY	M153/E, M138/E	6	Coated	BU ± 15°	E	20000	21500	15500	70	3600	4,18,23
320	BT28	E39 Mogul	64507	MS320/PS/BU-HOR	M154/E, M132/E	6	Clear	BU-HOR	E	20000V 15000H	30000V 28000H	21000V 19700H	65	4300	4,18,23,41
			64646	MS320/C/PS/BU-HOR	M154/E, M132/E	6	Coated	BU-HOR	E	20000V 15000H	30000V 28000H	19700V 18400H	70	3900	4,18,23,41
400	BT28	E39 Mogul	64188	MS400/PS/U/BT28	M155/E	6	Clear	Universal	E	20000V 15000H	36000V 31000H	25500V 22400H	65	4000	4,18,23,42
			64191	MS400/PS/BD-ONLY/BT28	M155/E, M135/E	6	Clear	BD ± 15°	E	20000	40000	32500	65	4100	4,18,23,42,46
			64189	MS400/PS/BU-ONLY/BT28	M155/E, M135/E	6	Clear	BU ± 15°	E	20000	40000	32500	65	4100	4,18,23,42,46
	BT37	E39 Mogul	64321	MS400/PS/U	M155/E	6	Clear	Universal	E	20000V 15000H	36000V 31000H	25500V 22400H	65	4000	4,18,23
			64525	MS400/PS/BU-ONLY	M155/S, M135/S	6	Clear	BU ± 15°	S	20000	42000	31000	65	4000	4,6,20,21,23,24,42,46

DESCRIPTION

Carmel 450 is an ultra-compact accent/flood fixture for use with T6 ceramic metal halide lamps. Its rugged, contemporary design and wide array of mounting options make ideal for architectural, landscape and sign lighting applications. The adjustable mounting stem provides a full range of aiming from any mounting position. Lumière's exclusive Siphon Protection System (S.P.S.) prevents water from siphoning into the fixture through its own lead wires.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

A ... Material

Housing and lens cover are die-cast from corrosion-resistant silicone aluminum alloy. Mounting stem is precision-machined from corrosion-resistant 6061-T6 aluminum billet.

B ... Finish

Fixtures are double protected by a chromate conversion undercoating and polyester powdercoat paint finish, surpassing the rigorous demands of the outdoor environment. A variety of standard colors are available.

C ... High Output Reflector

Specular pebblestone aluminum reflector is standard to provide high lumen output and even illumination.

D ... Gasket

Housing and face plate are sealed with a high temperature silicone o-ring gasket to prevent water intrusion.

E ... Lens

Tempered glass lens, factory sealed with high temperature adhesive to prevent water intrusion and breakage due to thermal shock.

F ... Mounting Stem

Adjustable mounting stem with 1/2" NPS threaded male fitting provides a full range of aiming from any mounting position. Stainless steel aim-locking mechanisms are standard. Lumière's exclusive Siphon Protection System (S.P.S.) prevents water from siphoning into the fixture through its own lead wires. Optional mounting arms are also available - see Options below.

G ... Hardware

Stainless steel hardware is standard to provide maximum corrosion-resistance.

H ... Socket

Ceramic socket with 250° C Teflon® coated lead wires and G12 bi-pin base.

I ... Ballast

Remote core & coil ballast is standard (120/208/240/277/347V). Maximum remote mounting distance for a core & coil ballast is 50'. Remote electronic ballast (120/277V) is available as an option by adding the prefix "EL" to the ballast/mounting code. Maximum remote mounting distance for an electronic ballast depends upon the ballast manufacturer and may require the use of special low capacitance wire, separate conduit runs for lead wires, or other special installation requirements. See ballast manufacturer's installation instructions or contact the factory for remote mounting distance and installation requirements.

J ... Lamp

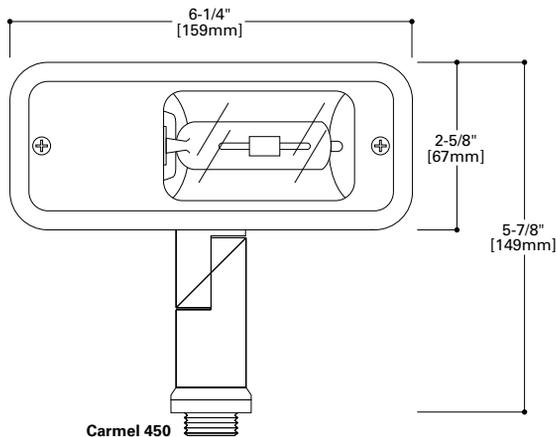
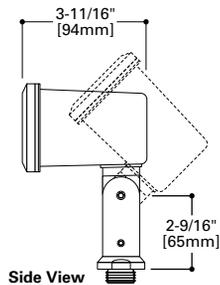
Not included. Available from Lumière as an accessory - see reverse side of this page.

K ... Labels & Approvals

UL and cUL listed, standard wet label. Manufactured to ISO 9001-2000 Quality Systems Standard. IBEW union made.

L ... Warranty

Lumière warrants its fixtures against defects in materials & workmanship for three (3) years. Auxiliary equipment such as transformers, ballasts and lamps carry the original manufacturer's warranty.



CARMEL 450

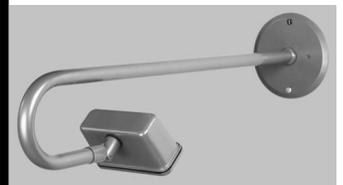
**70W (max.) T6
Metal Halide**

Accent/Flood

Arm-Mounting: Straight Arm

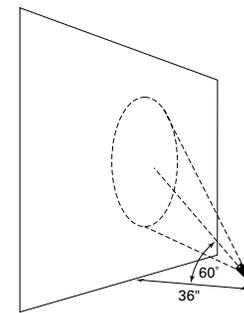
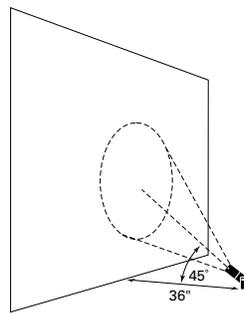
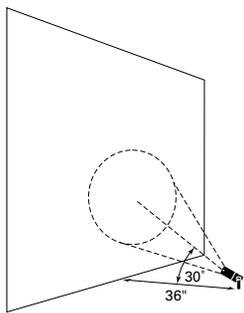
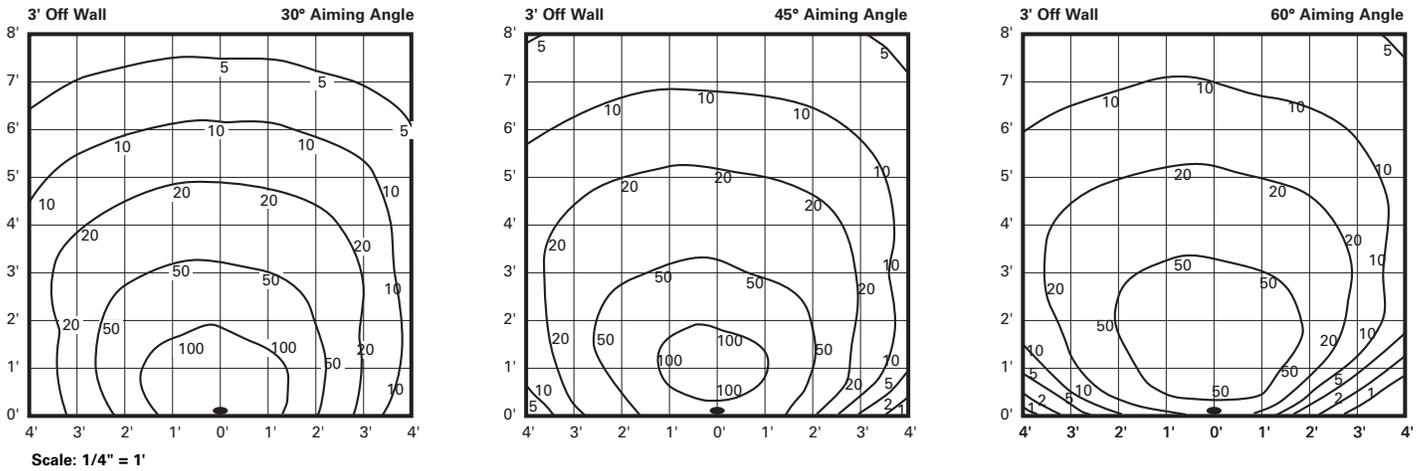


Arm-Mounting: Hook Arm



Carmel 450 Test No. 06850 Lamp=CDM70/T6/830 70 WATT T6 Lumens=6200

ISO Footcandle Plot



LAMP INFORMATION

Lamp	ANSI Code	Watts	Rated Initial Lumens	CRI	°K	Life (hrs.)	Base	Volts
CDM70/T6	M139PO-REM/J/E	70	6600	82	3000	12,000	G12 bi-pin	120-347
CDM39/T6	M130PO-REM/J/E	39	3400	81	3000	12,000	G12 bi-pin	120-347

NOTE: Inferior quality lamps may adversely affect the performance of this product. Use only name brand lamps from reputable lamp manufacturers.

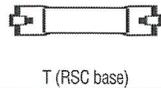
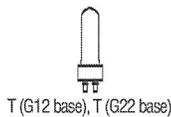
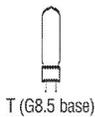
NOTES AND FORMULAS

- Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot.
- Footcandle values are initial. Apply appropriate light loss factors where necessary.

ORDERING INFORMATION

<p>Series 450=T6 Carmel Mini Flood Fixture</p> <p>Source Metal Halide MH39T6: 39W Metal Halide T6, G12 Base MH70T6: 70W Metal Halide T6, G12 Base</p>	<p>Voltage 120=120V 277= 277V 208= 208V 240= 240V 347= 347V</p> <p>Ballast — = Standard Core and Coil Ballast EL= Electronic Ballast ELM= Electronic Ballast, Mini Housing¹</p>	<p>Mounting MB= Fixture mounts to inground ballast container MBR= Fixture mounts to flat surface, remote inground ballast container SM= Fixture mounts to wall mounted ballast housing, bottom conduit entry WM= Fixture mounts to wall mounted ballast housing, over J-box WR= Fixture mounts to flat surface, remote ballast housing TS= Fixture mounts to ballast housing strapped to tree, bottom conduit entry TSR= Fixture strapped to tree, remote inground ballast container TSR2= Fixture strapped to tree, remote ballast housing strapped to tree</p>	<p>Finish Painted BK= Black BZ= Bronze CS= City Silver VE= Verde WT= White</p> <p>Options ² SA24= 24" Straight Arm SA30= 30" Straight Arm SA36= 36" Straight Arm HA24= 24" Hook Arm HA30= 30" Hook Arm HA36= 36" Hook Arm</p>	<p>Accessories Lamps MHT639= 39W T6 Metal Halide</p>
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- Notes: 1 ELM Ballast available with WM, SM & TS Mounting only.
 2 Mounting arms for use with WM or WR Mounting only.
 * Lamp not included.
 * Consult your Cooper Lighting representative for additional options and finishes.



POWERBALL® CERAMIC METALARC® TUBULAR SINGLE-ENDED High CRI, Pulse Start, UV Stop – Enclosed Fixtures Only

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
20	T4.5	G8.5	64882	MC20TC/U/G8.5/830PB	M156/E	12	Clear	Universal	E	12000	1700	1275	83	3000	☀️ 1,4,18,24,25,30,48
39	T4.5	G8.5	64791	MC39TC/U/G8.5/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24,25,30,48
	T6	G12	64363	MC39T6/U/G12/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24,25,30,48
			64325	MC39T6/U/G12/940PB	M130/E	12	Clear	Universal	E	12000	3300	2640	90	4200	☀️ 1,4,18,24,25,26,30,48
<u>70</u>	T4.5	G8.5	64825	MC70TC/U/G8.5/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6300	5040	95	3000	☀️ 1,4,18,24,25,26,30,48
	<u>T6</u>	<u>G12</u>	64361	MC70T6/U/G12/830PB	M139/E, M98/E	12	Clear	Universal	E	12000	7000	5600	87	3000	1,4,18,24,25,26,30,48
			<u>64200</u>	<u>MC70T6/U/G12/930PB</u>	M139/E, M98/E	12	Clear	Universal	E	12000	<u>6400</u>	<u>5120</u>	<u>95</u>	3000	☀️ 1,4,18,24,25,26,30,48
			64338	MC70T6/U/G12/940PB	M139/E, M98/E	12	Clear	Universal	E	12000	6700	5360	93	4200	1,4,18,24,25,26,30,48
150	T7.5	G12	64359	MC150T7.5/U/G12/830	M102/E, M142/E	12	Clear	Universal	E	12000	15500	12400	89	3000	1,4,18,24,30,31,48
			64337	MC150T7.5/U/G12/940PB	M102/E, M142/E	12	Clear	Universal	E	12000	14500	11600	95	4200	1,4,18,24,30,31,48
250	T9	G22	64167	MC250T9/U/G22/830PB	M80/E	10	Clear	Universal	E	12000	24500	19600	86	3000	☀️ 1,4,18,24,30,31,48

POWERBALL® CERAMIC METALARC® TUBULAR DOUBLE-ENDED

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	T6	RX7s RSC	64793	MC70T6/DE/830PB	M139/E, M85/E, M98/E	12	Clear	HOR ± 45°	E	12000	6900	5520	88	3000	1,4,18,25,26,30,35,48
150	T7.5	RX7s RSC	64794	MC150T7.5/DE/830PB	M102/E, M142/E, M81/E	12	Clear	HOR ± 45°	E	12000	14800	11840	91	3000	1,4,18,30,37,48

POWERBALL® CERAMIC METALARC® PAR High CRI, Pulse Start, UV Stop – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
20	PAR30LN	E26 Med	64879	MCP20PAR30LN/U/830/SP/ECOPB	M156/O	6	SP	10°	Universal	O	12000	24000	1200	82	3100	☀️ 1,4,7,17,24,30,48
			64878	MCP20PAR30LN/U/830/FL/ECOPB	M156/O	6	FL	30°	Universal	O	12000	4000	1200	82	3100	☀️ 1,4,7,17,24,30,48
39	PAR20	E26 Med	64824	MCP39PAR20/U/830/SPPB	M130/O	12	SP	10°	Universal	O	12000	20000	2000	87	3000	☀️ 1,4,17,24,25,30,48
			64826	MCP39PAR20/U/830/FLPB	M130/O	12	FL	30°	Universal	O	12000	5000	2000	87	3000	☀️ 1,4,17,24,25,30,48
	PAR30LN	E26 Med	64880	MCP39PAR30LN/U/830/SP/ECOPB	M130/O	6	SP	10°	Universal	O	12000	39600	2300	85	3000	☀️ 1,4,7,17,24,25,30,48
			64881	MCP39PAR30LN/U/830/FL/ECOPB	M130/O	6	FL	30°	Universal	O	12000	8000	2300	85	3000	☀️ 1,4,7,17,24,25,30,48

DESCRIPTION

ENTRI Series' family of modular faceplate designs provide a tasteful architectural statement equally suitable for indoor and outdoor environments. Available luminous faceplate window adds a signature look, while affording custom color capability.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

HOUSING: One piece die-cast aluminum construction for precise tolerance control and repeatability in manufacturing. Accommodates either up or down mounting configurations with no modifications. Downlight and uplight lens' are impact resistant 5/32" thick tempered clear or frosted flat glass, sealed to the housing with high strength VHB adhesive tape and a continuous silicone bead gasket. Silicone wireway plug on housing back wall seals incoming electrical leads to prevent moisture and dust entry. **FACEPLATE:** One piece die-cast aluminum faceplate utilizes a continuous silicone gasket to seal securely to housing. Side hinged faceplate swings open via release of one (1) flush mount die-cast aluminum latch on housing side panel. Available luminous glass insert is .16" thick frosted glass, secured to back of faceplate with a continuous EPDM gasket. Available colored gel film secures behind glass.

Electrical

ELECTRICAL COMPONENTS: Ballast and related electrical componentry are heat sunk to the housing for cooler operation and prolonged life.

Optical

OPTICAL SYSTEM: Choice of ten (10) high efficiency optical systems constructed of premium 95% reflective anodized aluminum sheet, or bright specular anodized polished spun aluminum. Available distributions include Type III, Type III with 10% secondary glow, Type III with pencil secondary, Forward Throw, Forward Throw with 10% secondary glow, Forward Throw with pencil secondary, FX grazing optic, FXF 50% up/50% down grazing optic, Tight Spot, and 50% up/50% down Tight Spot. Optical segments are rigidly mounted inside a heavy wall aluminum housing for superior protection. All segment faces are clean of rivet heads, tabs, or other means of attachment which may cause streaking in the light distribution. All reflector modules feature quick disconnect wiring plugs. T6 Pulse Start Metal Halide lamps feature G12 lampholders, WhiteSon(TM) High Pressure Sodium lamp features a GX12 lampholder,

Quartz Halogen lamps feature mini-can screw based lampholders, and Compact Fluorescent lamps feature GX24q-(3,4,5) 4-pin lampholders.

Mounting

Standard zinc plated attachment plate mounts directly to 4" J-Box. Fixture slides over mounting plate and is secured with two (2) concealed stainless steel fasteners. Mounting plate features one-piece, EPDM gasket on back side of plate to firmly seal fixture to wall surface, forbidding entry of moisture and particulates. Optional mounting arrangements utilize a die-cast aluminum adapter box to allow for surface conduit wiring, quartz lamp options, and emergency battery pack capability.

Finish

Housing finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.

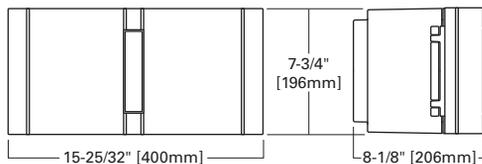


**ENT
ENTRI
TRIANGLE
REVEALS**

- 26 - 250W**
- Pulse Start Metal Halide**
- Whiteson High Pressure Sodium**
- Compact Fluorescent**
- Quartz Halogen**

**ARCHITECTURAL
WALL LUMINAIRE**

DIMENSIONS



WATTAGE TABLE

Lamp Type	Wattage
Pulse Start Metal Halide (MP)	39, 70, 100, 150W
WhiteSON HPS (WS)	100W
Compact Fluorescent (CF)	(1) 26, (2) 26, (1) 32, (2) 32, (1) 42, (2) 42, (1) 57 W
Quartz Halogen (HL)	100, 150, 250W



NOTE: In downlight only configurations with no faceplate window.

CERTIFICATION DATA

- IP66 Rated
- U.L. 1598 Listed
- CSA Listed
- 40°C Ambient Temperature Rating
- ISO 9001
- Full Cutoff (In downlight only configurations with no faceplate window)

SHIPPING DATA

- (Approximate)**
- Net Weight (lbs.): 13
- Volume (cu. ft): 4.5

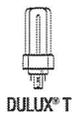


ORDERING INFORMATION

Sample Number: ENT-150-MH-120-EB-3S-BK-LG-L

ENT	52	CF	UNV	EB	CFM	BZ	CF / EMAB		
Product Family ENT=ENTRI Triangle Reveals	Lamp Wattage MP ¹ 39=39W 70=70W 100=100W 150=150W WS ¹ 100=100W Compact Fluorescent ² 26=26W 32=32W 42=42W 52= (2) 26W ³ 57= 57W ⁴ 64= (2) 32W ³ 84= (2) 42W ³ Halogen ⁵ 100=100W 150=150W 250=250W Lamp Type MP=Pulse Start Metal Halide WS=WhiteSON High ⁶ Pressure Sodium CF=Compact Fluorescent ⁷ HL=Quartz Halogen	Voltage ⁸ 120=120V 208=208V 240=240V 277=277V 347= 347V 480= 480V DT= Dual-Tap ⁹ wired 277V MT= Multi-Tap ¹⁰ wired 277V TT= Triple-Tap ¹¹ wired 347V UNV= 120-277V Universal Electronic Ballast Ballast MB= Magnetic Ballast EB= Electronic ¹² Ballast	Optical System Downlight or Uplight (HID or Halogen) 3S=Type III FT=Forward Throw FX=Wall Grazing Optic TS= Tight Spot Downlight and Uplight (HID and Halogen) 3SG= Type III, 90% Main/10% Secondary Glow 3SP= Type III with Pencil Secondary FTG= Forward Throw, 90% Main/10% Secondary Glow FTP= Forward Throw with Pencil Secondary FXF= Wall Grazing Optic, 50% Up/50% Down TSF= Tight Spot, 50% Up/50% Down Compact Fluorescent CFG= 90% Main + 10% Secondary Glow CFM= 100% Main, Up or Downlighting Color ¹³ BK=Black AP=Grey BZ=Bronze WH=White DP=Dark Platinum GM=Graphite Metallic	Optional Luminous Faceplate Insert LG=Luminous Glass Insert LGO=Luminous Glass Insert w/ Warm Orange Gel LGR= Luminous Glass Insert w/ Red Gel LGB= Luminous Glass Insert w/ Bright Blue Gel LGG= Luminous Glass Insert w/ Deep Green Gel Options ¹⁴ F= Single Fuse (120, 277 or 347V) Specify Voltage FF= Double Fuse (208, 240 or 480V) Specify Voltage DSAB= Dual Fluorescent Switching Control Adapter Box ^{15, 16} QAB= Quartz Restrike Adapter Box ¹⁶ EMAB= Quartz Restrike w/ Delay Adapter Box (Also ¹⁶ Strikes at Cold Start) EM/SCAB= Quartz Emergency Separate Circuit Adapter ¹⁶ Box CF/EMAB=Emergency Battery Backup Adapter Box ^{16, 17} PC=Button Type Photocontrol (Specify Voltage) WG=Wire Guard ¹⁸ FRM=Frosted Main Flat Glass FRF=Frosted Secondary Flat Glass ¹⁹ L=Lamp Included (Standard for all Halogen lamps)	Accessories ²⁰ VA2001-XX=Thru-way Box ¹⁶ VA2002=Wire Guard Kit				

- Notes:**
- All MP lamps are T6 envelope with G12 lamp base. All HPS lamps are T6 envelope with GX12 lamp base.
 - All 26/32/42/57W CF lamps feature a 4-pin lamp base. Available in CFM and CFG distributions only.
 - Dual compact fluorescent lamps.
 - Nominal M.O.L lamp length of 57W CFL not to exceed 7".
 - All Halogen lamps are T4 envelope with mini-can base.
 - WhiteSON HPS lamp available in 100W only. Requires electronic ballast. 120/277V only. Requires use of VA2001 accessory Thru-way Box.
 - CF ballasts are 120 through 277V. Specify with UNV voltage designation.
 - Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
 - Dual-tap is 120/277V wired 277V.
 - Multi-tap is 120/208/240/277V wired 277V.
 - Triple-tap is 120/277/347V wired 347V.
 - 120 through 277V only. Electronic ballast standard with all CF lamps. EB available with 39/70/100/150W MP lamps. 150W requires and is supplied with VA2001 Thru-way Box. Not available with QAB or EMAB options.
 - Custom and RAL color matching available upon request. Consult your INVUE Lighting Systems Representative for further information.
 - Add as suffix in the order shown.
 - Dual switching requires dual 26, 32 or 42W Compact Fluorescent lamps. Allows independent switching control of each lamp through use of two (2) electronic ballasts. Allows 50% power reduction when dual ballasts are independently wired and controlled.
 - VA2001 and thru-way adaptor box options to be mounted facing downward only. Cannot be used for primary "uplight only" applications.
 - CF lamps only. Battery backup provides 90 minutes of supplemental light, minimum operating temperature of 32°F (0°C), 42W maximum.
 - For use in down lighting applications only.
 - Frosted secondary lens provided standard on 3SG, FTG, and CFG distributions.
 - Order separately, replace XX with color suffix.



DULUX® D/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
26	T (T4)	5.2	124	GX24Q-3	20767	CF26DT/E/827/ECO	CFTR26W/GX24Q/827	50	12000	2700	82	1800	1548	1,2,5,6, 7,12,20
					20995	CF26DT/E/835/ECO/BL/1	CFTR26W/GX24Q/835	50	12000	3500	82	1800	1548	1,2,5,6, 7,12,20
32	T (T4)	5.8	147	GX24Q-3	20768	CF32DT/E/827/ECO	CFTR32W/GX24Q/827	50	12000	2700	82	2400	2064	1,2,5,6, 7,12,18,20

DULUX T/E/IN AMALGAM, 4-PIN ECOLOGIC COMPACT FLUORESCENT LAMPS

For electronic ballast for high and low temperature applications. Lamps have End-of-Lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
18	T (T4)	4.4	111	GX24Q-2	20875	CF18DT/E/IN/827/ECO	CFTR18W/GX24Q/827	50	12000	2700	82	1164	1001	1,2,5,6, 7,12,20,21
					20876	CF18DT/E/IN/830/ECO	CFTR18W/GX24Q/830	50	12000	3000	82	1164	1001	1,2,5,6, 7,12,20,21
					20877	CF18DT/E/IN/835/ECO	CFTR18W/GX24Q/835	50	12000	3500	82	1164	1001	1,2,5,6, 7,12,20,21
					20878	CF18DT/E/IN/841/ECO	CFTR18W/GX24Q/841	50	12000	4100	82	1164	1001	1,2,5,6, 7,12,20,21
<u>26</u>	T (T4)	5.0	126	GX24Q-3	20879	CF26DT/E/IN/827/ECO	CFTR26W/GX24Q/827	50	12000	2700	82	1746	1501	1,2,5,6, 7,12,20,21
					20880	CF26DT/E/IN/830/ECO	CFTR26W/GX24Q/830	50	12000	3000	82	1746	1501	1,2,5,6, 7,12,20,21
					20881	CF26DT/E/IN/835/ECO	CFTR26W/GX24Q/835	50	12000	3500	82	1746	1501	1,2,5,6, 7,12,20,21
					20882	CF26DT/E/IN/841/ECO	CFTR26W/GX24Q/841	50	12000	4100	82	1746	1501	1,2,5,6, 7,12,20,21
32	T (T4)	5.6	142	GX24Q-3	20883	CF32DT/E/IN/827/ECO	CFTR32W/GX24Q/827	50	12000	2700	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20884	CF32DT/E/IN/830/ECO	CFTR32W/GX24Q/830	50	12000	3000	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20885	CF32DT/E/IN/835/ECO	CFTR32W/GX24Q/835	50	12000	3500	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20886	CF32DT/E/IN/841/ECO	CFTR32W/GX24Q/841	50	12000	4100	82	2328	2002	1,2,5,6, 7,12,18,20,21
42	T (T4)	6.5	163	GX24Q-4	20887	CF42DT/E/IN/827/ECO	CFTR42W/GX24Q/827	50	12000	2700	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20888	CF42DT/E/IN/830/ECO	CFTR42W/GX24Q/830	50	12000	3000	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20871	CF42DT/E/IN/835/ECO	CFTR42W/GX24Q/835	50	12000	3500	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20890	CF42DT/E/IN/841/ECO	CFTR42W/GX24Q/841	50	12000	4100	82	3104	2670	1,2,5,6, 7,12,18,20,21
57	T (T4)	7.76	197	GX24Q-5	20895	CF57DT/E/IN/827/ECO	CFTR57W/GX24Q/827	50	12000	2700	82	4171	3587	1,2,5,6, 12,18,20,21
					20896	CF57DT/E/IN/830/ECO	CFTR57W/GX24Q/830	50	12000	3000	82	4171	3587	1,2,5,6, 12,18,20,21
					20897	CF57DT/E/IN/835/ECO	CFTR57W/GX24Q/835	50	12000	3500	82	4171	3587	1,2,5,6, 12,18,20,21



KIM LIGHTING

VRB3 Round Bollard

Single Function, Vandal-Resistant, Aluminum Shaft

revision 11/13/09 • vrb3.pdf

Type:
Job:
Catalog number:

Approvals:

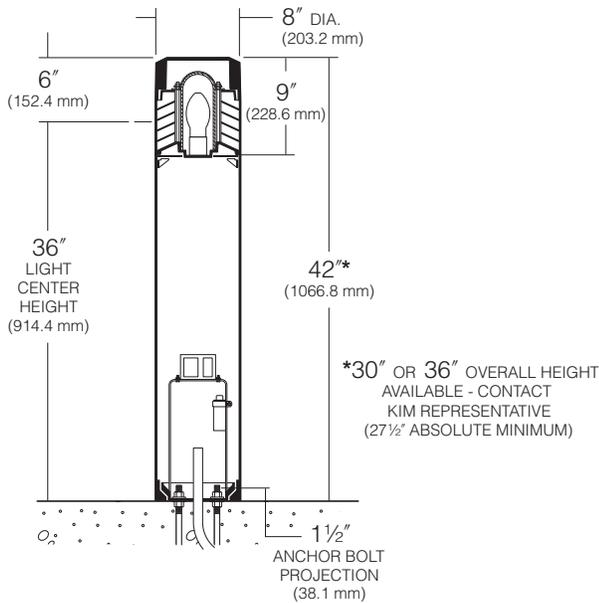
VRB3	/	/	/
Fixture	Electrical Module	Luminaire Finish (includes top cap and shaft)	Options
See page 2			

Date:
Page: 1 of 3

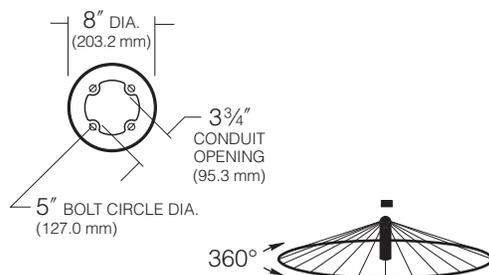
Specifications

VRB Models
70 to 100 watt
Medium Base Lamps
42 watt Compact Fluorescent

VRB3 - Single Function Luminaire (Aluminum Shaft)
Maximum weight: 30 lb



BASE PLAN VRB ALUMINUM SHAFT



Flat Top Cap: One-piece sand-cast 3/16" minimum thickness, secured to louvers by concealed allen screws in keyhole slots. For relamping access, allen screws shall not require complete removal.

Louvers: Aluminum die-cast with vertical support ribs at 90° intervals. Horizontal louver blades shall have a 1 3/4" depth, a 65° upward pitch and provide light source cutoff above horizontal. Louver assembly shall be secured to shaft by four internal tie rods.

Lamp Enclosure: One-piece tempered molded glass with internal flutes and full gasketing at bottom edge.

Socket: Porcelain medium base socket rated 4KV for HID and incandescent. Plastic socket for Fluorescent.

Fixture Head: Allows flow-through ventilation around and above the lamp enclosure.

Shaft: One-piece extruded aluminum, .125" wall thickness with a heavy cast aluminum twist-lock anchor base concealed within the shaft. Concealed set screws shall lock shaft onto the cast anchor base.

Ballast: Factory mounted to rigid harness attached to the anchor base. Wiring shall be supplied from the socket for field connection to the prewired ballast components. **HID:** High power factor with starting temperatures of -20°F. for PMH and -40°F. for HPS lamp modes. **26W, 32W, 42W Fluorescent:** High power factor with starting temperature of 0°F.

Anchor Bolts: Four 3/8" x 10" + 2" zinc plated L-hooks, each with two nuts, washers and a rigid pressed board template.

Finish: Super TGIC thermoset polyester powder coat paint, 2.5 mil nominal thickness, applied over a titanated zirconium conversion coating; 2500 hour salt spray test endurance rating. Standard colors are Black, Dark Bronze, Light Gray, Stealth Gray™, Platinum Silver, or White. Custom colors are available.

CAUTION: Fixtures must be grounded in accordance with national, state and/or local codes. Failure to do so may result in serious personal injury.

Listings and Ratings

UL cUL 1598 ¹	-	25C Ambient
IP46 Rated	FS = Fully Shielded ²	CE

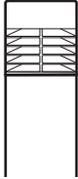
¹Suitable for wet locations

²Dark Sky Legislation Compliant

KIM LIGHTING RESERVES THE RIGHT TO CHNGE SPECIFICATIONS WITHOUT NOTICE.



Type:
 Job:



Standard and Optional Features

Fixture	Cat. No. VRB3 Single Function, Aluminum Shaft, Flat Top																																																							
Electrical Module PMH = Pulse Start Metal Halide HPS = High Pressure Sodium PL = Compact Fluorescent <table border="1" data-bbox="186 871 389 976"> <thead> <tr> <th>Lamp Watts</th> <th>Lamp Type</th> <th>Line Volts</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>PMH</td> <td>120</td> </tr> </tbody> </table>  <p>NOTE: For lamp/ballast information outside of the U.S.A. and Canada, please consult your local Kim representative.</p>	Lamp Watts	Lamp Type	Line Volts	100	PMH	120	Cat. Nos. for Electrical Modules available: <table border="1" data-bbox="495 682 1453 1018"> <thead> <tr> <th></th> <th><input type="checkbox"/> 70PMH120</th> <th><input type="checkbox"/> 100PMH120</th> <th><input type="checkbox"/> 70HPS120</th> <th><input type="checkbox"/> 100HPS120</th> </tr> </thead> <tbody> <tr> <td></td> <td><input type="checkbox"/> 70PMH208</td> <td><input type="checkbox"/> 100PMH208</td> <td><input type="checkbox"/> 70HPS208</td> <td><input type="checkbox"/> 100HPS208</td> </tr> <tr> <td></td> <td><input type="checkbox"/> 70PMH240</td> <td><input type="checkbox"/> 100PMH240</td> <td><input type="checkbox"/> 70HPS240</td> <td><input type="checkbox"/> 100HPS240</td> </tr> <tr> <td></td> <td><input type="checkbox"/> 70PMH277</td> <td><input type="checkbox"/> 100PMH277</td> <td><input type="checkbox"/> 70HPS277</td> <td><input type="checkbox"/> 100HPS277</td> </tr> <tr> <td></td> <td><input type="checkbox"/> 70PMH347</td> <td><input type="checkbox"/> 100PMH347</td> <td><input type="checkbox"/> 70HPS347</td> <td><input type="checkbox"/> 100HPS347</td> </tr> <tr> <td>Lamp</td> <td>E-17, Coated</td> <td>E-17, Coated</td> <td>ED-17, Coated</td> <td>ED-17, Coated</td> </tr> <tr> <td>Socket</td> <td>Medium Base</td> <td>Medium Base</td> <td>Medium Base</td> <td>Medium Base</td> </tr> <tr> <td>ANSI Ballast Type</td> <td>M-98</td> <td>M-90</td> <td>S-62</td> <td>S-54</td> </tr> </tbody> </table> <table border="1" data-bbox="495 1050 844 1165"> <tbody> <tr> <td></td> <td><input type="checkbox"/> 42PL120¹</td> </tr> <tr> <td>Lamp</td> <td>Compact Fluor.</td> </tr> <tr> <td>Socket</td> <td>GX24q-4</td> </tr> </tbody> </table> <p>NOTE: Coated lamps are recommended.</p>					<input type="checkbox"/> 70PMH120	<input type="checkbox"/> 100PMH120	<input type="checkbox"/> 70HPS120	<input type="checkbox"/> 100HPS120		<input type="checkbox"/> 70PMH208	<input type="checkbox"/> 100PMH208	<input type="checkbox"/> 70HPS208	<input type="checkbox"/> 100HPS208		<input type="checkbox"/> 70PMH240	<input type="checkbox"/> 100PMH240	<input type="checkbox"/> 70HPS240	<input type="checkbox"/> 100HPS240		<input type="checkbox"/> 70PMH277	<input type="checkbox"/> 100PMH277	<input type="checkbox"/> 70HPS277	<input type="checkbox"/> 100HPS277		<input type="checkbox"/> 70PMH347	<input type="checkbox"/> 100PMH347	<input type="checkbox"/> 70HPS347	<input type="checkbox"/> 100HPS347	Lamp	E-17, Coated	E-17, Coated	ED-17, Coated	ED-17, Coated	Socket	Medium Base	Medium Base	Medium Base	Medium Base	ANSI Ballast Type	M-98	M-90	S-62	S-54		<input type="checkbox"/> 42PL120 ¹	Lamp	Compact Fluor.	Socket	GX24q-4
Lamp Watts	Lamp Type	Line Volts																																																						
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	<input type="checkbox"/> 70PMH120	<input type="checkbox"/> 100PMH120	<input type="checkbox"/> 70HPS120	<input type="checkbox"/> 100HPS120																																																				
	<input type="checkbox"/> 70PMH208	<input type="checkbox"/> 100PMH208	<input type="checkbox"/> 70HPS208	<input type="checkbox"/> 100HPS208																																																				
	<input type="checkbox"/> 70PMH240	<input type="checkbox"/> 100PMH240	<input type="checkbox"/> 70HPS240	<input type="checkbox"/> 100HPS240																																																				
	<input type="checkbox"/> 70PMH277	<input type="checkbox"/> 100PMH277	<input type="checkbox"/> 70HPS277	<input type="checkbox"/> 100HPS277																																																				
	<input type="checkbox"/> 70PMH347	<input type="checkbox"/> 100PMH347	<input type="checkbox"/> 70HPS347	<input type="checkbox"/> 100HPS347																																																				
Lamp	E-17, Coated	E-17, Coated	ED-17, Coated	ED-17, Coated																																																				
Socket	Medium Base	Medium Base	Medium Base	Medium Base																																																				
ANSI Ballast Type	M-98	M-90	S-62	S-54																																																				
	<input type="checkbox"/> 42PL120 ¹																																																							
Lamp	Compact Fluor.																																																							
Socket	GX24q-4																																																							
Finish Super TGIC thermoset polyester powder coat paint applied over a titanated zirconium conversion coating on fixture and shaft.	Color: Black Dark Bronze Light Gray Stealth Gray™ Platinum Silver White Custom Color ² Cat. No.: <input type="checkbox"/> BL <input type="checkbox"/> DB <input type="checkbox"/> LG <input type="checkbox"/> SG <input type="checkbox"/> PS <input type="checkbox"/> WH <input type="checkbox"/> CC NOTE: Black and Dark Bronze colors will produce slightly less louver brightness than Light Gray or White. ² Custom colors subject to additional charges, minimum quantities and extended lead times. Consult representative. Custom color description: _____																																																							
Optional Houseside Shield Cat. No. <input type="checkbox"/> HS <input type="checkbox"/> No Option	180° trimmable houseside shield that inserts inside lamp enclosure. .032" thick natural aluminum, trimmable in field.																																																							
Optional Emergency Battery Back-up Cat. No. <input type="checkbox"/> EM <input type="checkbox"/> No Option	Internal battery pack provides 90 minutes of supplemental light at 23% of initial lamp lumens for 26, 32, or 42 watt compact fluorescent lamps.			 battery back-up																																																				

Type:

Job:

Page: 3 of 3



Standard and Optional Features

Cold-Pack Emergency Battery Pack

- Cat. No. **EM-CP**
 No Option

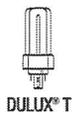
The EM-CP option is a temperature controlled ballast designed to maintain operation without interruption within a range of hi/low ambient temperatures, -20°C to +55°C.

Internal Cold-Pack emergency battery pack provides up to 90 minutes of supplemental light. See following table for max. lumens output by lamps.



cold-pack
battery back-up

Lamp (4-Pin)	1 lamp lumens
42W	750
32W	575
26W	450



DULUX® D/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
26	T (T4)	5.2	124	GX24Q-3	20767	CF26DT/E/827/ECO	CFTR26W/GX24Q/827	50	12000	2700	82	1800	1548	1,2,5,6, 7,12,20
					20995	CF26DT/E/835/ECO/BL/1	CFTR26W/GX24Q/835	50	12000	3500	82	1800	1548	1,2,5,6, 7,12,20
32	T (T4)	5.8	147	GX24Q-3	20768	CF32DT/E/827/ECO	CFTR32W/GX24Q/827	50	12000	2700	82	2400	2064	1,2,5,6, 7,12,18,20

DULUX T/E/IN AMALGAM, 4-PIN ECOLOGIC COMPACT FLUORESCENT LAMPS

For electronic ballast for high and low temperature applications. Lamps have End-of-Lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
18	T (T4)	4.4	111	GX24Q-2	20875	CF18DT/E/IN/827/ECO	CFTR18W/GX24Q/827	50	12000	2700	82	1164	1001	1,2,5,6, 7,12,20,21
					20876	CF18DT/E/IN/830/ECO	CFTR18W/GX24Q/830	50	12000	3000	82	1164	1001	1,2,5,6, 7,12,20,21
					20877	CF18DT/E/IN/835/ECO	CFTR18W/GX24Q/835	50	12000	3500	82	1164	1001	1,2,5,6, 7,12,20,21
					20878	CF18DT/E/IN/841/ECO	CFTR18W/GX24Q/841	50	12000	4100	82	1164	1001	1,2,5,6, 7,12,20,21
26	T (T4)	5.0	126	GX24Q-3	20879	CF26DT/E/IN/827/ECO	CFTR26W/GX24Q/827	50	12000	2700	82	1746	1501	1,2,5,6, 7,12,20,21
					20880	CF26DT/E/IN/830/ECO	CFTR26W/GX24Q/830	50	12000	3000	82	1746	1501	1,2,5,6, 7,12,20,21
					20881	CF26DT/E/IN/835/ECO	CFTR26W/GX24Q/835	50	12000	3500	82	1746	1501	1,2,5,6, 7,12,20,21
					20882	CF26DT/E/IN/841/ECO	CFTR26W/GX24Q/841	50	12000	4100	82	1746	1501	1,2,5,6, 7,12,20,21
32	T (T4)	5.6	142	GX24Q-3	20883	CF32DT/E/IN/827/ECO	CFTR32W/GX24Q/827	50	12000	2700	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20884	CF32DT/E/IN/830/ECO	CFTR32W/GX24Q/830	50	12000	3000	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20885	CF32DT/E/IN/835/ECO	CFTR32W/GX24Q/835	50	12000	3500	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20886	CF32DT/E/IN/841/ECO	CFTR32W/GX24Q/841	50	12000	4100	82	2328	2002	1,2,5,6, 7,12,18,20,21
42	T (T4)	6.5	163	GX24Q-4	20887	CF42DT/E/IN/827/ECO	CFTR42W/GX24Q/827	50	12000	2700	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20888	CF42DT/E/IN/830/ECO	CFTR42W/GX24Q/830	50	12000	3000	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20871	CF42DT/E/IN/835/ECO	CFTR42W/GX24Q/835	50	12000	3500	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20890	CF42DT/E/IN/841/ECO	CFTR42W/GX24Q/841	50	12000	4100	82	3104	2670	1,2,5,6, 7,12,18,20,21
57	T (T4)	7.76	197	GX24Q-5	20895	CF57DT/E/IN/827/ECO	CFTR57W/GX24Q/827	50	12000	2700	82	4171	3587	1,2,5,6, 12,18,20,21
					20896	CF57DT/E/IN/830/ECO	CFTR57W/GX24Q/830	50	12000	3000	82	4171	3587	1,2,5,6, 12,18,20,21
					20897	CF57DT/E/IN/835/ECO	CFTR57W/GX24Q/835	50	12000	3500	82	4171	3587	1,2,5,6, 12,18,20,21